IRPA 16 HPS

International Radiation Protection Association
Health Physics Society

16th International Congress • 69th Annual HPS Meeting

7-12 July 2024 • Rosen Shingle Creek • Orlando, FL, USA

"Radiation Harmonization: Standing United for Protection"

Conference Program

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16th International Congress • 69th Annual HPS Meeting

International Radiation Protection Association Health Physics Society

7-12 July 2024 • Rosen Shingle Creek • Orlando, FL, USA

Registration Hours

Rosen Shingle Creek, Gatlin 1 Registration

Saturday, 6 July
3:00 PM – 4:30 PM

Sunday, 7 July
9:30 AM – 5:30 PM

Monday, 8 July
8:30 AM – 3:00 PM

Tuesday, 9 July
8:30 AM – 3:00 PM

Wednesday, 10 July
8:30 AM – 2:00 PM

Thursday, 11 July
8:30 AM – 2:00 PM

Friday, 12 July
8:45 AM – 10:45 AM

Exhibit Hall Hours

Rosen Shingle Creek, Gatlin C/D

Sunday, 7 July
5:00 PM – 7:00 PM

Monday, 8 July
9:30 AM – 5:00 PM

Tuesday, 9 July
9:30 AM – 5:00 PM

Wednesday, 10 July
9:30 AM – 4:00 PM

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The HPS program committee has applied to CAMPEP for MPCEC credits for appropriate sessions.

Please contact Sandy Konerth
natmatkon@gmail.com
for more information.

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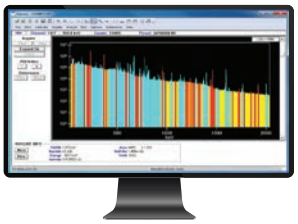

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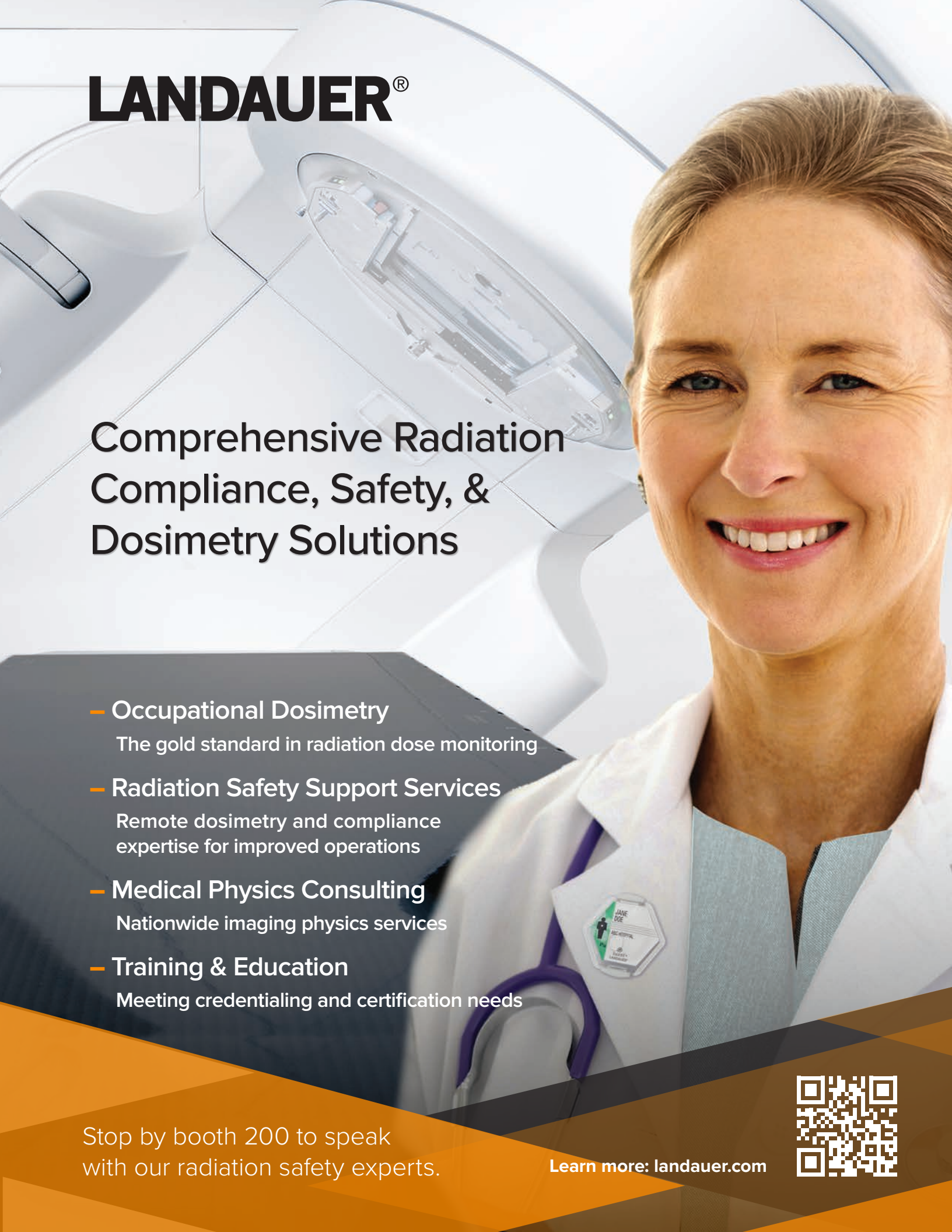
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SCHEDULE AT-A-GLANCE

All events at the Rosen Shingle Creek unless otherwise noted.

Saturday, 6 July

AAHP Courses

AAHP 1 Essential Radiological Emergency Response Training for First Responders Made Simple: The Department of Energy's MERRTT Train-the-Trainer Program
8:00 AM – 5:00 PM — St. Johns 22

AAHP 2 The Scientific, Clinical, and Regulatory Basis of Theranostics
8:00 AM – 12:00 PM — St. Johns 23

AAHP 3 Responding to Radiological Emergencies: Considerations for the Health Physicist
12:30 PM – 2:30 PM — St. Johns 23

AAHP 4 Radiological Protection Standards: What is the Process to Final Publication and How to Become Actively Involved
3:00 PM – 5:00 PM — St. Johns 23

AAHP 5 Ethical Decision-Making Tools for Enhancing Radiation Safety Culture: Should ethics be compulsory refresher training for practicing professionals?
8:00 AM – 10:00 AM — St. Johns 24

AAHP 6 Wound Counting for Detection, Localization, and Quantification of Radioactive Contamination
10:30 AM – 12:30 PM — St. Johns 24

AAHP 7 Y-90 Boot Camp
1:00 PM – 5:00 PM — St. Johns 24

Student Orientation
5:30 PM – 6:30 PM — St. Johns 25

KEY

MA1 = Underpinning Sciences
MA2 = The Systems of Protection for Ionizing and Non-ionizing Radiation
MA3 = Communication, Stakeholder Involvement, Education and Training
MA4 = Dosimetry and Measurements
MA5 = Radiation Protection in Healthcare
MA6 = Radiation Protection in Nuclear Power and Fuel Cycle Industries
MA7 = Radiation Protection in Practices
MA8 = Radiation Protection in NIR Applications
MA9 = Nuclear and Radiological Emergencies
MA10 = Radioactive Waste Management in Nuclear, Medical and Industrial Facilities
MA11 = Radon and Naturally Occurring Radiation

Sunday, 7 July

PEP 1-A thru 1-F 8:00 AM – 10:00 AM
PEP 2-A thru 2-F 10:30 AM – 12:30 PM
PEP 3-A thru 3-F 1:00 PM – 3:00 PM
PEP 4-A thru 4-F 3:30 PM – 5:30 PM

Associates Society Forum
10:00 AM – 4:30 PM — Gatlin B

Quiz Bowl
3:00 PM – 5:00 PM — Suwannee 20

Welcome Reception, *Sponsored by M3D*
5:30 PM – 7:00 PM — Gatlin C/D

Monday, 8 July

Opening Ceremony
9:00 AM –11:00 AM — Gatlin B

Sievert Lecture
11:30 AM – 12:30 PM — Gatlin B

Exhibitor Sponsored Lunch
12:30 PM – 2:00 PM — Gatlin C/D

Plenary Panel #1: How to Reduce Radiation Exposure to Fluoroscopy Operators
2:00 PM – 3:30 PM — Gatlin B

Poster Session #1
1:00 PM – 2:00 — Ballroom Foyer

Plenary Panel #2: Current status of the scientific basis for radiation safety, protection recommendations and international standards
4:00 PM – 5:30 PM — Gatlin B

Speed Networking
5:30PM – 6:30 PM — St. Johns 23

Open Mike Night
7:30 PM – 10:30 PM — Gatlin C/D

Tuesday, 9 July

CEL 1 How to Reduce Radiation Exposure to Fluoroscopy Operators
7:45 AM – 8:45 AM — Gatlin A4

Refresher Courses 7:45 AM – 8:45 AM
#1 Gatlin B
Overview of the Current System of Radiological Protection for Ionizing Radiation
#2 Gatlin A1
Overview of recent epidemiological findings in the field of low doses
#3 Gatlin A2
Present Status and Future Perspective On Radon/Thoron Studies
#4 Gatlin A3
A Beginner's Introduction to Quantities and Units in Radiation, Radioactivity, and Radiation Dosimetry

Presentation Sessions 9:00 AM – 10:30 AM
MA-1 Gatlin A1
Radiation Biology Relevant to Radiation Protection
MA-3 Gatlin A4
Education and Training #1
MA-5 Gatlin B
Radiation Protection in Healthcare: Safety Culture
MA-11 Gatlin A3
NORM - Policy and International Approach

Presentation Sessions 11:00 AM – 12:30 PM
MA-2 Gatlin B
The Systems of Radiation Protection for IR and NIR
MA-4 Gatlin A2
External Exposure Characterization
MA-7 Gatlin A1
Standards, Directives, and Regulations
MA-9 Gatlin A2
Recent Development of Dose Assessment for Emergencies and Future Population Monitoring
MA-10 Gatlin A4
Operational Management of Radioactive Waste and Decommissioning

Exhibitor Sponsored Lunch, *Sponsored by ARPS*
12:30 PM – 2:00 PM — Gatlin C/D

AAHP and ABHP Awards Luncheon
1230 PM – 2:00 PM — Conway

Poster Session #2
1:00 PM – 2:00 — Ballroom Foyer

Presentation Sessions 3:30 PM – 5:00 PM
MA-1 Gatlin A1
Radiation Protection-Related Reports and Summaries
MA-4 Gatlin A2
Numerical and Computational Dosimetry
MA-5 Gatlin B
Radiation Protection in Healthcare: Shielding Assessment and Design
MA-8 Gatlin A3
Non-ionizing Radiation Protection

Gala Dinner
7:00 PM – 9:00 PM — Gatlin B

Sunday PEP Locations

PEP A = St. Johns 22
PEP B = St. Johns 23
PEP C = St. Johns 24
PEP D = St. Johns 25
PEP E = St. Johns 26
PEP F = St. Johns 34

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SCHEDULE AT-A-GLANCE

All events at the Rosen Shingle Creek unless otherwise noted.

Wednesday, 10 July

CEL 2 Achieving Laser Safety in the University Setting
7:45 AM – 8:45 AM — Gatlin A4

CEL 4 Three Mile Island: Past, Present & Future
7:45 AM – 8:45 AM — St Johns 22/23

Refresher Courses 7:45 AM – 8:45 AM
#5 Gatlin B
Review of the ICNIRP System of Protection
#6 Gatlin A1
Radiation Detriment: Concept and Calculation Methodology
#7 Gatlin A2
NORM Management
#8 Gatlin A3
Overview of Medical Management of Radiological/ Nuclear (R/N) Incidents

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Presentation Sessions 9:00 AM – 10:30 AM
MA-1 Gatlin A1
Radiation Epidemiology Studies for Radiation Risk Assessment: Methods and Dosimetry
MA-3 Gatlin A4
Risk Perception and Communication
MA-4 Gatlin A2
Internal Exposure Assessment
MA-5 Gatlin B
Radiation Protection in Healthcare: Imaging and Nuclear Medicine
MA-11 Gatlin A3
NORM – Practical NORM - 1

Presentation Sessions 11:00 AM – 12:30 PM
MA-2 Gatlin B
Optimisation of Protection and Limits: Ethical Considerations of Reasonableness and Tolerability
MA-6 Gatlin A2
Radiation Protection in Nuclear Power Generation
MA-7 Gatlin A1
Industrial, Agricultural, and Veterinary Applications
MA-9 Gatlin A3
Internal Contamination Assessment and Management for Actinides
MA-10 Gatlin A4
Disposal of Radioactive Waste

Poster Session #3
1:00 PM – 2:00 PM — Ballroom Foyer

Plenary Panel Sessions 2:00 PM – 3:00 PM

Presentation Sessions 2:00 PM – 3:30 PM
MA-2 Gatlin B
Challenges and Opportunities
MA-10 Gatlin A4
Legal and Regulatory Aspects of Radioactive Waste Management

IRPA General Assembly *(Voting Delegates Only)*
3:30 PM – 7:00 PM — Gatlin A1

Thursday, 11 July

CEL 3 Radiobiological Studies Using X and Gamma Rays
7:45 AM – 8:45 AM — Gatlin A4

Refresher Courses 7:45 AM – 8:45 AM
#9 Gatlin B
When NIR Causes IR Problems
#10 Gatlin A1
The Basics of Relative Biological Effectiveness and Its Applications in Radiobiology
#11 Gatlin A2
Ethical values in radiological protection and their implementation
#12 Gatlin A3
Internal dosimetry of Uranium Workers. An update.

Presentation Sessions 9:00 AM – 10:30 AM
MA-1 Gatlin A1
Radiation Epidemiology Studies for Radiation Risk Assessment: Findings
MA-3 Gatlin A4
Stakeholder Involvement, Radiation Protection Culture
MA-4 Gatlin A2
Biological Dosimetry and Biomarkers of Exposure
MA-5 Gatlin B
Radiation Protection in Healthcare: Optimization
MA-11 Gatlin A3
NORM – Practical NORM – 2 AND Radon

Presentation Sessions 11:00 AM – 12:30 PM
MA-2 Gatlin B
Radiological Protection of the Environment
MA-6 Gatlin A2
Radiation Protection Challenges in New Nuclear Technologies
MA-9 Gatlin A3
Radiation Emergency Preparedness – International Guidelines and Reports From Different Countries
MA-10 Gatlin A4
Management Of Waste Containing Naturally Occurring Radionuclides and DSRS

HPS Awards Lunch
12:30 PM – 2:00 PM — Gatlin C

Presentation Sessions 2:00 PM – 3:30 PM
MA-11 Gatlin A3
Radon
MA-2 Gatlin B
Fundamental Concepts in Radiological Protection
MA-4 Gatlin A2
Instrumentation, Metrology, and Standards
MA-5 Gatlin A4
Radiation Protection in Healthcare: Radiotherapy Applications
MA-7 Gatlin A1
Safety and Security of Radioactive Sources

ICRP Gold Award Ceremony
4:00 PM – 5:00 PM — Gatlin B

Friday, 12 July

Refresher Course 7:45 AM – 8:45 AM
#13 Panzacola F-1
Biodosimetry and Biomarkers of Individual Sensitivity

Plenary Panel #3: Fostering Education, Training and Competences In Radiological Protection
9:00 AM – 10:30 AM — Panzacola F-1

Plenary Panel Discussion #4: Recurring Medical Exposures of Patients
9:00 AM – 10:30 AM — Panzacola F-3

Presentation Session 9:00 AM – 10:30 AM
MA-4 Panzacola F-4
Environmental Dosimetry, Monitoring, and Modelling

Closing Ceremony
11:00 AM –12:30 PM — Panzacola F-1

Registration Hours

Rosen Shingle Creek • Gatlin C/D

Saturday	3:00 PM – 4:30 PM
Sunday	9:30 AM – 5:30 PM
Monday	8:30 AM – 3:00 PM
Tuesday	8:30 AM – 3:00 PM
Wednesday	8:30 AM – 2:00 PM
Thursday	8:30 AM – 2:00 PM
Friday	8:45 AM – 10:45 AM

Exhibit Hall Hours

Rosen Shingle Creek • Gatlin C/D

Sunday	5:00 PM – 7:00 PM
Monday	9:30 AM – 5:00 PM
Tuesday	9:30 AM – 5:00 PM
Wednesday	9:30 AM – 4:00 PM

NOTE FOR CHPs

The American Academy of Health Physics has approved the following meeting-related activities for continuing education credits for CHPs:

- Meeting attendance is granted 1 CEC per contact hour, excluding meals and business meetings;
- AAHP 8-hour courses are granted 16 CECs each;
- HPS 2-hour PEP courses are granted 4 CECs each;
- HPS 1-hour CELs are granted 2 CECs each.

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ILO International Labour Organization

International Organization for Medical Physics
IOMP

Sociedad Mexicana de Seguridad Radiologica A.C.

IMPORTANT EVENTS

Meet the Membership Committee

Join the Membership Committee at the IRPA Exhibit Hall from Sunday, July 7th through Wednesday, July 10th, where you can receive Health Physics Society (HPS) swag giveaways! Discover our booth for a chance to win fantastic prizes, including a beach basket, fine wine, and an exclusive HPS thermos, in our free raffle.

Explore the benefits of HPS membership and learn why it's essential for professionals to stay connected in the field. Plus, take advantage of our special membership discount promotion available exclusively during the event. Whether you're already a member or considering joining, don't miss out on this opportunity to connect, engage, and win with HPS!

See you at the Exhibit Hall – your gateway to a thriving community and invaluable resources.

Quiz Bowl

Ever wanted to test your radiation protection knowledge against other students? Which school actually has the best health physics program? Group together and quiz your smarts in our annual HPS Quiz Bowl, sponsored by the Student Support Committee. This event is open to all students, international and national. Prizes will be awarded to 1st, 2nd, and 3rd place teams. May the best team win! Join in on the fun Sunday, 7 July, 3:00 PM–5:00 PM, at the Rosen Shingle Creek, St Johns 28/29.

Speed Networking

The popular "Speed Networking" event will be back this year at IRPA 2024. Open to all meeting registrants, this event is a whirlwind mixer designed to connect anyone looking for mentorship in health physics with those who have resources and advice to share! Participants are encouraged to bring LOTS of business cards and can bring resumes or job postings as well. This is a great way for new attendees to find a mentor for the remainder of the conference or start a long-term mentoring relationship. Join in on Monday, 8 July, 5:30 PM – 6:30 PM, at the Rosen Shingle Creek, St Johns 30/31.

Open Mike Night

You and your friends can enjoy limited snacks, free Florida Beer and live music featuring "*The Unstable Isotopes*" with Kevin McDonough on guitars & vocals, Mike Rusnak on bass & vocals, Craig Roy on drums, and special guest & recording artist Dakota Hurley on lead guitar & vocals. The stage is open to anyone who wants to pick a song and sing with the band! Join in on the fun Monday, 8 July, 7:30 PM – 10:30 PM, at the Rosen Shingle Creek in Gatlin B.

Welcome Reception

The Welcome Reception this year will be held on Sunday, 7 July from 5:00 PM – 7:00 PM in Gatlin C/D. Join fellow attendees for a time to socialize and renew old acquaintances. A cash bar will be available with appetizers.

Speaker Ready Room Hours

Location: Gatlin Registration 2

- Sunday: 12:00 PM – 5:00 PM
- Monday: 7:30 AM – 5:00 PM
- Tuesday: 7:30 AM – 5:00 PM
- Wednesday: 7:30 AM – 5:00 PM
- Thursday: 7:30 AM – 5:00 PM
- Friday: 7:30 AM – 9:30 AM (Suwannee 21)

Exhibits

Free Lunch! Free Lunch! – 12:30 PM-2:00 PM, Monday, 8 July and Tuesday, 9 July. All registered attendees are invited to attend a complimentary lunch in Gatlin C/D. *The free lunches are not included in the registration fee, but were paid for by our sponsors & exhibitors.*

Breaks Monday–Wednesday – Coffee Breaks in the morning and afternoon will be available in the exhibit hall. Be sure to stop by and visit with the exhibitors!

Sessions and Course Locations

Sunday PEPs are in the Rosen Shingle Creek; PEPs, CELs, and all sessions Monday through Friday will take place at the Rosen Shingle Creek.

AAHP and ABHP Awards Luncheon

Join us Tuesday, 9 July, for the AAHP and ABHP Awards Luncheon in Conway at the Rosen Shingle Creek from 12:30 PM – 2:00 PM.

HPS Awards Lunch

Join us Thursday, 11 July, for the HPS Awards Program. We look forward to seeing you by 12:00 PM for the presentation in Gatlin C at the Rosen Shingle Creek. There will be a buffet lunch provided that begins at 12:30 PM.

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AUSTRALIA'S NORTHERN TERRITORY BUSINESS EVENTS

16th International Congress • 69th Annual HPS Meeting

International Radiation Protection Association Health Physics Society

7-12 July 2024 • Rosen Shingle Creek • Orlando, FL, USA

Welcome

The Florida Chapter of the Health Physics Society welcomes you to Orlando, Florida for the 69th Annual Meeting of the HPS! The city where dreams come true and adventures never end. Known as "The City Beautiful", Orlando is a vibrant destination filled with world-class theme parks, stunning natural beauty, and a lively cultural scene. The meeting venue is located near the enchanting magic of Walt Disney World, Universal Orlando Resort, and SeaWorld Orlando. Enjoy the outstanding shopping and dining options or explore our incredible Gulf and Atlantic Coast beaches – each only about an hour's drive. The Kennedy Space Center is another great place to visit. Make the most of your time in our vibrant and exciting city – check out the link www.visitorlando.com to plan your visit.

PEP/CEL Ready Room

The PEP/CEL Ready Room will be combined with the Speaker Ready Room in Gatlin 2 Registration in the Rosen Shingle Creek, Sunday-Thursday.

Speaker Information

Technical Sessions Speaker Instructions

You are allotted a total of 12 minutes of speaking time unless you have been notified otherwise.

The Speaker Ready Room will be open Sunday from 12:00 PM – 5:00 PM and Monday through Thursday from 7:30 AM – 5:00 PM in Gatlin 2 Registration. On Friday, the Speaker Ready Room will be open from 7:30 AM – 9:30 AM in Suwannee 21. You must check in at the Speaker Ready Room (even if you have already submitted your presentation) no later than the following times:

Location:
Gatlin 2 Registration (Sunday-Thursday)
Suwannee 21 (Friday)

Presentation Time	Check-In Deadline
Tuesday AM-PM	5:00 PM Monday
Wednesday AM-PM	5:00 PM Tuesday
Thursday AM-PM	5:00 PM Wednesday
Friday AM	5:00 PM Thursday

Please report to your session room 10 minutes prior to the session start to let your session chair(s) know that you are there.

Posters in the Ballroom Foyer must be put up for display between 10:00 AM and 12:00 PM on Monday and removed on Wednesday by 2:30 PM.

Childcare

Monday – Thursday, 8:00 AM – 5:00 PM
Friday, 8:00 AM – 12:30 PM
Hospitality Suite #1703
HPS will provide complimentary childcare this year at HPS/IRPA 2024. Pre-registration was required, but you may also sign up onsite if there is space available.

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COMPANION PROGRAM

Information for Registered Companions

Companion Registration cost includes the Welcome Reception, Monday–Thursday breakfast buffet at the Rosen Shingle Creek, and lunch and coffee breaks in the Exhibition Hall. There will not be a separate Hospitality Room, however the Local Arrangements Committee staff will be happy to answer your questions or assist in finding the answer.

Sunday, 7 July

Welcome Reception
5:00 PM – 7:00 PM, Rosen Shingle Creek, Gatlin C/D

Come see old friends and make new ones! Join colleagues and meet vendors in the exhibit hall.

Monday, 8

Welcome to Orlando – Companion Orientation
9:00 AM - 10:00 AM, Hospitality Suite #1702

This meeting is for anyone registered as a companion. Come hear about things to do in Orlando. Presentation will be given by a representative of the Orlando Convention and Visitors Bureau.

Monday, 8 - Thursday, 11 July

Companion Breakfast
7:00 AM - 10:00 AM, Rosen Shingle Creek

Companion Registration includes 4 vouchers for Breakfast Monday – Thursday in the hotel restaurant.

Registered companions are welcome to come to the lunches, reception, and coffee breaks in Gatlin C/D.

SAVE THE DATE

HPS 70th Annual Meeting
13-17 July 2025
Monona Terrace Convention Center • Madison, WI

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COMMITTEE/BUSINESS MEETINGS

Meetings take place at the Rosen Shingle Creek unless otherwise noted.

Saturday, 6 July 2024

Finance Commmittee Meeting
8:00 AM – 12:00 PM — St. Johns 30

NRRPT Meeting
8:00 AM – 4:00 PM — Board Room

ABHP Part II Panel
8:00 AM – 5:00 PM — Wekiwa 2

IRPA EC Meeting
9:00 AM – 5:00 PM — St. Johns 26

World Health Organization Meeting
9:00 AM – 5:00 PM — St. Johns 27

HPS Executive Committee Meeting
12:00 PM – 4:00 PM — St. Johns 30

Student Orientation
5:30 PM – 6:30 PM — St. Johns 25

Sunday, 7 July 2024

NRRPT Meeting
8:00 AM – 4:00 PM — Board Room

HPS Board of Directors
8:00 AM – 5:00 PM — Suwannee 20/21

ABHP Part II Panel
8:00 AM – 5:00 PM — Wekiwa 2

AAHP Board Meeting
8:00 AM – 5:00 PM — Wekiwa 1

AAHP Executive Committee
8:00 AM – 5:00 PM — Hospitality Suite #1701

World Health Organization Meeting
9:00 AM – 5:00 PM — St. Johns 27

Associates Society Forum
10:00 AM – 4:30 PM — Gatlin B

Student Icebreaker
2:00 PM – 3:00 PM — St Johns 28/29

Quiz Bowl
3:00 PM – 5:00 PM — St Johns 28/29

Welcome Reception
5:00 PM – 7:00 PM — Gatlin C/D

Monday, 8 July 2024

Elda Anderson Breakfast
7:30 AM – 8:45 AM — Hospitality Suite #1701

NRRPT Board Meeting
8:00 AM – 4:00 PM — Board Room

Opening Ceremony
9:00 AM – 11:00 AM — Gatlin B

Sievert Lecture
11:30 AM – 12:30 PM — Gatlin B

Asian and Oceanic Association for RP Meeting
1:00 PM – 2:00 PM — St Johns 27

Title Protection Committee Meeting
3:00 PM – 4:00 PM — St. Johns 26

Speed Networking
5:30PM – 6:30 PM — St Johns 30/31

Mentorship Committee Meeting
6:30 PM – 7:30 PM — St Johns 30/31

Open Mike Night
7:30 PM – 10:30 PM — Gatlin B

Tuesday, 9 July 2024

NRRPT Board Meeting
8:00 AM – 4:00 PM — Board Room

Membership Committee
9:00 AM – 11:00 AM — St. Johns 27

Challenging Health Physics Questions
11:00 AM – 12:30 PM — Hospitality Suite #1400

INSC Training and Tutoring on Nuclear Safety Meeting
11:00 AM – 1:00 PM — St. Johns 29

Academic Education Committee Meeting
1:00 PM – 2:00 PM — St. Johns 27

HP Program Directors Meeting
2:00 PM – 3:00 PM — St. Johns 27

UNSCEAR Global Surveys Session
2:00 PM – 3:00 PM — St Johns 30/31

AAHP-ABHP Business Meeting
4:10 PM – 5:00 PM — St Johns 22/23

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COMMITTEE/BUSINESS MEETINGS

(continued)

HPS Business Meeting *(HPS Members Only)*
5:30 PM – 6:30 PM — Gatlin A

CSU Reception
5:30 PM – 7:30 PM — St. Johns 28

Purdue Reception
5:30 PM – 7:30 PM — Hospitality Suite #1602

Health Physics Journal Editorial Board Reception
6:00 PM – 8:00 PM — Hospitality Suite #1701

Gala Dinner
7:00 PM – 9:00 PM — Gatlin B

Wednesday, 10 July 2024

Decommissioning Section Business Meeting
11:00 AM – 11:30 AM — St. Johns 22/23

Challenging Health Physics Questions
11:00 AM – 12:30 PM — Hospitality Suite #1400

HPSSC Committee Meeting
12:30 PM – 2:30 PM — St. Johns 27

Medical Health Physics Section Business Meeting
3:00 PM – 3:30 PM — Gatlin A3

IRPA General Assembly *(Voting Delegates Only)*
3:30 PM – 7:00 PM — Gatlin A1

Student Support Committee
5:00 PM – 6:00 PM — Hospitality Suite #1702

Thursday, 11 July 2024

Challenging Health Physics Questions
11:00 AM – 12:30 PM — Hospitality Suite #1400

HPS AIRRS Section EC Meeting
3:45 PM – 4:45 PM — Hospitality Suite #1601

ICRP Gold Award Ceremony
4:00 PM – 5:00 PM — Gatlin B

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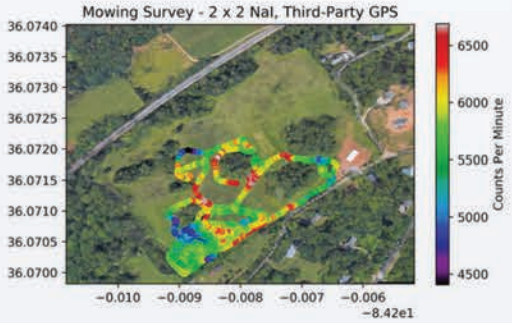

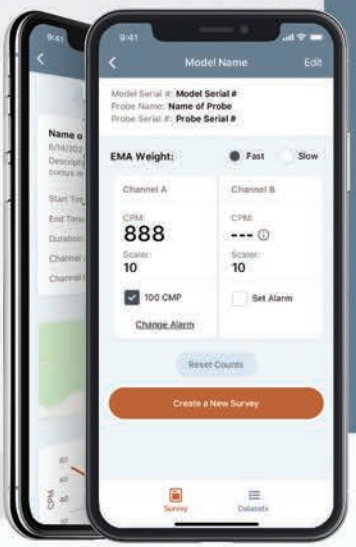

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HPS AWARDS LUNCHEON

Thursday, 11 July • Rosen Shingle Creek, Gatlin C • 12:30 PM – 2:00 PM

Awards
Introduction by Elizabeth Brackett, President
Presented by John Cardarelli, II, Awards Committee Chair

Recognition of 50 Year Members

Recognition of Student Fellowship & Scholarship Recipients

Recognition of Student Travel Grant Recipients

Announcement of Health Physics-Related Awards

Fellow of the Health Physics Society Awards and Certificate Presentations

Honor Roll

Distinguished Public Service Award

Distinguished Scientific Award

Elda E. Anderson Award

Adjournment

2024 HPS 50 Year Members

B. Scott Davidson
Larry A. DeWerd
Norris D. Johnson
Robert P. Miltenberger
Ronald L. Nimitz
Richard H. Olsher
Mark T. Reinhart
John F. Schmitt
Daniel J. Strom
Michael C. Williams

Student Fellowships
We appreciate the sponsors and recognize the merits of the students in the following fellowships that provide important financial support to students in our health physics teaching programs:

Burton J Moyer Fellowship
Maelle Coupannec, Colorado State

Health Physics Society Fellowships
Christian Grabowski, Colorado State
Zavier Ndum, Texas A&M University

Robert Gardner Memorial Fellowship
Thomas Grier, Purdue University

Robert S. Landauer, Sr., Memorial Fellowship
Reid Williams, Clemson University

Richard J. Burk, Jr., Fellowship
Joeun Lee, Purdue University

J. Newell Stannard Memorial Fellowship
Patrick Connolly, Georgia Institute of Technology

Dade W. Moeller Scholarship
Melissa Bailey, Oregon State University
David Gonzalez, Georgia Institute of Technology

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HPS AWARDS LUNCHEON

Student Travel Grant Recipients

These grants enable health physics students to attend and participate in our annual meeting. Additional support was received from the Sections: Medical Health Physics, AIRRS, Decommissioning, and Homeland Security and Emergency Response.

Kolawole Adesina
Health Physics Department, School of Health Sciences, Purdue Uni

Carson Allen
Clemson University

Aidan Barker
Decommissioning Section
Clemson University

Hythem Beydoun
University of Michigan Ann Arbor

Noah Blair
Colorado State University

Caleb Bush
University of Michigan, Ann Arbor

Brian Church
Oregon State University

Callissa Clarkson
Decommissioning Section
University of Michigan

Soren Clawson
Colorado State University

Joshua Collins
University of Alabama at Birmingham

Abhishek Dahad
University Of Michigan

Christopher Davis
University of Michigan

Robert Dawson
University of Florida

Yehansa I Dissanayake
AIRRS
University of Michigan

Meredith Doan
Decommissioning Section
University of Michigan

Daniel Eckerberg
Kansas State University

Jackson Eggerd
University of Michigan, Ann Arbor

Mohammad Omar Faruque Fahim
University of Michigan

Zuha Fatima
University of Alabama at Birmingham

Christian Foster
Decommissioning Section
University of Alabama at Birmingham

John Frandina
Purdue University

Annabelle Hoffert
Purdue University

Clay Hudson
University Of Michigan

Kabir Khwaja
University of Michigan

Jessie Lanzer
Purdue Univeristy

Alaina Little
University of Alabama at Birmingham

Alejandro Martinez
Georgia Institute of Technology

Emmanuel Mate-Kole
Homeland Security and Emergency Response Section
Georgia Institute of Technology

Rachel Mecca
University of Michigan Ann Arbor

Estefania Munoz Barron
University of Michigan Ann Arbor

Liam O'Driscoll
Decommissioning Section
University of Michigan

Olalekan Olatunji
Keele University, United Kingdom

Thomas Onumah
University of Ghana

James Owusu
School of Nuclear and Allied Sciences, University of Ghana

Gabrielle Pedigo
Purdue University

Abu Sayed Mohammed Sayam
Purdue University

Mohammad Asif Sherwani
School of Health Professional
University of Alabama at Birmingham

Nauman Siddiqui
University of Michigan

Bethany Tennyson
Purdue University

Jianyu Tu
University of Michigan

Bryanna Wattier
AIRRS
Clemson University

Paige Witter
Colorado State University

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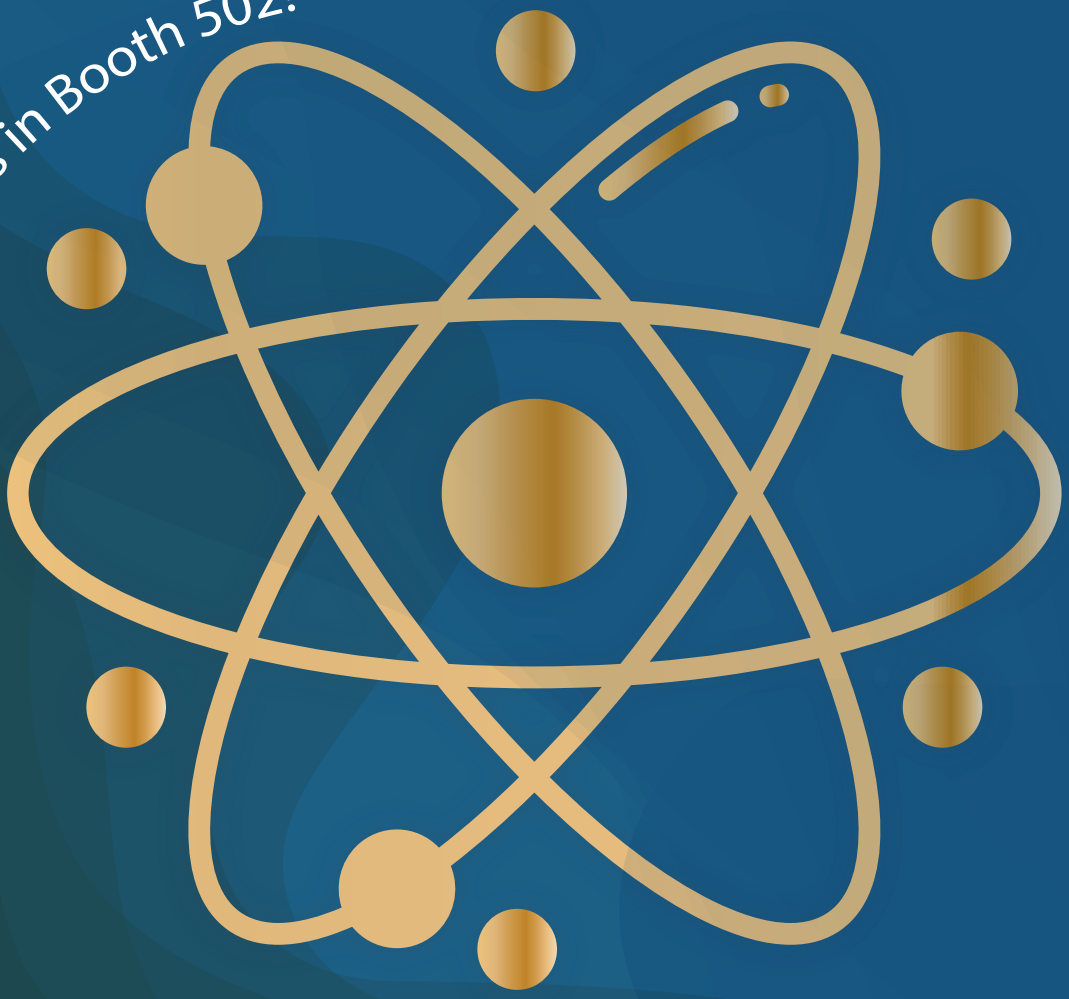

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HPS AWARDS LUNCHEON

Related Awards

American Academy of Health Physics

William A. McAdams Outstanding Service Award
Presented annually to individuals who have made long-term and significant contributions to the certification process and have elevated professionalism in health physics.

Kyle Kleinhans, CHP

Joyce P. Davis Memorial Award
Presented in recognition of exemplary service as a role model in upholding the ethical and professional standards of the Academy.

Dr. Robert Emery, CHP

Nancy K. Johnson National Service Award
Presented to individuals who have provided exceptional service to the Academy during the immediate Past President's term of office.

Brant Ulsh, CHP

Bill Fitzgerald Award
This award may be made annually by the ABHP to honor an Active or Emeritus Certified Health Physicist who has provided exceptional service to the ABHP during the immediate previous Chair's term of office.

Andrea Geyer, CHP

AAHP Distinguished Membership 2024
The Distinguished Member Award is given as a recognition of outstanding contributions to the AAHP/ABHP and the health physics profession for a period of at least 20 years while maintaining the integrity and ethical standards of our profession as a certified health physicist.

Charles A. Potter
Govind Rao
Edgar D. Bailey
Rich Vetter
David S. Myers
Herman Cember
Otto Raabe
Dade W. Moeller
Bryce Rich
Elda Anderson
James E Turner
Lauriston Taylor
Wade Patterson
William McAdams
KZ Morgan

Academic, Industrial, and Research Radiation Safety (AIRRS) Section Award

Outstanding Radiation Safety Program
The winning organization receives a Plaque and the representative from the organization receives a complimentary registration at the annual meeting.

University of Utah Radiation Safety Office

Military Health Physics Section Awards

John C. Taschner Leadership Award
Established in 2014 the John C. Taschner Leadership Award recognizes a uniformed officer or senior enlisted person who has distinguished himself or herself in service to our country over a long career as a uniformed military health physicist and is presented at the annual meeting.The winner receives a plaque.

Captain Thad Sharp, US Navy

Superior Civilian Service Award
Established in 2014, the Superior Civilian Service Award recognizes a person who has distinguished himself or herself in service to our Country over a long career as a civilian military health physicist and is presented at the Annual Meeting. The winner receives a plaque.

Colonel Richard Whitman, US Army (Retired)

Young Military Health Physicist of the Year Award
Established in 2014, the Young Military Health Physicist of the Year Award recognizes a young military health physicist for excellence in (1) research or development, (2) discovery or invention, (3) devotion to military health physics, and/or (4) significant contributions to the profession of military health physics and is presented at the annual meeting. The winner receives a plaque and a one-year membership in the Health Physics Society.

Capt. Jian Zhang USAF, BSC

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Published HPS/ANSI Standards

ANSI/HPS N13.32-2018 (R2024) – *Performance Testing of Extremity Dosimeters, Eric Darois – WG Chair*

ANSI/HPS N13.44-2014 (R2024) – *Thyroid Phantom Used in Occupational Monitoring, Mike Mallett – WG Chair*

ANSI/HPS N13.45-2024 – *Incineration of Low-Level Radioactive Waste, Rod Reed – WG Chair*

Michael T. Ryan Outstanding Paper of 2023 Award

The Editorial Board of the Health Physics Journal has selected the paper "Potential Airborne Releases and Deposition of Radionuclides from the Santa Susana Field Laboratory during the Woolsey Fire" as the 2023 winner of the Michael T. Ryan Outstanding Paper of the Year Award. Authored by Arthur S. Rood, H. Justin Mohler, Helen A. Grogan, Colby Mangini, Emily A. Caffrey, and John E. Till, this paper was selected from among all those published in Health Physics in 2023. The papers were judged on scientific merit, accuracy, balance, innovation, and impact.

The Michael T. Ryan Outstanding Paper of the Year Award is named in honor of the late Michael T. Ryan, who served as editor in chief of the Health Physics Journal from 1999 to 2017.

"Potential Airborne Releases and Deposition of Radionuclides From the Santa Susana Field Laboratory During the Woolsey Fire" is available to Health Physics Society members on the Health Physics website.

Arthur S. Rood, H. Justin Mohler, Helen A. Grogan, Colby Mangini, Emily A. Caffrey, and John E. Till

Fellows

To honor senior members of the Society who have made significant administrative, educational, or scientific contributions to the profession of health physics.

2024 Fellows

J. Matthew Barnett
Jason Harris
Derek W. Jokisch
William Irwin
Carolyn MacKenzie
Matthew C. McFee
Steven E. Rademacher
Rodican P. Reed
Sergey Tolmachev
Richard T. Whitman

Honor Roll Award

This award is given posthumously to honor Society members who significantly contributed to the profession of health physics during their careers but were not otherwise honored by the Society during their lifetimes. Such contributions may include, but are not limited to, education, research and administration.

Fred Haywood

Distinguished Public Service Award

To recognize outstanding contributions, or service to the community, that contributes to a positive relationship between the public and the health physics profession.

K.L. "Ken"Groves
Award consists of a plaque

Distinguished Scientific Achievement Award

This award is designed to acknowledge outstanding contributions to the science and technology of radiation safety. The recipient of the award is recognized for accomplishments of fundamental importance to the practice, acceptance, and advancement of the profession of health physics. It is awarded in memory of those scientists who contributed in an outstanding way to the development of scientific knowledge for the protection of man and his environment.

Darrell Fisher
Award consists of a plaque and life membership.

Elda E. Anderson Award

This award is presented to a young member of the Health Physics Society to recognize excellence in:

1. Research or development
2. Discovery or invention
3. Devotion to health physics, and
4. Significant contributions to the profession of health physics

John Klumpp
Award consists of a certificate and a $1,000 check

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IRPA 16 HPS

HPS Membership Committee

Free Raffle

- Drop off your raffle ticket for some swag and great prizes
  - Beach Basket
  - HPS White Wine
  - HPS Red Wine
  - HPS Thermos

Raffle Drawing

- Tuesday, July 10th
- Winners announced at 12:30pm in the Exhibit Hall

IRPA16 YOUNG CAREER PROFESSIONALS AWARD

Soumayah Bachirou, Cameroon

Title of presentation and session: MA11, Session 4

Radon-risk mapping and exposure in the radon-prone area of the Adamawa region, Cameroon

Daniel Cardenas, Canada

Title of presentation and session: MA2, Session 5

Cradle to Grave: Decommissioning of Gamma Cell Irradiators in a Large Academic Institution

Riya Dey, India

Title of presentation and session: MA4, Session 5

Particle Deposition in Human Upper Airways and Trachea

Sara Dumit, USA

Title of presentation and session: MA9, Session 2

Modeling Plutonium Decorporation in Female Nuclear Worker Treated with Ca-DTPA

Gabriel Dupont, France

Title of presentation and session: MA4, Session 1

Calibration of radiation survey meters and dosimetrs without radioactive sources

Tatsuki Kimura, Japan

Title of presentation and session: MA2, Session 2

Characteristics of Occupational Exposure Limits for Carcinogenic Chemical Risk and Annual Risk Calculation as Possible Reference Risks for Radiation

Hua Li, China

Title of presentation and session: MA5, Session 5

Development and Application of a Novel Scintillation Gel-based 3D Dosimetry System for Radiotherapy

Francesca Luoni, Italy

Title of presentation and session: MA7, Session 2

Radiation Shielding during Deep-Space Missions: Dose Measurements, Monte Carlo Simulations, and Nuclear Cross-Sections

Amy MacIntosh, Australia

Title of presentation and session: MA10, Session 4

To leave or not to leave: a tiered assessment of the impacts of scale residue from decommissioned offshore oil and gas infrastructure in Australia

Victor Merza, Austria

Title of presentation and session: MA4, Session 4

Further Development of a Compact Nanodosimeter and Potential Future Applications,

Benjamin Raharison, Madagaskar

Title of presentation and session: MA7, Session 4

Determinations of lead equivalent thicknesses of some construction materials, as an alternative to the use of lead sheets

Joanna Sillars, UK

Title of presentation and session: MA5, Session 3

Rehearsing contingency plans in a busy Nuclear Medicine Department

Mohammed Sani Umar, Nigeria

Title of presentation and session: MA5, Session 4

Acceptable quality dose based on size specific dose estimates for pediatric CT examinations in Nigeria

Julius Vogt, Germany

Title of presentation and session: MA9, Session 1

Dose and risk reduction for resilience enhancement when handling pharmaceutical radionuclides in production and application

Florida Department of Health
Bureau of Radiation Control

Mobile Emergency Radiological Laboratory

Emergency Response Equipment Showcase

The Florida Department of Health, Bureau of Radiation Control will be exhibiting radiological emergency response equipment and vehicles used during:

- nuclear power plant response;
- event security surveillance;
- radiological event response;
- radiological mapping;
- environmental sampling and
- radiological isotope identification

Tuesday July 9, 2024
10:00 AM – 4:00 PM
Conway Courtyard

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Gatlin C/D

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Exhibit Hall Hours

Sunday, July 7
5:00 PM – 7:00 PM

Monday, July 8
9:30 AM – 5:00 PM

Tuesday, July 9
9:30 AM – 5:00 PM

Wednesday, July 10
9:30 AM – 4:00 PM

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Tuesday, July 9
1:00 PM – 4:00 PM

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Tuesday Afternoon Coffee
Sponsored by NSSI

Wednesday Morning Coffee
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Lunches

Monday and Tuesday, 12:30 PM

Tuesday Sponsored by ARPS

All registered attendees are invited to attend a complimentary lunch in Gatlin C/D.

Welcome Reception

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Sunday, 5:00 PM – 7:00 PM

Join fellow attendees in the Gatlin C/D for a time to socialize and renew old acquaintances.

IRPA 16

HPS

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AAHP (The American Academy of Health Physics) — Booth: 115

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The AAHP advances the profession of Health Physics and encourages the highest standards of ethics and integrity in its members. The AAHP offers membership to all individuals who have been certified by the American Board of Health Physics (ABHP), known as Certified Health Physicists (CHPs).

American Nuclear Society (ANS) /Nuclear News — Booth: 602

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ANSTO – Australian Nuclear Science and Technology Organisation — Booth: 5

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Australasian Radiation Protection Society (ARPS) — Booth: 13

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Bertin Technologies — Booth: 510

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Bertin Instruments, a leader in nuclear and health physics technology, delivers cutting-edge detection systems for global use. Our product range includes dosimeters, survey meters, contamination detectors, radon monitors, and environmental radiation systems, complemented by specialized services. We customize solutions for accurate measurement of ionizing radiation and gases, serving clients worldwide with a focus on product lifecycle excellence.

Best Dosimetry Services — Booth: 314

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www.teambest.com

Best Dosimetry Services (BDS) provides personnel radiation dosimetry services for measuring and tracking the radiation dose received by workers occupationally exposed to ionizing radiation. We serve a variety of customers including hospitals, dental practices, veterinary practices, educational institutions, non-destructive testing companies, and numerous other organizations that utilize radioactive materials or devices that produce radiation.

BDS is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP Lab Code: 200998-0). NVLAP is operated by the National Institute of Standards and Technology (NIST) and accredits dosimetry processors for their particular dosimeters and processing equipment. BDS's accreditation includes whole body and extremity ring dosimeters that utilize thermoluminescent dosimeters (TLD) for measuring doses of radiation from gamma, x-ray, beta and neutron radiation. For each monitored employee, the BDS Dose Report shows the dose for the most recent wear period as well as the cumulative year-to-date and lifetime dose.

Bionomics Inc. — Booth: 503

GOLD SPONSOR

PO Box 817
Kingston, TN 37763
865-220-8501
www.bionomics-inc.com

Bionomics Inc. is the leading service provider to generators of low level radioactive waste and mixed waste. With 30+ years in business, we have the proven experience and knowledge to reduce client risks. We disposition common and specialty waste streams, with scheduled pickups to meet the needs of our clients. We use our own trained and qualified brokers and technicians to provide specialty supplies, make pickups, track waste, and arrange for final processing and disposal at only the top-tier facilities. We provide disposal certificates for all shipments. We also perform specialty projects, such as decontamination, decommissioning, lab cleanouts, surveys, and disposal of legacy wastes.

Bladewerx, LLC — Booth: 304

4529 Arrowhead Ridge Dr. S.E.
Rio Rancho, NM 87124
505-892-5144
bladewerx.com

Bladewerx and its subsidiary Shieldwerx provide instrumentation, custom software, neutron and gamma shielding, and neutron activation foils to the radiation protection and measurement industry.

Brazilian Radiological Protection Society (SBPR) — Booth: 710

General Severiano Street, 90, Botafogo
Rio de Janeiro, 22290-040 Brazil
(5521) 98211-8888
sbpr.org.br

The Brazilian Radiological Protection Society (SBPR) is a non-profit technical-scientific entity affiliated with the International Radiation Protection Association and the Federación de Radioprotección de América Latina y el Caribe, founded on 09/12/1986. It promotes education and the dissemination of radioprotection criteria. It publishes the scientific journal *Brazilian Journal of Radiation Sciences.*

C&C Irradiator Service, LLC — Booth: 308

Silver Sponsor

1717 Pennsylvania Ave. NW Ste 1025
Washington, DC 20006
570-912-2389
www.ccirradiator.com

C&C Irradiator Service, LLC is a service provider for self-shielded gamma and x-ray irradiators. Please visit our website for more information regarding our services and our new Dosequate dosimetry system!

Chase Environmental Group Inc. — Booth: 405

200 Sam Rayburn Parkway
Lenoir City, TN 37771
865-816-6015
www.chaseenv.com

Chase Environmental Group, Inc. specializes in LLRW, Sealed Sources, NORM, and Mixed Waste nationwide. We maintain a simplified highly skilled organization with the ability to meet your most difficult radioactive challenges. Chase's personnel are fully trained and possess the appropriate credentials to help you accomplish your project goals and objectives. With our expertise and extensive processing and disposal partners, Chase has the capabilities to pursue cost-effective waste processing and disposal solutions even for the most difficult to treat waste streams. Our unwavering commitment to our customers has earned Chase a place as an industry leader in managing and disposing of radioactive waste.

China Society of Radiation Protection — Booth: 413

GOLD SPONSOR

102 Xuefu Street
Taiyuan, ShanXi 30006 China
8613453455868
www.csrp.org.cn

As one of the largest IRPA associate societies, China Society of Radiation Protection is dedicated to promoting excellence in radiation protection through education, collaboration, and innovation. With our extensive network of institutional members and professional branches, CSRP provides a robust platform for professional development and advancement in the field through hosting conferences, forums and science popularization activities.

CHP Consultants — Booth: 515

305 Cumberland View Rd.
Clinton, TN 37716
888-766-4833
www.chpconsultants.com

CHP Consultants provides half price radiological instruments and creative solutions. We are introducing the Counts.Pro™ device to revolutionize the collection of survey and laboratory data. Counts.Pro™ turns count rate meters into mobile laboratories that instantly update to secure cloud storage. CHP Dosimetry provides NVLAP-accredited TLD badge service with great service.

Codeac Solutions — Booth: 614

980 N Michigan, Suite 1750
Chicago, IL 60611
217-656-5997
www.codeacsolutions.com

Codeac Solutions specializes in the chemical detection and identification of nuclear materials and contamination in an accurate, simple, and scalable way. Products include wipes, water, and soil tests that provide rapid onsite colorimetric tests for Uranium, Plutonium, Americium, Cobalt, and primary transition metals.

Conference of Radiation Control Program Directors — Booth: 113

201 Brighton Park Boulevard
Frankfort, KY 40601
502-227-4543
www.crcpd.org

The Conference of Radiation Control Program Directors (CRCPD) is a nonprofit, non-governmental professional organization that promotes consistency in addressing and resolving radiation protection issues, encourages high standards of quality in radiation protection programs, and provides leadership in radiation safety and education.

DOSEXPERT — Booth: 511

15 Place Michelet
Tours 37000 France
33 6 86 42 87 22
www.dosimetrie-expert.com

Since 2015, DOSEXPERT provides expertise, trainings and audits in the fields of dosimetry, radon, quality & metrology (ISO 17025, ISO 17020, ISO 19443) and radiation protection. With a versatile and experimented team, we support tech industries, clinical, defense, laboratories, nuclear facilities and food industries around the world. Hablamos español, nous parlons français, english spoken. Visit booth 511 to learn more.

Eckert & Ziegler — Booth: 500

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1380 Seaboard Industrial Blvd NW
Atlanta, GA 30318
404-352-8677
www.ezag.com

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As an ISO17043:2010 accredited Proficiency Testing Provider, Isotrak also offers a variety of radiochemical, environmental, health physics and decommissioning proficiency test samples.

The Isotrak product line is continually expanding to meet industry needs including a growing list of matrices used in fit-for purpose reference materials covering decommissioning, NORM, emergency response and other applications. We welcome the opportunity to collaborate on your current project.

Environmental Restoration Group, Inc. (ERG) — Booth: 106

8809 Washington St. NE, Suite 150
Albuquerque, NM 87113
505-298-4224
ergoffice.com

ERG provides professional health physics consulting services, specialty radiological scan systems, general radiological instrument rentals, and custom software development solutions. The desire to provide excellent customer service and support is a key component of our identity.

F&J Specialty Products — Booth: 211

404 Cypress Rd.
Ocala, FL 34472
352-680-1177
www.fjspecialty.com

F&J SPECIALTY PRODUCTS, INC., is an ISO9001 Certified manufacturer of traditional analog and advanced-technology air sampling and airflow calibration instruments for REMP, effluent, inhalable pollutant personnel protection applications. Instruments and consumables are available for particulate, radioiodine, tritium, C-14 and radon air sampling activities are available.

Foss Therapy Services, Inc. Booth: 111

5938 Satsuma Avenue
North Hollywood, CA 91601
626-818-3880
www.fosstherapyservices.net

Foss Therapy Services has designed, manufactured and maintained radiation systems worldwide since 1991. We manufacture proprietary self-contained and beam irradiators as well as providing source reloads/disposals for all devices. FTS can design a custom system to meet your specific needs and also provide service for your current device.

FUJI Electric- SME Associates Booth: 505

1180 8th Ave W Suite 135
Palmetto, FL 34221
941-845-4844
www.smeassoc.com

Fuji Electric in conjunction with SME Associates provide Radiation Instrumentation to US and America's markets. SME Associates is Fuji's representatives for technical sales, and support for specialize Neutron Tissue Equivalent Survey meters and Electronic Dosimetry.

G/O Corp Booth: 215

70161 Highway 59
Abita Springs, LA 70420
800-933-8501
www.gocorp.com

G/O Corporation is a supplier of custom designed products for the nuclear power industry, the Department of Energy Nuclear Weapon sites, shipyards and various industrial and pharmaceutical accounts.

Our distribution facility is located in Abita Springs, Louisiana (near New Orleans) with easy access to ground, air and oceanic transportation. For over 35 years we have served our customers with custom-made products for the nuclear industry. However, we are not just limited to this industry and have supplied custom garments, containments and D-CON supplies and signage to a variety of industries.

Gamma Products, Inc Booth: 605

7730 W. 114th Place
Palos Hills, IL 60465
708-974-4100
www.gammaproducts.com

Gamma Products, Inc. has been designing and manufacturing scientific instruments for over 55 years. Our product line includes: low background α/ß automatic proportional counting systems, low background α/ß manual proportional counting systems, a gas free automatic α/ß counting system, RA226/8 & gamma automatic sample changers, lead or steel counting and storage shields.

Gamma Reality Inc Booth: 512

1301 S. 46th St. B478-102
Richmond, CA 94804
510-542-9025
www.gammareality.com

Gamma Reality Inc. (GRI) provides real-time, mobile, 3D radiation mapping capabilities deployable in handheld mode, on unmanned robotic platforms (UAV/UGV) and on vehicles, to enable safer, more efficient, and dynamic radiation detection missions. Our core capabilities include multi-sensor data fusion and data analysis, 3D radiation mapping with situational awareness sensors, and integration of multi-sensor 3D radiation mapping systems with robotic platforms. GRI provides gamma-ray imaging and dual neutron and gamma-ray mapping capabilities based on user need for applications including nuclear security, emergency response, safeguards, defense, decontamination, and more. The GRI team has over a decade of experience developing and integrating hardware and software for multi-sensor systems as well as designing and building custom radiation mapping systems.

Gemini Technology Ltd Booth: 603

Wellington Industrial Estate
Reading, Berkshire Rg71aw
United Kingdom
785-259-1155
www.geminitechnologyltd.com

Gemini are market leaders for supplying Radiation Protection Equipment in Health Physics, Dosimetry and Radiochemistry. We specialize in supplying machinery for instrument Calibration using X-Ray, Gamma and Neutron.

German-Swiss Radiation Protection Association Booth: 612

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Jork, Niedersachsen 21630 Germany
49 160 888 125 3
www.fs-ev.org

We stand for Safety in handling radiation.

OUR VISION: An independent, nationally and internationally recognized voice of experts working in radiation protection
the trust worthy point to the public on all questions concerning radiation protection.

OUR MISSION: Supporting experts working, informing the public, involving in the development of national regulations

GX Energy Ltd., Morimura Bros., Inc., Kimura Chemical Plants Co., Ltd., Rasa Industries, Ltd., and Tokyo Institute of Technology

Booth: 11

4-1-28
Toranomon, Tokyo 1350043 Japan
81-3-3432-3534
www.morimura.co.jp/english

GX ENERGY Ltd. pursue to improve the safety of nuclear power plants that support not only the energy of Japan but also that of the world. We will also contribute to the realization of carbon neutrality.

H3D, Inc

Booth: 403

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Ann Arbor, MI 48108
734-661-6416
h3dgamma.com

H3D® offers the world's highest-performance imaging spectrometers. Quickly identifying and localizing gamma-ray sources with a single measurement, H3D is revolutionizing how measurements are performed.

Health Physics Academic Education and Research Center

Booth: 712

950 Herndon Parkway
Herndon , VA 20170
970-260-2810

The HPAERC non-profit was founded by the HPS Board of Directors in 2023. Its mission is to raise and distribute funds to support students and faculty in the area of health physics and radiation protection. Contributions to HPAERC are tax-deductible.

Health Physics Instruments

Booth: 509

330 S. Kellogg Ave, Ste D
Goleta, CA 93117
805-964-3615
www.fwt.com

Health Physics Instruments has been serving the Health Physics community for over 50 years. We manufacture and calibrate instruments and detectors that measure gamma, neutron, beta, and alpha radiation. Our products include portable neutron survey meters, sophisticated fixed monitors, rem meters, dosimeters, multichannel analyzers and custom solutions.

Health Physics Society Publications

Booth: 613

Welcome to the HPS Publications Booth! Meet HPS editors and share your thoughts on what we are doing and what you would like to see us do. While you are here, enter our book drawing. It's as easy as dropping off your business card or a piece of paper with your name. We are giving away over $4,000 worth of health physics-related books! The HPS issues several types of official publications: the HPS website, Health Physics News, the Health Physics Journal, Operational Radiation Safety, special publications (proceedings and educational materials), and American National Standards. The HPS also has an active social media presence on Instagram, Facebook, Twitter, LinkedIn, and YouTube.

HI-Q Environmental Products Co., Inc.

Booth: 501

Silver Sponsor

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San Diego, CA 92121
858-549-2820
www.HI-Q.net

HI-Q Environmental Products Company (HI-Q) is an approved nuclear commercial grade supplier for the design and manufacture of custom and commercial air sampling equipment, systems, and subsystems under its ISO 9001:2015 Certified Quality Assurance Program. HI-Q has been providing Air Sampling & Radiation Monitoring Equipment, Systems and Services to the nuclear and environmental monitoring industries since 1973. HI-Q's product line ranges from complete stack sampling systems to complex ambient air sampling stations. HI-Q's product catalog includes continuous duty high & low volume air samplers, radiation measurement instrumentation, radiation monitoring systems, air flow calibrators (per ANSI Z540.3-2006 and ISO 17025:2017), radioiodine sampling cartridges, collection filter paper and both paper-only and combination style filter holders. Along with the ability to design complete, turn-key, stack and fume hood sampling system, HI-Q has the unique capability to both design and test complete stack and fume hood sampling system per the requirements of ANSI N13.1-1969 through 2021.

Hopewell Design Inc

Booth: 507

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Hopewell Designs is a leading supplier of irradiator systems for calibration, dosimetry, research, and quality control. Your one source for radiation calibration laboratories, High dose and self-contained irradiators. We can provide custom designs for your specific needs, Radiation automation solutions, shielding and shipping casks.

International Commission on Radiological Protection (ICRP)

Booth: 514

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Ottawa, Ontario K1R1A4 Canada
16139781525
www.icrp.org

ICRP is actively revising the System of RP, shaping global policy and practice for the next generation. Join us through workshops, symposia, and consultations to collaborate on future recommendations. Excited for ICRP 2025 in Abu Dhabi? Stop by our booth for updates!

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Booth: 407

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800-699-3108
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International Isotopes and RadQual has over 150 years of experience in manufacturing radionuclide and sealed sources for nuclear and nuclear medicine communities and is the only distributor for LEA Premium Calibration Standards in North America meeting both COFRAC and NIST traceability standards.

International Radiation Safety Consulting, Inc (IRSC, Inc)

Booth: 110

Silver Sponsor

3283 Gretna Dr.
Spring Hill, FL 34609
877-266-0794
www.radiationsafetyconsultants.com

International Radiation Safety Consulting, Inc (IRSC, Inc) specializes in obtaining successful device approvals for companies that manufacture and distribute products containing RAM (radioactive material) or products that emit ionizing radiation. We also offer Radiation Safety Officer training online (go at your own pace), live web, or custom group courses.

IRPA17 2028 Valencia, Spain – SEPR

Booth: 704

Poeta Joan Maragall, 56, 7ºD
Madrid, E-28020 Spain
34 91 373 47 50
www.sepr.es

The 17th International IRPA Congress that will take place in Valencia, Spain, 29 May - 2 June 2028. ENSURING RADIATION PROTECTION FOR THE FUTURE. Organized by the Spanish Society for Radiological Protection (SEPR). Valencia is a beautiful Mediterranean city, full of contrast: historical and modern. European Green Capital 2024.

J.L. Shepherd & Associates

Booth: 411

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J.L. Shepherd & Associates products include Cs-137 and Co-60 sources, biological research, blood component, space effects testing, sterilization and process irradiators. Gammacell 220 Co-60 reloads and uploads. Gamma, beta and neutron instrument calibration and dosimeter irradiation facilities. Irradiator/calibrator security upgrades, service, repair, relocation and decommissioning for current and extinct manufacturers. Hot cell windows and leaded glass.

Kentek Corporation

Booth: 306

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603-223-4915
kenteklaserstore.com

Established in 1983, Kentek Corporation has served thousands of laser users in more than 60 countries around the world. Kentek has the most comprehensive laser safety products and services including eyewear, barriers and curtains, viewing windows, beam control, beam evaluation, training and consulting for all laser users in any environment.

LabLogic Systems Inc

Booth: 410

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703-429-4209
www.lablogic.com

LabLogic specializes in instrumentation and software dedicated to the measurement and analysis of radioisotopes used in environmental, pharmaceutical, nuclear medicine and research laboratories. Our products include liquid scintillation counters, radiation monitors, personal dosimeters, radio-chromatography instruments and software, microplate readers and a variety of radiation safety consumables.

LANDAUER and RaySafe

Booth: 200

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Laurus Systems

Booth: 608

3460 Ellicott Center Drive, Suite 101
Ellicott City, MD 21043
410-465-5558
www.laurussystems.com

LAURUS Systems, located in Ellicott City, Maryland, is a private, 100% woman-owned small business specializing in all radiation detection instrumentation from many manufacturers. We also offer calibration and maintenance services, software, and training. All of our equipment and services are available through the GSA Advantage and numerous State purchasing contracts.

LND Inc

Booth: 311

3230 Lawson Blvd
Oceanside, NY 11572
516-678-6141
www.lndinc.com

LND, Incorporated designs and manufactures gas-filled nuclear radiation detectors for commercial, scientific, and military applications, selling over two million detectors worldwide since 1964. Their product line includes various detectors such as Geiger-Mueller Tubes and Neutron Proportional Detectors, used in health physics, environmental monitoring, medical instrumentation, and more. LND offers custom detector design to meet specific requirements.

Ludlum Measurements Inc.

Booth: 400

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501 Oak Street
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325-235-5494
www.ludlums.com

Ludlum Measurements, Inc. designs and manufactures Radiation Detection instrumentation developed to help monitor the safety of personnel and the environment. Founded in 1962, Ludlum is committed to making the world a safer place to live and work by providing affordable, dependable, and durable instruments and technologies.

M3D

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Real-time radiation imaging for cleanup, surveys, shielding - imaging survey meter - RAVIN CAM

MARPA (Malaysian Radiation Protection Association)

Booth: 708

No Peti Surat 00002
Bandar Baru Bangi, Selangor 43657 Malaysia
60193762774
www.marpa.org.my

Malaysian Radiation Protection Association (MARPA) is the premier professional body in Malaysia dedicated to advancing radiation safety and protection. With a diverse membership of experts, scientists, and practitioners, MARPA fosters knowledge exchange, promotes best practices, and advocates for safe radiation use in healthcare, industry, and research sectors across Southeast Asia.

Mazur Instruments

Booth: 209

200 South Wilcox Street #448
Castle Rock, CO 80104
303-325-7463
www.mazurinstruments.com

Mazur Instruments designs, develops and manufactures handheld survey meters used by professionals and organizations across the globe to detect, measure and monitor nuclear radiation. Made in the USA, the company's instruments are competitively priced and offer ruggedness, high reliability, outstanding battery life, autonomous data-logging, inline statistics and wireless connectivity.

Mirion Technologies

Booth: 404

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800 Research Parkway
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203-238-2351
www.mirion.com

Mirion Technologies partners with industry leaders to advance radiation safety and empower critical innovation. Their precision radiation safety technologies enable detection, measurement, monitoring, and analysis in R&D labs, nuclear facilities, and beyond. With complete confidence in safe operations, Mirion harnesses the transformative power of radiation for a better world. Learn more at mirion.com.

NAC Philotechnics, LTD

Booth: 504

201 Renovare Boulevard
Oak Ridge, TN 37830
865-483-1551
www.nacphilo.com

NAC Philotechnics is a radiological services company providing mixed and radioactive waste processing and brokerage, MARSSIM D&D, remediation, license termination, field services, and HP support; including, characterization, shipping, and disposal. NAC Philotechnics maintains two mobile Radioactive Materials (RAM) Licenses and operates two RAM Licensed facilities in Oak Ridge and San Diego.

NRRPT — Booth: 112

PO Box 3084
Westerly, RI 02891
401-637-4811
www.nrrpt.org

Objective of the Registry: To encourage and promote the education and training of Radiation Protection Technologists and, by doing so, promote the science of Health Physics.

Nuclear Sources and Services, Inc. — Booth: 100

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5711 Etheridge Street
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713-641-0391
www.nssihouston.com

Nuclear Sources & Services, Inc. is a fully permitted RCRA Part B hazardous waste TSDF and one of only three facilities in the Unites States providing storage and treatment of mixed hazardous and radioactive wastes. Since 1971, NSSI has supported the government, education, pharmaceutical, oil and gas, and power generation sectors.

Nusano — Booth: 114

Silver Sponsor

4669 W. Lake Park Blvd.
West Valley City, UT 84120
601-727-5916
www.nusano.com

Nusano is a privately held physics company committed to bringing stability and innovation to the rapidly emerging and critically undersupplied medical radioisotopes market. Nusano's technologies will supply the fight against cancer and support diagnostic and therapeutic radiopharmaceutical development. Nusano's state-of-the-art production facility opens in 2025 in Utah.

Office of Radiological Security — Booth: 313

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1000 Independence Ave., S.W.
Washington, DC 20585
202-586-7371
www.energy.gov/nnsa/office-radiological-security-ors

The Office of Radiological Security (ORS) works with government, law enforcement, and businesses across the globe to protect radioactive sources used for medical, research, and commercial purposes; remove and dispose of disused radioactive sources; and reduce the global reliance on high activity radioactive sources through the promotion of viable non-radioisotopic alternative technologies.

ORAU — Booth: 214

100 ORAU Way
Oak Ridge, TN 37830
www.orau.org

Oak Ridge Associated Universities (ORAU) provides innovative scientific and technical solutions for the U.S.Department of Energy and other federal agencies to advance national priorities in science, health and education.We do this through our specialized teams of experts and a consortium of more than 150 universities.

Our mission: To advance national priorities and serve the public interest by integrating academic, government and scientific resources globally.

Our vision: To be the recognized, preferred leader when national and global priorities require innovative scientific and technical solutions.

ORTEC — Booth: 300

801 South Illinois Avenue
Oak Ridge, TN 37830
865-482-4411
www.ortec-online.com

ORTEC is a global manufacturer of radiation detectors and nuclear instrumentation used by government and industrial laboratories, nuclear facilities, medical research, nuclear safeguards, and homeland security professionals. Specializing in radioisotope identification and High Purity Germanium detectors, ORTEC has been a technology leader in the nuclear field for over 60 years.

Perma-Fix Environmental Services, Inc. — Booth: 9

1093 Commerce Park Drive
Oak Ridge, TN 37830
800-905-0501
www.perma-fix.com

As nuclear service leaders, we specialize in nuclear and mixed waste management. Serving hospitals, research labs, DOE, DOD, and the commercial nuclear sector. Our services include project management, comprehensive waste solutions, environmental restoration, decontamination, decommissioning, remediation, NORM/TENORM management, and health physics support. Operating four waste treatment facilities, with nationwide operations and innovative technologies.

PHDS Corporation — Booth: 414

3011 Amherst Rd
Knoxville, TN 37921
865-816-8666
www.phdsco.com

PHDS Co. manufactures high-purity germanium (HPGe) gamma-ray detectors. All PHDS Co. HPGe detectors are portable, battery powered, turnkey systems suitable for NDA use in the laboratory, reactor, security site, or the field. The Fulcrum and GeGI detectors provide quantitative gamma-ray assay in real-time, addressing the most challenging nuclear-materials situations.

RADeCO, Inc — Booth: 609

17 West PKWY
Plainfield, CT 06374
860-564-1220
www.radecoinc.com

RADēCO is a manufacturer and distributor in the energy and defense industries. We have a diverse product offering that includes, robotics, air samplers, environmental monitoring, ventilation systems, drones, training and consumable sample media.

The RADēCO brand is now sixty years old and has been privately owned since February of 2000. Our Headquarters is located in Plainfield Connecticut. Our drone and robotics division is located outside Charlotte in Monroe North Carolina.

Radiation Detection Company — Booth: 104

3527 Snead Drive
Georgetown, TX 78626
512-831-7000
www.radetco.com

Radiation Detection Company offers NVLAP accredited dosimetry solutions with world-class service levels to the medical, dental, energy, and veterinary fields with over 70 years of industry experience. RDC's top-rated white glove experience combined with its extensive network of partner relationships provide businesses an affordable, reliable, and easy-to-use compliance solution. www.radetco.com

Radiation Safety & Control Services — Booth: 506

Silver Sponsor

93 Ledge Road
Seabrook, NH 03874
800-525-8339
www.radsafety.com

Established in 1989, RSCS, Inc. is a small business that offers expertise in all aspects of radiation safety and measurement applications. Our company specializes in operational and decommissioning services for nuclear power plants as well as for industrial, medical, and government radiological facilities. Our core services include health physics consulting, technical staffing, training, instrumentation (including sales, installation, calibration, and repair), emergency planning, and specialized radiological characterizations and measurements.

Radium Incorporated — Booth: 601

463 Dinwiddie Ave
Waynesboro, VA 22980
540-942-5734
www.radiuminc.com

ClearView Radiation Shielding solutions for Theranostics, Nuclear Medicine, Nuclear Power Plants, DOE Radwaste management.

RadPro International GmbH — Booth: 108

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An der Hasenjagd 7
Remscheid, 42897
Germany
492191691040
www.radpro-int.com

RadPro is a provider for passive dosimetry equipment with more than 20 years experience. Our systems can be used for personal and medical dosimetry, research, checking irradiated food,... We provide systems from manual operation up to high scale automation solutions.

Rad Source Technologies, Inc. — Booth: 611

4907 Golden Parkway, Suite 400
Buford, GA 30518
470-758-7834
www.radsource.com

Rad Source's Quastar X-ray is FDA approved to prevent the growth of dangerous microbes in food, ensures the safety of consumers and employees of growing facilities by completely eliminating the presence of harmful chemicals.The flower friendly process ensures that the product retains its terpenes, potency, moisture, and visual quality.

The RS 420 Series conforms to all federal guidelines within Schedule II, Part XV of the Canadian C.R.C., c.1370 Radiation Emitting Devices ACT.

Rapiscan | AS&E — Booth: 401

829 Middlesex Turnpike
Billerica, MA 01821
978-262-8700
www.rapiscan-ase.com

Rapiscan | AS&E provides advanced radiation detection technology to help protect border crossings, seaports, transportation terminals, critical infrastructure, and indoor and outdoor venues around the world. Our broad array of radiation detection systems accurately detect, identify, and locate gamma and/or neutron sources without disrupting the flow of vehicles, people, or commerce.

Rotunda Scientific Technologies® LLC

Booth: 310

GOLD SPONSOR

3732 Fishcreek Road, STE 913
Stow, OH 44224
330-906-3403
www.rotundascitech.com

Rotunda Scientific Technologies® LLC is dedicated to the fields of External Dosimetry, Spectroscopy, Radiation Detection, and Radiation Protection. Founded in 2012 to serve the Dosimetry and Radiation Protection community, we provide innovative products and services to fill voids that mid-large size companies are not able or willing to address.

S.E. International, Inc

Booth: 508

PO BOX 39, 436 Farm Road
Summertown, TN 38483
931-964-3561
www.seintl.com

Manufacturer of the Radiation Alert® product line, offering affordable handheld ionizing radiation detection instruments including Geiger counters, dosimeters, multi-channel analyzers, Area Monitors, for surface and air contamination. Proven reliable in Emergency Response, environmental, industrial, laboratory, research, Health physics, and educational fields. We provide excellence in instrumentation, reliability and customer service.

Scienta Envinet

Booth: 210

Hans-Pinsel-Str. 4
Haar (Munich), Bavaria 85540
Germany
49 (89) 456657-0
www.scienatenvinet.com

Scienta Envinet is the leading supplier of complete radiation monitoring network solutions. With market-leading systems for the detection of gamma radiation, and early warning against radioactive Xenon, Scienta Envinet supplies the most comprehensive and integrated Radiation Protection Network solutions from one source in the industry.

Spectral Labs Incorporated

Booth: 604

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San Diego, CA 92127
858-207-3727
www.spectrallabs.com

The Spectral Labs mission is to leverage our broad technical skill set and the product development passion of our Employee Owners to innovate practical, high-quality solutions developed through keen focus on customer requirements. Our experience lies in product development and manufacturing of instrumentation and software for military and first responders.

Spectrum Techniques, LLC

Booth: 600

106 Union Valley Road
Oakridge, TN 37830
865-482-9937
www.spectrumtechniques.com

Spectrum Techniques is your primary source for exempt quantity radionuclides, radiation detection and measurements instrumentation. Applications include teaching in nuclear medicine, health physics, chemistry, biology and nuclear engineering. See our web site at Spectrumtechniques.com for MCAs, nuclear counters and ratemeters. Source types include disk, rod, laminated and needle sources.

Teletrix

Booth: 302

2000 Golden Mile Highway, Suite C
Pittsburgh, PA 15239
412-798-3636
teletrix.com

Teletrix makes simulation solutions to support radiation training with a no-exposure, high realism approach. Our products allow for hands on training that is instructor and student friendly with an impactful experience for all involved.

Thermo Fisher Scientific

Booth: 205

GOLD SPONSOR

One Thermo Fisher Way
Oakwood Village, OH 44146
440-477-3028
www.thermofisher.com/netdose

The radiation detection and measurement portfolio of products from Thermo Fisher Scientific have been used in a wide range of applications throughout the world. From our portable handheld radiation detectors to the new NetDose Pro Digital Dosimeter, we have a solution for your radiation detection, measurement, and identification needs.

Tracerco

Booth: 203

8181 Innovation Park Drive
Baton Rouge, LA 70820
225-761-0621
tracerco.com

"Tracerco offers a wide range of radiation monitors to measure radiation dose rate or monitor process and environmental contaminants in a number of applications. These include oil and gas, NDT, nuclear, CBRNe, industrial research and educational sectors, medical and life sciences, and environmental and waste management industries.

Our intrinsically safe radiation monitors function safely in the presence of explosive gas mixtures. We also provide non-intrinsically safe versions with the same functionality, for use in less-challenging environments."

Tradebe Environmental Services Booth: 607

150 N Wacker Drive
Chicago, IL 60606
800-388-7242
www.tradebe.com

Entering the US Market in 2002 and headquartered in Chicago, IL, Tradebe USA has expanded to more than 40 sites and employs over 900 people. Offering a comprehensive service package spanning from collection and transportation to treatment and recycling, Tradebe USA enables clients to concentrate on their core business while entrusting the intricacies of waste management to their expert team.

Ultra Energy Booth: 606

Silver Sponsor

707 Jeffrey Way
Round Rock, TX 78665-2408
512-434-2800
www.ultra.energy

Radiation monitoring systems for effluent (air or liquid), stack sampling, stack flow monitoring, air monitoring, area monitoring, process monitoring compliance monitoring, SIL-rated interlock systems, SCADA systems, bespoke systems, neutron flux detectors for in-core measurements, safety systems, aging and obsolescence.

Versant Medical Physics and Radiation Safety Booth: 212

Silver Sponsor

119 N. Church St., Ste. 201
Kalamazoo, MI 49007
888-316-3644
www.versantphysics.com

Versant Physics provides a comprehensive line of services including RSO & Regulatory Support, Odyssey Software, Personnel Dosimetry Management, and online courses to companies whose employees regularly work with radiation. Our quality consulting and software support services enable our clients to focus on the quality of their work while staying protected.

UNIVERSITY TABLES

Colorado State University

CSU/ERHS 1618 Campus Delivery
Fort Collins, CO 80523
970-491-0563
vetmedbiosci.colostate.edu/degree-programs/graduate/ms-radiological-health/health-physics

CSU offers an ABET accredited MS in health physics, with concentrations in radioecology and radiochemistry, as well as a PhD in Radiological Health Sciences (Health Physics). Our students visit or perform research at Fukushima, Hirosaki or Tsukuba University. Students also visit Los Alamos National Laboratory, and Idaho National Laboratory.

Francis Marion University

Florence, SC 29501
843-661-1381
www.fmarion.edu/physicsandengineering

The origin of Francis Marion University's undergraduate Health Physics program dates back to the early 1980s. Graduates of the program have gone on to successful professional careers in South Carolina, the Southeast, and across the United States. Their work supports nuclear power, regulatory authorities, medicine, and the DOE complex.

Idaho State University

921 S 8th Ave
Pocatello, Idaho 83209
208-244-8718
www.isu.edu/hp

The mission of Health Physics (HP) at Idaho State University is to educate students so they can achieve the highest standards of the Health Physics profession and to solve important problems for the people and industries of Idaho and the Nation through teaching, research, and service.

Oregon State University

151 Batcheller Hall
Corvallis, OR 97331
541-737-2343
ne.oregonstate.edu

Founded in 1959, OSU School of Nuclear Science and Engineering boasts a global influence and are one of the top programs in the United States. We are known for our progressive research, large-scale test facilities, and industry and governmental partnerships. With students from around the globe; world-class faculty hailing from China, Iran, Poland, Slovakia, and the United States; and more than 1,300 alumni living and working in the United States and abroad, we are driving the future of nuclear science through engineering and health physics.

Purdue University School of Health Sciences

550 Stadium Mall Drive
West Lafayette, IN 47907
765-494-1419
hhs.purdue.edu/hsci

Health Physics program, School of Health Sciences, Purdue University

University of Alabama at Birmingham

1716 9th Ave S
Birmingham, AL 35233
541-250-1975
www.uab.edu/shp/cds/health-physics

The UAB MS in Health Physics program strives to provide a quality educational experience that prepares students to be skilled professionals who will equitably serve in a diverse workforce, who will contribute to the profession throughout their careers, and who will uphold the highest standards of ethics and integrity both personally and professionally.

PROFESSIONAL ENRICHMENT PROGRAM (PEP)

All sessions take place in the Rosen Shingle Creek

SUNDAY

8:00 AM – 10:00 AM

PEP 1-A **St. Johns 22**
Case Studies in "Radiation Deception": Practical Strategies for Avoiding Fraud Based on Lessons Learned
Robert John Emery, David Crawford Howell
University of Texas Health Science Center at Houston, Atrium Health Wake Forest Baptist

PEP 1-B **St. Johns 23**
Becoming a science communicator in social media
Robert Bruce Hayes
North Carolina State University

PEP 1-C **St. Johns 24**
Experiences with Dental Cone Beam CTs, Thoughts after 10 years Since their Introduction
Frederic Mis, Carl Tarantino
Multi Industrial Services, Inc.

PEP 1-D **St. Johns 25**
Evaluating Hazards When Using Or Processing Radionuclides
John Bliss, MS
LANL

PEP 1-E **St. Johns 26**
New Pixelated CZT 3D Detection Systems for Applications in Nuclear Power Plants & Medical Imaging Technology
David Warren Miller
North American Tech Center

PEP 1-F **St. Johns 34**
Cognitive Dissonance; Heuristics & Logical Fallacies in Risk Perception: Why It's So Natural For So Many To Believe So Much That Is So Wrong
Jerrold Talmadge Bushberg
NCRP

10:30 AM – 12:30 PM

PEP 2-A **St. Johns 22**
So Now You Are the Radiation Safety Officer - Elements of an Effective Radiation Safety Program
Thomas Logan Morgan
Versant Medical Physics and Radiation Safety

PEP 2-B **St. Johns 23**
Emergency Response and Information Communication – Considerations for the Health Physicist
Steve Sugarman
SummitET

PEP 2-C **St. Johns 24**
Fundamental Principles of Medical Internal Radiation Dosimetry
Darrell R. Fisher
Versant Medical Physics and Radiation Safety

PEP 2-D **St. Johns 25**
Foundations of Radiation Shielding and External Dosimetry
Lily Ranjbar
Oregon State University

PEP 2-E **St. Johns 26**
Environmental Health Physics – Concepts and Applications for Environmental Radiological Assessment and Dose Calculation
Amber Harshman, Donovan Aaron Anderson
Oak Ridge National Lab, Hirosaki University

PEP 2-F **St. Johns 34**
Ethical Decision Making Tools for Enhancing Organizational Radiological Safety Culture
Janet Gutierrez
UTHealth Houston, EH&S

1:00 PM – 3:00 PM

PEP 3-A **St. Johns 22**
Standard Test Methods for Remotely Operated Ground Robots, Aerial Drones, and Submersibles
Adam Jacof, Edward Walker
NIST, Consultant

PEP 3-B **St. Johns 23**
Incorporating science-based guidance into the nuclear power plant radiological emergency response and recovery planning paradigm
William Irwin, Angela Leek, Wendy Renno, Christine Allston
CRCPD, SummitET, RES

PEP 3-C **St. Johns 24**
Design, Installation, And Commissioning Considerations Of A Self-Shielded Cyclotron For Healthcare: A Health Physicist's Guide
Elizabeth Gillenwalters
Siemens Molecular Imaging

PEP 3-D **St. Johns 25**
Essential Elements of Nuclear Security for Radiation Protection
Jason Timothy Harris
Purdue University

PEP 3-E **St. Johns 26**
Advancements in Retrospective and Accident Physical Dosimetry: Techniques for Acute and Chronic Dose Assessment
Lekhnath Ghimire, Edward Waller
Ontario Tech University

PEP 3-F **St. Johns 34**
Alpha Spectroscopy for the Health Physicist
Michael Clemmer
Ametek

3:30 PM – 5:30 PM

PEP 4-A **St. Johns 22**
Dose and Effect: Lessons Learned from Birds, Bees, Dogs and Plants in Chornobyl, Fukushima & the International Space Station
Timothy Mousseauy

PEP 4-B **St. Johns 23**
Studies on Dispersion of Am-241 and Associated Risk
Charles Potter
Sandia National Laboratories

PEP 4-C **St. Johns 24**
Radiation Safety and Risk Mitigation in a Multi-disciplinary Y-90 Microsphere Program
William Gibbons, Krista Dillingham
Moffitt Cancer Center, Univeristy of Chicago

PEP 4-D **St. Johns 25**
Application of Attila for Dose Rate Calculations in Large Rooms with Thick Shielding
Jenelle Elicia Mann, Robert Morris
Stratify/MH Chew

PEP 4-E **St. Johns 26**
Radiochemical Measurements of Actinides in Biological Samples: Guide for Research Laboratories for a MARLAP-Based Approach to Uncertainty and Quality Management
Daniel J. Strom, George Tabatadze
USTUR - WSU

PEP 4-F **St. Johns 34**
Gamma Spectroscopy for the Health Physicist
Michael Clemmer
Ametek

Associates Society Forum

Sunday, July 7

10:00 AM – 4:30 PM

Gatlin B

PRELIMINARY SCIENTIFIC PROGRAM

All sessions take place in the Rosen Shingle Creek.

This meeting has applied to CAMPEP for approval of 25 MPCEC hours..

MONDAY

9:00 AM – 11:00 AM

Opening Ceremony — Gatlin B

Kevin Nelson, Elizabeth Brackett, Bernard Le Guen, Renate Czarwinski, Norman Thaggard

Astronaut Scholarship Foundation (ASF)

11:30 AM – 12:30 PM

Sievert Lecture — Gatlin B

12:30 PM – 2:00 PM

Lunch in the Exhibit Hall — Gatlin C/D

2:00 PM – 3:30 PM

Plenary Session #1

Chair: Christopher Clement;
Co-Chair: John O'Hagan; Rapporteur: Sara Dumit

Gatlin B

2:00 PM

The Systems of RP for Ionising & Non-Ionising Radiation

Christopher Clement, John O'Hagan, Sara Dumit, Rodney Croft , Kathryn Ann-Higley, Sigurður Magnús Magnússon, Werner Rühm, Emilie Van-Deventer

ICRP, IRPA, Loughborough University, Los Alamos National Laboratory, NCRP, Oregon State University, World Health Organization

4:00 PM – 5:30 PM

Plenary Session #2

Chair: Kevin Nelson; Co-Chair: Renate Czarwinski;
Rapporteur: Charles Wilson

Gatlin B

4:00 PM

Current status of the scientific basis for radiation safety, protection recommendations and international standards

Bernard Le Guen, Borislava Batandjeva-Metcalf, Hildegarde Vandenhove, Shengli Niu, Thierry Schneider, John Damilakis, Rosa Marina Bilbao y Leon

IRPA, UNSCEAR, IAEA, ILO, CEPN, University of Crete, School of Medicine, Iraklion, World Nuclear Association

MONDAY – POSTER SESSION #1

Ballroom Foyer

MA1:Underpinning Sciences

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X-ray Fluorescence Measurements of Blood Samples: In-field and Lab Based Methods

Thomas Grier, Mohammad Maruf Hassan Khan, Gladys Osakwe, Marc Weisskopf, Aaron Specht

Purdue University

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Dose protraction effects of ionizing irradiation for carotid damage in wild-type mice

Nobuyuki Hamada, Ki-ichiro Kawano, Seiko Hirota, Farina Yusoff, Takaharu Nomura, Yusuke Saito, Ayumu Nakashima, Shinji Yoshinaga, Yukihito Higashi

CRIEPI

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UNSCEAR 2020/2021 Report on Biological Mechanisms Relevant for the Inference of Cancer Risks from Low-dose and Low-dose-rate Radiation

Simon Bouffler

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United Nations Scientific Committee on the Effects of Atomic Radiation – mandate, activities and research needs

Jing Chen

Health Canada

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A dosimetric protocol to harmonize exposure estimation in the cohorts participating to the international pooled analysis of uranium processing workers (iPAUW)
Estelle Davesne, Ashley Golden, Antony Riddell, Francois Trompier, Rachel Lane, Lydia Zablotska
CEA, ORAU/ORISE, Canadian Nuclear Safety Commission

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Current Status Of Time-Dependent Covariate Analysis In Radiation Epidemiology
Daniel Eckerberg, Benjamin French, Amir Bahadori
Kansas State University, Vanderbilt University Medical Center

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation

P13
Shielding effects of a novel composite material made of polyurea resin and tungsten carbide against X-rays and Gamma-rays
Soheil Aghabaklooei, Hiroshi Yasuda
Ph.D. Student, RIRBM, Hiroshima University

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Addressing main challenges in managing exposure situations: IAEA's activities to assist its Members Sates in addressing them
Olvido Guzman-Lopez-Ocon
IAEA

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New FAO-IAEA-WHO guidance to manage exposures due to the presence of radionuclides in food in non-emergency situations
Olvido Guzman-Lopez-Ocon
IAEA

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The Regulatory Authority Information System (RAIS+)
Dragan Avramovski

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Regulatory Review of Radiation Safety Aspects Related to the Ventilation System of a Generic Radioisotope Production Plant
Adrián Bertagnini, Diego Díaz, Gabriel Ferrufino
Autoridad Regulatoria Nuclear

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How To Make Better Decisions On Very Low Dose Exposures
Roger Coates
Consultant

P429
Collective Sources? How Do We Define and Analyze Impacts From Multiple Sources from One Industrial Sector That Are Distributed Over Time and Space?
Philip Egidi
US EPA

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Trends in Occupational Radiation Exposure in Jamaica: Opportunities for Regulatory Enhancement
Tracey-Ann Elliott, Zandy Elliott
Hazardous Substances Regulatory Authority

MA3: Communication, Stakeholder Involvement, Education and Training

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"Radon Hunt" - Citizen Science Project for High School Students
Dariusz Aksamit
Warsaw University of Technology

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Enhancing Communication in Radiological Incidents: Importance of Media Training for Professionals
Lucas Gomes-Padilha-Filho, Lucas Padilha, Cátia Padilha, Luan Padilha
SÓCIO

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Legal Responsibility For Non-Compliances Related To Radiological Protections
Lucas Gomes-Padilha-Filho, Luan Padilha, Nadja Carvalho, Cátia Padilha, Laura Martins, Lucas Padilha
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Occupational Radiation Protection Appraisal Service To The Philippines: Gaps And Improvements For Dosimetry Services
Marianna Lourdes Marie Grande, Kristine Marie Dean

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Contextual Information for the Potential Enhancement of Annual Radiation Protection Program Review Reports
Janet Gutierrez
UTHealth Houston, EH&S

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Richard Paul Harvey III, Donald Lloyd Haes Jr.
Roswell PArk Comprehensive Cancer Center, Consultant

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Action Plan for Strengthening Radiation Protection Culture in Latin America and the Caribbean, Applicable to Worldwide Implementation
Richard Harr
Sociedad Mexicana de Seguridad Radiológica

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Jason Harris
Purdue University

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Robert Hayes
North Carolina State University

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Creating a new minor and online graduate certificate in Health Physics
Robert Hayes
North Carolina State University

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Hielke-Freerk Boersma, Michele Coeck, Jan-Willem Vahlbruch, Folkert Draaisma, Joanne Stewart, Julie Lucey, Francesco d'Errico, Susana Falcon
University of Groningen, Leibniz University Hannover

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Introducing the HPAERC - Who Are We, and What Do We Do??
Frazier Bronson
Mirion Technologies

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DosInMe: An Enhanced Data Visualization-Driven Tool for Visualizing the Invisible in Internal Dosimetry
Lotem Buchbinder-Shadur, Martin S. Graffigna-Palomba, Emmanuel Mate-Kole, Jeffrey Wang, Shaheen Dewji, Samuel-S. Taylor, Alejandro R. Martinez
Georgia Institute of Technology, Georgia Tech

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The Inaugural Health Physics Hackathon: Fostering Innovation and Collaboration in Health Physics
Adam Stavola, Emily Caffrey, Shaheen Dewji, Charles Wilson, Thomas Johnson, Chu Wang, Deepesh Poudel
JLab, Univ. AL at Birmingham, Georgia Tech, UAB, Colorado State University, Duke University, Los Alamos National Laboratory

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Kenyan Youth In Radiation Protection (KYRP)
Margaret Chege, Tom Owino, Edwin Muthike
Kenyatta University, Radiation Protection and Nuclear Safety Youth Network

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Rodolfo Cruz-Suarez, Allison Wilding, Michael Hajek
IAEA, International Atomic Energy Agency

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Understanding Of Radiation And Health Physics In High School Students
John Frandina, Gabrielle Pedigo, Chandler Burgos, Aaron Specht
Purdue University

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Methodology for Approaching Radiological Protection and Nuclear Safety with Primary School Children
Marcela Freitas, Chrysler Ruan, Mariana Reis, Adriana Medeiros-Batista
Universidade Federal de Minas Gerais

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Strategies for Approaching Young Audiences in Radiological Protection Training
Marcela Freitas, Chrysler Ruan, Mariana Reis, Eduardo Medina-Gironzini, Josilto de-Aquino, Adriana Medeiros Batista
Universidade federal de Minas Gerais, Universidade Federal de Minas Gerais UFMG, FRALC, CNEN - Brazilian Nuclear Energy Commission

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Mehenna Arib, Hesham Alhamdan, Alhanouf Aldosari, Salma Alahmadi, Rachid Layad
King Faisal Specialist Hospital & Research Center

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Fricke Dosimetry Applied to High Rate Brachytherapy in Cervical Cancer Treatments.
Fredy Gomez, Marcelo Godin
Facultad de Ciencias Exactas y Naturales

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Characterization of a Böhm 23392 extrapolation chamber in Diagnostic radiology x-ray beams at the KFSHRC's SSDL
Hesham Alhamdan, Hesham Alhamdan, Maryam Ababtain, Alhanouf Aldosari
King Faisal Specialist Hospital & Research Center

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Improved Electron Eye-Lens Operational Dose Coefficients Obtained from PENELOPE and MCNP 6.2
Fawaz Ali, Jacques Dubeau, Jason Sun, Salah Djeffal
DETEC, Canadian Nuclear Laboratories, Canadian Nuclear Safety Commission

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A Monte Carlo study of the impact of new ICRU dose quantities on the response of neutron area monitors in facilities with high energy neutrons fields
Garcia Gonzalo, Eduardo Gallego
Universidad Politécnica de Madrid, Universidad Politecnica de Madrid

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Algorithms to Improve Energy and Directional Nonuniformity in Exposure Estimation using 3-D CdZnTe Detectors
David Goodman
H3D, Inc.

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Evaluation of ionization chamber performances in KAP determination
José Almeida-Jr., Orlando Rodrigues, Maria da Penha Potiens
IPEN - CNEN/SP, Nuclear and Energy Research Institute

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Establishing Capabilities For Internal Dose Monitoring In The Philippines: A Step Towards Enhanced Radiation Safety
Marianna Lourdes Marie Grande, Ma. Eloisa Villacora, Jhon Ray Amparado, Jhenize Carvina Guillermo, Angelo Panlaqui, Kristine-Marie Dean

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Md.Mofazzal Haider, Md Shahidul Islam
BAEC

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Calibration of Radiation Protection Equipment at Kenya Bureau of Standards SSDL
Grace Ateka
Kenya Bureau of Standards

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A study on the Improvement of Dosimetry Method for High Dose Photons using the Alanine/ESR System
Kitaek Han, Jae Hwan Kim, Youngbeom Song, Sung Jin Noh, Da Yeong Gwon
Korean Association for Radiation Application

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Calibration of Radiotherapy Equipment to Improve Cancer Treatment in Kenya
Grace Ateka
Kenya Bureau of Standards

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Electronic Personal Dosimeter Testing for High Altitude Air Crew
Seth Bacon, Christina Dugan, Juan Manfredi, Will Erwin
U.S. Air Force (AFIT), USAFSAM

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Potential Radiation Doses for Adoptive-Owners of Rescued Dogs and Cats From Chernobyl and Fukushima
Amber Harshman, Yohei Fujishima, Donovan Anderson
Oak Ridge National Lab, Hirosaki University

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Implementation and Dose Evaluation of Tumor Volumes in Adult and Pediatric Mesh-Based Computational Phantoms
Jared Baggett, Wesley Bolch
University of Flordia, University of Florida

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Uncertainties analysis of FNTD GEN-2 reader for personal neutron dose measurement
Takuya Hashizume, Mihoko Mizushita, Toshiya Sanami, Eunji Lee, Vasiliy Fomenko, Jonthan Harrison, Mark Akselrod

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Aidan Barker, Richard Leggett, Caleigh Samuels, Derek Jokisch, Nicole Martinez
Clemson University, ORNL-CRPK, Francis Marion University/ORNL, Clemson University/ORNL

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Rolf Behrens
Physikalisch-Technische Bundesanstalt (PTB)

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New Beta Primary Standard (BPS) and Revised ISO 6980 at The Physikalisch-Technische Bundesanstalt (PTB)
Rolf Behrens
Physikalisch-Technische Bundesanstalt (PTB)

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Noah Blair, Alexander Brandl
Colorado State University

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The Department of Energy Laboratory Accreditation Program – Overview and Updates
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Yvan Boucher, D Nestle, Brian Kitchen, Reid Sobota
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A Novel Integrated Continuous Quality Control Method for Gamma Spectroscopy Systems
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An HPGe Stack Effluent Monitor for Particulate, Iodine, and Noble Gas
Frazier Bronson, Jim Zickefoose
Mirion Technologies, Mirion Technologies (Canberra) Inc

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Application of non-standard identification methods in individual TLD dosimetry in ionizing radiation measurements.
Maciej Budzanowski, Anna Sas-bieniarz
Institute of Nuclear Physics

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Improved thermoluminescent detectors (TLD) for individual dosimetry of ionizing radiation with better angular dependence
Maciej Budzanowski, Aleksandra Jung, Maja Karczmarczyk
Institute of Nuclear Physics

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Comparison of Sampling and Clustering Algorithms in Computational Nanodosimetry using Geant4-DNA
João Canhoto, Yann Perrot, Reinhard Schulte, Ana Belchior, Carmen Villagrasa
C2TN-IST/ULisboa

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Natalia Carrasco-Rojas, Robert Dawson, Nicole Strecker, Lukas Carter, Wesley Bolch
University of Florida

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Liyen Chen, Aaron Otterstein
Mirion Technologies

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Ji Won Choi, Daejin Kim, Jaekook Lee, Tatsuhiko Sato, Yong Hyun Chung, Song-Jae Yoo, Yeon Soo Yeom
Yonsei University

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Mesh-based Skeletal Models for ICRP Reference Pediatric Series
Chansoo Choi, Robert Dawson, Yitian Wang, Bangho Shin, Wesley Bolch
University of Florida

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Organ and Effective Dose Coefficients of ICRP Pediatric Mesh-type Reference Computational Phantoms for Idealized External Exposures to Photons
Chansoo Choi, Chan Hyeong Kim, Wesley Bolch
University of Florida

P309
A Macroscale Model of the Adult Human Kidney with Arterial and Venous Cortical Vasculature for Applications in Radiopharmaceutical Dosimetry
Carlos Colon-Ortiz, Robert Dawson, Abdul Dozic, John Aris, Wesley Bolch
University of Florida

P321
Computational Dosimetry for a Nuclear Reactor-Based, Mixed Field Space Radiation Simulator
Bradley Crouch, Kuan-Lun Ho, Alan Cebula, Shih-Kang Fan, Amir Bahadori
Kansas State University

P325
Calibration of Portable Dose Rate and Surface Contamination Meters: The Journey to Accreditation per ISO/IEC 17025.
Rodolfo Cruz-Suarez, Allison Wilding, Marta Bavio
IAEA

P333
Internal Dosimetric Analyser to Assist Confirmatory, Routine and Special Radiobioassay Monitoring of Radionuclide Intakes
Rodolfo Cruz-Suarez, Michael Hajek, Allison Wilding, Antonio Capote-Cuellar
International Atomic Energy Agency

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A Comparison of Different Curve Fitting Methods and Numerical Calculation Models of Transmission Curves in Shielding for Ionizing Radiations
Matias Cruzate, Jorge Carelli, Ezequiel Soppe

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Simulation of Combined Microgravity and Radiation Exposures at the KSU TRIGA Mark II Nuclear Reactor
Matthew Culbertson, Eric Giunta, Alan Cebula, Amir Bahadori
Kansas State University

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Effects of age-related physiological changes on intake assessment
Jason Davis
Oak Ridge National Laboratory

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Macroscale and Microscale Intra-Liver Vascular Models within the Adult Mesh-Type Reference Computational Phantoms for Applications to Internal Dosimetry
Robert Dawson, Julia Withrow, Derek Jokisch, Carlos Huesa-Berral, Chris Beekman, Isaac Meyer, Alejandro Bertolet-Reina, Harald Paganetti, Wesley Bolch
University of Florida, Francis Marion University/ORNL

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Valentina Desgranges, Catherine Monier, Adrien Guimet
EDF

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Aluminium Mask to Map Uniformity of Reference Measurement Standards for the Calibration of Surface Contamination Monitors
Raphael Diniz, Iremar Silva-Jr, Maria da Penha Potiens
IPEN - Instituto de Pesquisas Energéticas e Nucleares, IPEN, Nuclear and Energy Research Institute

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Laura Dinwiddie, Jared Baggett, Stefan Wehmeier, Robert Dawson, Lukas Carter, Juan-Camilo Ocampo Ramos, Adam Kesner, Wesley Bolch
University of Florida, University of Flordia

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Dose calculations using a human phantom model in medical and nuclear workplaces
Salah Djeffal, Jacques Dubeau, Jason Sun
Canadian Nuclear Safety Commission, DETEC, Canadian Nuclear Laboratories

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A software for the calculation of eye-lens dose due to contact exposure to radioactive contamination and hot particles
Jacques Dubeau, Salah Djeffal, Jason Sun
DETEC, Canadian Nuclear Safety Commission, Canadian Nuclear Laboratories

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Mesh-Based Model Of Breast Vasculature And Glandular Tissue For Internal Dosimetry
Lazaro Fuentes-Alfonso, Robert Dawson, Carlos Colon-Ortiz, Julia Withrow, Shreya Pathak
University of Florida

MA5: Radiation Protection in Healthcare

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Elizabeth Gillenwalters
Siemens Molecular Imaging

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Radiological Protection Management of Individuals Occupationally Exposed to Ionizing Radiation
Lucas Gomes-Padilha-Filho, Lucas Padilha, Cátia Padilha, Wagner Pereira, Ademir Silva, Alessander Carmo, Sergio Souza, Luan Padilha
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Lucas Gomes-Padilha-Filho, Cátia Padilha, Lucas Padilha, Sergio Souza, Luan Padilha
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Dose Optimization for Occupationally Exposed Workers in some Radiology Department in Ghana
Kofi Okyere Akyea-Larbi, Cyril Schandorf, Francis Otoo, Stephen Inkoom
Radiation Protection Institute, Ghana Atomic Energy Commission

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First Steps in Developing a Defense Health Agency Medical Physics Program
James Allen, Ricardo Reyes, Chris Dufford, William Bosley
Defense Health Agency, DHA

P77
Cybersecurity Knowledge and Awareness Among Radiography Teachers in Africa and Its Impact On Radiation Protection Practice in The Digital Age of Medicine
Alyasaa Anas, Flavious Nkubli
University of Maiduguri

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Christopher Helstern, Rose Huereca, Jennifer Pafford, Donald Squibb
Vanderbilt University Medical Center

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Kendall Berry, Jessica Rodgers, James Hambor
Fox Chase Cancer Center

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Columbia University

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Brazillian Commission of Nuclear Energy

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Division of Nuclear Medicine, Chi Mei Medical Center, Liouying, Tainan, Taiwan

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Kellen Daros, Camila Murata, Marcos Alves, Thiago Farias, Ladyjane Assemany
Universidade Federalde São paulo, Universidade Federal de São Paulo

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full member

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Joliot Curie Institute of Cancer, Aristide Le Dantec Hospital

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Elisha Edmund, Wilson Ngoye
Tanzania Atomic Energy Commission

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Nuclear Regulatory Authority

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Bertha Garcia, Eduardo Garnique
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Columbia University Medical Center

MA6: Radiation Protection in Nuclear Power and Fuel Cycle Industries

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Nuclear Regulatory Authority

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Hyungi Byun, Han Gil Lee, Beom Kyu Kim, Geun Dong Song, Jae Hun Lee, Bongsoo Lee
FNC Techonology CO., LTD.

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Paul Charp, Miranda Mitchell, Jack Hanley
CDC

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Diego Díaz, Gabriel Ferrufino, Adrián Bertagnini
Autoridad Regulatoria Nuclear

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MA7: Radiation Protection in Practices

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Steven Adams
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Kolawole Adesina, Aaron Specht, Daniel Read, Marc Weisskopf
Purdue University

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Daniele Giuffrida
Federal Authority for Nuclear Regulation - FANR

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Tinashe Gutu, Chu Wang
Duke University

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Amin Hamideh, Ji Wiley, Nicholas Desselles, Melissa Esnault, Wei-Hsung Wang
Louisiana State University

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Patrick Hartwell
North Carolina State University

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Hasniyati Binti-Md-Razi, Julia Abdul-Karim

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Canadian Nuclear Laboratories

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James Dant
ARA

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Jason Eric Davis, Salman Altamimi
Oak Ridge National Laboratory, University of Tennessee

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Josilto de-Aquino, Cristiane Oliveira
CNEN - Brazilian Nuclear Energy Commission, Comissão Nacional de Energia Nuclear (CNEN)

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Michael Duran
Los Alamos National Laboratory

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Mauro Rodolfo Espósito, Germán Rabi, Ayelen Maggiolo
Nuclear Regulatory Authority, Nuclear Regulatory Authority of Argentina

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Robert Fairchild, John Cummings, Mary Healy
Lawrence Berkeley National Laboratory

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Eduardo Gallego, Maria Teresa Alonso-Jiménez, Alessandro Auditore, José Caprarulo, Catrin Bauréus Koch, Margaret Cervera, Daniele Giuffrida, Willie Harris, Bernard Le-Guen, Fernand Vermeersch
Universidad Politecnica de Madrid, Federal Authority for Nuclear Regulation - FANR, IRPA

MA9: Nuclear and Radiological Emergencies

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Yuki Abe, Miyuki Sasaki, Tatsuo Torii, Shinji Tokonami, Yukihisa Sanada
Hirosaki University, Japan Atomic Energy Agency

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Chrstian Grabowski, Thomas Johnson
Colorado State University

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Marianna Lourdes Marie Grande, Davison Baldos, Joseph Tugo, Haydee Solomon, Franklin Pares, May Vitug, Andrea Luz Nery-Dela-Cruz

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Jules Gueguen, Lucie Ancel, Guillaume Thoer, Mohamed Amine Benadjaoud, Gaëtan Gruel, Marc Benderitter, Maâmar Souidi, Stéphane Flamant
IRSN - Institut de Radioprotection et Sûreté Nucléaire

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Michael Bak, Erin Lennon, Jonathan Morrow-Jones
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Lainy Cochran, Autumn Kalinowski
Sandia National Laboratories

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Sandia National Laboratories

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Danette Fennesy
UTHealth Houston, EH&S

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Martina Froning, Stephan Ebert, Sven Hartmann, Andreas Holz, Daniela Löhnert, Günter Lünendonk, Oliver Meisenberg, Joel Piechotka, Slemens Scholl
Forschungszentrum Jülcih GmbH, Federal Office for Radiation Protection, Germany, Federal Ministry of Defence

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Measures For Effective Clinical Emergency Care For Radioactively Exposed Patients In The Mass Casualty Scenario
Florian Fulisch, Joel Piechotka
German Federal Ministry of Defence, Federal Ministry of Defence

MA10: Radioactive Waste Management in Nuclear, Medical and Industrial Facilities

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Study and characterization of zeolites for the removal of artificial radionuclides in wastewater samples from nuclear power plants
Fabrizio Ambrosino, Francesco Pisciotta, Giuseppe La-Verde, Carlo Gravino, Domenico Caputo, Mariagabriella Pugliese
Department of Physics of University of Napoli Federico II

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Export of Radioactive Waste Containing NORM
Eduardo André
Jabarra Radiation Protection Services

P93
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Gustavo Aquino, Pedro Costa
Jabarra Radiation Protection Services

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Halina Harvey, Peter Kittermaster, Michael Anderson, David Prendergast
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Naturally Occurring Radioactive Material (NORM) in Oil and Gas industry
Pedro Costa, Gustavo Aquino
Jabarra Radiation Protection Services

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Felix Anthony Dela-Cruz, Vinz Michael Calija, Kit Joshua Estorque, Nelson Badinas, Ronald Piquero, Kristine-Marie Dean
Philippine Nuclear Research Institute

P420
Radioactive waste optimization methodology of the activated cables in the LHC accelerator at CERN
Patrycja Dyrcz, Angelo Infantino, Nabil Menaa, Safouane El-Idrissi, Christophe Tromel, Heinz Vincke
CERN - European Organization for Nuclear Research

MA11: Radon and Naturally Occurring Radiation

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Philip Egidi, Mark Hoover, Phil Jenkins, Jan Johnson
US EPA, Mark D Hoover LLC, Bowser-Morner, Inc., TetraTech/Sopris Env.

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Nick Chambers, Mark Sonter, Rainer Gellermann
Nuclear Control & Consulting GmbH

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Discharges from NORM-Processing Industries – European Approaches and Experience
Lonneke van-Bochove, Jörg Dilling, Susanne Friedreich, Rainer Gellermann, Fidel Grandia, Christian Kunze, Boguslaw Michalik, Cristina Nuccetelli, Stéphane Pepin, Rob Wiegers
Nuclear Control & Consulting GmbH

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Evaluation of activity concentrations of 226Ra, 232Th, 40K and 222Rn in soils from some gold mining communities in Atiwa West, Ghana
Esther Osei Akuo-ko, Francis Otoo, Eric Tetteh Glover, Lordford Tettey-Larbi, Anita Csordas, Tibor Kovacs, Amin Shahrokhi
University of Pannonia, Radiation Protection Institute, Ghana Atomic Energy Commission

P29
Determination the Gamma-ray Background Contribution in Radon Gas Measurement by using EIC Devices
Raneem Aldawish, Yahya Mobarki, Abdulrahman Alghamdi
NRRC, Saudi Nuclear and Radiological Regulatory Commission

P40
Uranium and radium uptake and effects in the microalgae species Isochrysis galbana
Annelise Gonzales, Sarah Donaher, Shanna Estes, Nicole Martinez
Clemson University, Clemson University/ORNL

P61
Effective Indoor Radon Reduction through Cross-Ventilation: Insights from Experiments and CFD Simulations
Diana Altendorf, Henning Wienkenjohann, Florian Berger, Jörg Dehnert, Michal Duzynski, Hannes Grünewald, Dmitri Naumov, Ralf Trabitzsch, Holger Weiß
Helmholtz-Zentrum für Umweltforschung - UFZ Leipzig

P65
Studies Of Indoor Radon Concentration In Dwellings With Different Flooring Materials In Kpando Municipality, Ghana
Anthony Amable, Francis Otoo, Paul Kingsley Buah-Bassuah, Anthony Twum
Radiation Protection Institute, Ghana Atomic Energy Commission

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Radon at home – what are the barriers and facilitators for radon mitigation and can citizen-science help to motivate people to mitigate
Sylvain Andresz, Caroline Schieber, Mertixtell Martell, Robbe Geysmans, Tanja Perko, Mabel Hoedoafia
Nuclear Protection Evaluation Centre (CEPN)

P89
Citizen science in the field of radon: the RadoNorm incubator
Sylvain Andresz, Mertixtell Martell, Mabel Hoedoafia, Tanja Perko, Caroline Schieber, V. Groma
Nuclear Protection Evaluation Centre (CEPN)

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Estimation Of The Lung Cancer Cases Risks Of Indoor Radon To Patients In Some Selected Maternity Wards In The Greater Accra Region Of Ghana
Eric Ofosu Asare
School of Nuclear and Allied Sciences- University of Ghana

P101
Evaluation Of Annual Effective Dose Due To Inhalation And Ingestion Of Radon In Water Samples From Sagamu, Southwestern Nigeria With The Rad-7 During The Rainy And Dry Season
Pauline Atanley
Augustine University, Ilara, Epe, Lagos state, Nigeria

P137
Estimating radioative waste generation in Oil and Gas Prodution in Brazil
André Barros
Jabarra Radiation Protection Services

P189
Regulating Radon In The British Workplace
Suzanne Broadhead
Member

P229
Recommendations for the control of activities related with NORM in Argentina
Analia Canoba, Fabio Lopez
Member

P249
Seasonal Variation Of Real-Time Radon Levels In A Residential Apartment Unit In Kiambu County, Kenya
Margaret Chege, Felix Wanjala
Kenyatta University

P317
Study Of TK101 Chromatographic Resin For Radium Extraction And Preconcentration In Produced Water From The Oil And Gas Industry
Maelle Coupannec, Ralf Sudowe
Colorado State University, Department of Environmental and Radiological Health Sciences

P351
Context and challenges of NORM waste management in Spain
Perez Sanchez Danyl, Marta García-Talavera
CIEMAT

P357
A Real-Time Discriminative Detection for Radon and Thoron Using Air Flow Delay
Sopan Das, Gyuseong Cho
Bangladesh Atomic Energy Commission

P360
Radon Exhalation and Health Hazard Assessment for Various Ceramic Tiles
Sopan Das, Shahadat Hossain
Bangladesh Atomic Energy Commission

P378
Cold Air Outflows and Natural Flow Regime at Mine Dumps and Abandoned Mines as Special Features in Radon Remediation of Buildings in Mining-affected Areas
Jörg Dehnert, Hannes Grünewald, Diana Altendorf, Louis Weber, Ralf Trabitzsch, Michal Duzynski, Veikko Oeser, Florian Berger, Mandy Alisch-Mark, Holger Weiß
Helmholtz-Zentrum für Umweltforschung - UFZ Leipzig

7:45 AM – 8:45 AM

CEL 1 **Gatlin A4**
How to Reduce Radiation Exposure to Fluoroscopy Operators
Jacob Kamen
Mount Sinai Health System

7:45 AM – 8:45 AM

Refresher Course 1 **Gatlin B**
Overview of the Current System of Radiological Protection for Ionizing Radiation
Christopher Clement
ICRP & IRPA

Refresher Course 2 **Gatlin A1**
Overview of recent epidemiological findings in the field of low doses
Dominique Laurier
Institute for Radiological Protection and Nuclear Safety (IRSN)

Refresher Course 3 **Gatlin A2**
Present Status and Future Perspective On Radon/Thoron Studies
Jim Hondros
JRHC Enterprises

Refresher Course 4 **Gatlin A3**
A Beginner's Introduction to Quantities and Units in Radiation, Radioactivity, and Radiation Dosimetry
Wesley Bolch
University of Florida

9:00 AM – 12:00 PM

AAHP Session 1

Alternative Technologies to Large Radioactive Sources

Chair: Carolyn Jean MacKenzie;
Co-Chair: Charles Daniel Ferguson

St Johns 22/23

9:00 AM
Introduction
Carolyn MacKenzie

9:10 AM
Radiological Risk Reduction: Real Results and Realized Returns on Replacements
Evan Thompson

9:30 AM
Emerging Non-isotopic Radiation Therapy Technologies: Ultra High Dose Rate/FLASH Radiation and Interstitial / Intraoperative X-ray Therapy
P. Jack Hoopes
Dartmouth College

9:50 AM
Industrial Radiography: Trends, Market Drivers, and Alternatives to Gamma-Based Devices
Jawad Moussa, Shraddha Rane
Sandia National Lab

10:10 AM
Mitigating Risk of Radioactive Sources Used in Well logging
Ahmed Badruzzaman
University of California, Berkeley, CA

11:00 AM
Permanent Risk Reduction with X-ray Irradiators
Carolyn MacKenzie
American Academy of Health Physics (AAHP)

11:20 AM
Compatibility of Irradiation Research Protocols Experts Roundtable (CIRPER) Results
Chris Boyd, Alejandra Gonzalez-Torres
Brookhaven National Laboratory

11:40 AM
Dosimetry Comparison of Gamma vs. X-ray Irradiators for Transitioning Technologies and Rodent Phantom Development
Chad Gunther
C&C Irradiator Service, LLC

9:00 AM – 10:30 AM

MA1: Underpinning Sciences
Radiation Biology Relevant to Radiation Protection

Chair: Gayle E. Woloschak;
Co-Chair: Donovan Aaron Anderson;
Rapporteur: Caleigh Evelyn Hollister Samuels

Gatlin A1

9:00 AM
Introduction to Related Posters

9:05 AM
Experimentally Investigating "Radiosynthesis": A Hypothetical Metabolic Pathway in Eumelanized Fungi
Steve Kustka, Kathryn Higley
Student Member, NCRP, Oregon State University

9:20 AM
Multigenerational epigenetic and metabolomic effects of internal exposure to non-toxic doses of uranium in rats
Stéphane Grison, Audrey Legendre, Céline Gloaguen, Dimitri Kereselidze, Christelle Elie, Mohamed-Amine Benadjaoud, Philippe Lestaevel, Jean-Charles Martin, Maâmar Souidi
Institut de Radioprotection et de Sûreté Nucléaire (IRSN)

9:50 AM
Radiobiological effects of FLASH on human cells
Adayabalam Balajee
ORISE-REAC/TS

10:05 AM
Deep Learning for Acute Inhalation Intake Reconstruction from Historical Beagle Dog Data
David Carpio-Gonzalez, Shaheen Dewji
Georgia Tech

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA3: Communication, Stakeholder Involvement, Education and Training
Education and Training #1

Chair: Andrzej Wojcik; Co-Chair: Hiroko Yoshida;
Rapporteur: Lonah Moraa Ong'ayo

Gatlin A4

9:00 AM
Introduction to Related Posters

9:05 AM
Design of a Low-Cost Radiation Weather Station for General Public and High School Outreach
Ryan Kim, Andrew Kent, Jordan Noey, Kimberlee Kearfott
University of Michigan

9:20 AM
Global Monitoring and Evaluation of the IAEA's Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources from 1981 to 2023
Cheyenne Lauclair, Amparo Cristobal, Liz Grindrod, Andrea Luciani, John Wheatley
IAEA

9:35 AM
Health Physics Knowledge Management and Bolstering International Radiological Protection
Sara DeCair, David Borrego, Jonathan Nagata
US EPA

9:50 AM
SRP's new Strategic plan – Synergy, Sustainability and Engagement: Working together to improve the UK Radiological Protection Profession
Jennifer Humphries, Jim Thurston
Society for Radiological Protection

10:05 AM
Lessons Learned from Training and Tutoring of Experts of Nuclear Regulatory Authorities of Non-EU Countries
Tamas Pazmandi, Giovanni Bruna, Csilla Pesznyak, Gerard Cognet, Alessandro Petruzzi, Kateryna Piliuhina, Marton Benke, Branislav Hatala, Dorottya Jakab
HUN-REN Centre for Energy Research

10:20 AM
Q&A

9:30 AM – 10:30 AM

MA4: Dosimetry and Measurements
External Exposure Characterization

Chair: Filip Vanhavere; Co-Chair: Shaheen Dewji; Rapporteur: Harald Breitkreutz

Gatlin A2

9:00 AM
Introduction to Related Posters

9:05 AM
Defense Public Health Center - Dayton Radiation Dosimetry Lab
Jian Zhang, Joseph Ball, Steve Duncan
United States Air Force, Defense Health Agency

9:20 AM
Dosimetry harmonization in the Million Person Study
Michael Bellamy, Lawrence Dauer, David Bierman, Ashley Golden, Sara Howard
MSK, Memorial Sloan Kettering, MSKCC, ORAU/ORISE

9:35 AM
Reprolam Intercomparison Exercise Of Eye Lens And Extremity Monitoring Services Of Latin America Region
Helen Khoury, Rodolfo Cruz-Suarez, Juan-Carlos Mora-Canadas, Daniel Molina, Patricia Mora-Rodriguez, Leslie Vironneau
Nuclear Energy Department- UFPE, IAEA, Radiation Protection CIEMAT. Spain., DINATEN, ALFIM, Chilean Commission of Nuclear Energy

9:50 AM
Neutron dose rate monitoring around accelerators: unique aspects at PSI
Sabine Mayer, Christine Harm, Sophie Harzmann, Eike Hohmann, Malgorzata Kasprzak, Lisa Pedrazzi, Christina Wouters, Eduardo Yukihara
Paul Scherrer Institute

10:05 AM
Q&A

9:00 AM – 10:30 AM

MA5: Radiation Protection in Healthcare
Radiation Protection in Healthcare: Safety Culture

Chair: Claire-Louise Chapple; Co-Chair: Ferid Shannoun; Rapporteur: Joanna Marie Sillars

Gatlin B

9:00 AM
Introduction to Related Posters

9:05 AM
Keep Everything Under Review - Sharing Regulatory Activity From The Nuclear Medicine Sector In Great Britain
Suzanne Broadhead
Member

9:20 AM
When Safety Met Quality: A Bottom-up Approach For National Radiation Protection Standards in Suriname
Whitney Coulor

9:35 AM
The Role of the Health Physicist in Radiotheranostics
Caridad Borrás
Radiological Physics and Health Services

9:50 AM
Getting "Rad Savvy": Improving Awareness Of Staff Caring For Radioactive Patients
Brian Serencsits, Fanny Chen, Daniel Miodownik, Bae Chu
Memorial Sloan Kettering Cancer Center, MSKCC, MSK - Hospital

10:05 AM
Q&A

9:00 AM – 10:30 AM

MA11: Radon and Naturally Occurring Radiation
NORM - Policy and International Approach

Chair: Omar Y. Al-Somlai; Co-Chair: Brent Le Vert; Rapporteur: Drew Watson

Gatlin A3

9:00 AM
Introduction to Related Posters

9:05 AM
An information exchange platform for NORM (ISEMIR- N)
Burcin Okyar, Jizeng Ma, Miroslav Pinak
International Atomic Energy Agency

9:20 AM
Evolution of International Regulatory Regime For The Safe Transport Of Naturally Occurring Radioactive Material and International Atomic Energy Agency Program For Its Implementation In Member States
Shazia Fayyaz, Eric Reber, Alenka Bujnova
IAEA

9:35 AM
Experience with Radiation Protection in Norm Related Industry in African Countries
Francis Otoo, E. W. Katengeza, Pascal Tchokossa, Jim Hondros, Rainer Gellermann
Radiation Protection Institute, Ghana Atomic Energy Commission, Nuclear Control & Consulting GmbH

9:50 AM
A Potential Path Forward for Regulation of NORM/TENORM in the United States
Philip Egidi
US EPA

10:05 AM
Radioecological footprint of wind turbines in electricity production
Clemens Walther, Rainer Gellermann, Simon Bittner
Leibniz University Hannover, Nuclear Control & Consulting GmbH

10:20 AM
Q&A

11:00 AM – 12:30 PM

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation

The Systems of Radiation Protection for IR and NIR

Chair: Sigurdur Magnus Magnusson;
Co-Chair: Klaus Heinz Henrichs;
Rapporteur: William Gibbons

Gatlin B

11:00 AM
Introduction to Related Posters

11:05 AM
Key Features And Current Review Of The System Of Radiation Protection For Non-Ionizing Radiation
Rodney Croft
ICNIRP

11:20 AM
Key Features and the Current Review and Revision of the System of RP for Ionising Radiation
Christopher Clement
ICRP & IRPA

11:35 AM
Comparison of Radiation Protection Systems: Ionizing vs. Non-Ionizing Radiation
Jerrold Bushberg
NCRP

11:50 AM
The World Nuclear Associations View of the ICRP Review and Revision of the System of Radiological Protection
Peter Bryant, Jim Hondros
ESG & Radiation Strategy, WNA / Sizewell C, JRHC Enterprises

10:20 AM
Q&A

11:00 AM – 12:30 PM

MA6: Radiation Protection in Nuclear Power and Fuel Cycle Industries

Radiation Protection in NFC, Protection of the Environment, and Radiation Protection in Decommissioning

Chair: Michael Austin Boyd;
Co-Chair: Analia Cecilia Canoba;
Rapporteur: Njakatovo Zafimanjato

Gatlin A3

11:00 AM
Introduction to Related Posters

11:05 AM
Radiological protection associated with Uranium industries
Patrick Devin, Fabrice Leprieur
SFRP and Orano, CEA

11:25 AM
Analysis of major radionuclides for radiological characterization during decommissioning
Jeongken Lee
Korea Institute of Nuclear Safety (KINS)

11:40 AM
Radiological Environmental Impact Assessment For Non-human Biota – An Estimation For Expected Exposure During Normal Operation Of NPPs
Charlotte Andersson, Lina Ekerljung, Pia Eriksson, Karin Fritioff, Jenny Halleröd, Ulrika Svanholm
Vattenfall AB

11:55 AM
Q&A

11:00 AM – 12:30 PM

MA7: Radiation Protection in Practices Standards, Directives, and Regulations

Chair: Hildegarde Annie A Vandenhove;
Co-Chair: Brent Rogers; Rapporteur: Daniel Cardenas

Gatlin A1

11:00 AM
Introduction to Related Posters

11:05 AM
IAEA Safety Standards – one step towards harmonized Radiation Protection System applied in practice
Miroslav Pinak
International Atomic Energy Agency

11:20 AM
A Role of IAEA Integrated Regulatory Review Service in a Development of Radiation Protection Arena
Helena Janzekovic
Slovenian Nuclear Safety Administration

11:35 AM
Licensing Challenges in the European Spallation Source
David Hajdu
European Spallation Source

11:50 AM
The International Atomic Energy Agency's Approach For Standardization Of Design Of Portable Exposure Devices In Relation To Transport Safety - Insights Gained From Experiences
Shazia Fayyaz, Muhammad Usama Ejaz
IAEA

12:10 PM
Q&A

11:00 AM – 12:30 PM

MA9: Nuclear and Radiological Emergencies Recent Development of Dose Assessment for Emergencies and Future Population Monitoring

Chair: Zhanat Carr Kenbayeva;
Co-Chair: Armin Ansari; Rapporteur: Deepesh Poudel

Gatlin A2

11:00 AM
Introduction to Related Posters

11:05 AM
BioDose – a software for rapid internal dose assessment of individuals potentially contaminated during a nuclear/radiological incident
Lauren Finklea, Temilade Sorungbe
CDC

11:20 AM
Environmental radiation measurement after the nuclear power plant accident v) Radiation survey system using unmanned aerial vehicle for post-accident
Miyuki Sasaki, Yukihisa Sanada
Japan Atomic Energy Agency

11:35 AM
Dose Assessment In A Nuclear Medical Facility During A Mass Casualty Event
Joel Piechotka, Florian Fulisch, Matthias Port, Birte Diekmeyer
Federal Ministry of Defence, German Federal Ministry of Defence, Bundeswehr Institute of Radiobiology

11:55 AM
Rapid Dose Estimation Techniques for Initial Patient Triage
Meghan Dieffenthaller, James Vogt, Joshua Hayes
REAC/TS, ORAU REAC/TS

12:05 PM
In vivo methods to monitor the population in case of radiological or nuclear emergency.
Begoña Pérez-López, Juan Francisco Navarro, Maria Antonia Lopez
CIEMAT

12:20 PM
Q&A

11:00 AM – 12:30 PM

MA10: Radioactive Waste Management in Nuclear, Medical and Industrial Facilities
Operational Management of Radioactive Waste and Decommissioning

Chair: Scott Kirk; Co-Chair: Dave Niven; Rapporteur: Patrycja Dyrcz

Gatlin A4

11:00 AM
Introduction to Related Posters

11:05 AM
International Safety Standards for the Predisposal Management of radioactive waste and compliance
Gerard Bruno
IAEA, vienna, Wien, Austria

11:25 AM
SM-1 Reactor Pressure Vessel Removal: Approach, Sequencing, and ALARA Assesment
Robert Puckett
USACE

11:40 AM
Vallecitos Boiling Water Reactor Decommissioning
Scott Murray, Hanna Bunting
General Electric

11:55 AM
Current status of the decommissioning projects at the Paul Scherrer Institute
Sophie Harzmann, Carolin Fichtner, Martin Heule, Andreas Kramer, Fritz Leibundgut, Lisa Pedrazzi, Szymon Procz, Christina Wouters, Sabine Mayer
Paul Scherrer Institute, Villigen PSI, Aargau, Switzerland

12:10 PM
Q&A

2:00 PM – 5:00 PM

AAHP Session 2
Alternative Technologies to Large Radioactive Sources

Chair: Carolyn Jean MacKenzie; Co-Chair: Charles Daniel Ferguson

St Johns 22/23

2:00 PM
Morgan Lectureship: The status of accelerator-based technologies: international perspective
Valeriia Starovoitova, Azillah Binti-Othman, Maria Helena Casimiro, Bum Soo Han, Celina Horak, Melissa Denecke
IAEA

2:30 PM
Dale Moeller Lectureship: U.S. National Academies Consensus Study on Radioactive Sources' Applications and Alternative Technologies
Charles Ferguson
National Academy of Sciences

3:30 PM
Changing sterile insect programs from gamma to X-ray irradiators can reduce the risk from high-activity radioisotopic sources, a case from mosquitoes.
Daniel Hahn, Chao Chen
University of Florida

3:50 PM
Electron Beam and X-ray Technologies for Food Processing - A Viable Alternative to Cobalt-60
Chandni Praveen
National Center for Electron Beam Research, Texas A&M University

4:10 PM
AAHP-ABHP Business Meeting

3:30 PM – 5:00 PM

MA1: Underpinning Sciences
Radiation Protection-Related Reports and Summaries

Chair: Nobuyuki Hamada;
Co-Chair: Prabodha Kumar Meher;
Rapporteur: Danielle Montecalvo

Gatlin A1

3:30 PM
Introduction to Related Posters

3:35 PM
The Life Span Study Neutron Relative Biological Effectiveness And Its Impact On All Solid Cancer Radiation Risks Obtained From The Japanese A-bomb Survivors Mortality Data
Luana Hafner, Linda Walsh, Werner Rühm
Swiss Federal Nuclear Safety Inspectorate

3:50 PM
Classification of harmful radiation-induced effects on human health for radiological protection purposes
Ludovic Vaillant, Liz Ainsbury, Friеod Zoelzer, Omid Azimzadeh, David Brown, Agnes François, Nobuyuki Hamada, Sophie Jacob, Chunsheng Li, Michiya Sasaki
CEPN, Health Canada, Central Research Institute of Electric Power Industry

4:05 PM
UNSCEAR Evaluation of Public Exposure to Ionizing Radiation
Mikhail Balonov, Helen Grogan, Philipp Steinmann, Wolfgang Ringer, Carol Robinson, Tiberio Cabianca, Volodymyr Berkovskyy, Cameron Lawrence, Rolf Michel, Bruce Napier
UNSCEAR

4:20 PM
UNSCEAR Evaluation: Effects Of Ionizing Radiation On The Circulatory System
Lawrence Dauer
Memorial Sloan Kettering

4:35 PM
Second Primary Cancer Following Radiotherapy – Preliminary Findings from an UNSCEAR Annex Report
Wesley Bolch, Jin Kyung Lee, Marina Di-Giorgio, Jean-Marc Bordy, Linda Walsh, Daniel Wollschläger, Lorenzo Brualla, Uwe Schneider, Laurence Lebaron-Jacobs
University of Florida, Nuclear Regulatory Authority of Argentina

4:50 PM
Q&A

3:30 PM – 5:00 PM

MA3: Communication, Stakeholder Involvement, Education and Training
Education and Training #2

Chair: Peter Alfred Bryant; Co-Chair: Patrick Devin;
Rapporteur: Jan-Willem Vahlbruch

Gatlin A4

3:30 PM
Introduction to Related Posters

3:35 PM
IRPA - Voice of Practitioners or Associate Societies? Finding the Balance
Cameron Jeffries, Christopher Clement, Jim Hondros
South Australia Medical Imaging, ICRP & IRPA

3:50 PM
Radiation Protection Infrastructure In Developing Countries – The Possible Role Of IRPA And Its Associate Societies
Hielke-Freerk Boersma, Whitney Coulor
University of Groningen

4:05 PM
A Year of Mentorship: The New Mentorship Platform of the Health Physics Society
Brian Serencsits, Dawn Montgomery, Charles Wilson, Steven King, Robert Emery, Andrew Halloran, Derek Jokisch, Jessica Joyce
Memorial Sloan Kettering Cancer Center, Clemson University, UAB, Penn State Hershey Medical Center, University of Texas Health Science Center at Houston, University of Colorado Denver | Anschutz Medical Campus, Francis Marion University/ORNL, H3 Environmental

4:20 PM
IRPA Task Group on mentoring practices. Actions achieved and ways forward
Sylvain Andresz, Kevin Nelson
Nuclear Protection Evaluation Centre (CEPN), Mayo Clinic Arizona

4:35 PM
The Educational Role of the National Scientific Societies
Denise Levy, Anna Lucia Villavicencio
SBPR / IPEN

4:50 PM
Q&A

3:30 PM – 5:00 PM

MA4: Dosimetry and Measurements
Numerical and Computational Dosimetry

Chair: Derek Jokisch; Co-Chair: Liye Liu; Rapporteur: Eduardo Gallego

Gatlin A2

3:30 PM
Introduction to Related Posters

3:35 PM
Computational Personal Dosimetry: Status and New Applications
Filip Vanhavere
SCK CEN, Belgian Nuclear Research Centre

3:55 PM
A Deeper Look at Scattered Dose Fractions from Electron Accelerators
Nolan Hertel, Ken Veinot

4:10 PM
Particle Deposition in Human Upper Airways and Trachea
Riya Dey, Anand Srinivasan, Hemant Patni, M Kulkarni
Bhabha Atomic Research Centre, BARC

4:25 PM
Time-Dependent Intraskeletal Dosimetry Within the ICRP Reference Adults
Robert Dawson, Chansoo Choi, Yitian Wang, Bangho Shin, Wesley Bolch
University of Florida

4:40 PM
Computed Tomography Dosimetry for Newborn, Infant, and Toddler Computational Phantoms
Stefan Wehmeier, Jared Baggett, Robert Dawson, Laura Dinwiddie, Yitian Wang, Cameron Kofler, Lukas Carter, Juan Camilo Ocampo-Ramos, Adam Kesner, Wesley Bolch
University of Florida, University of Flordia

4:55 PM
Q&A

3:30 PM – 5:00 PM

MA5: Radiation Protection in Healthcare
Radiation Protection in Healthcare: Shielding Assessment and Design

Chair: Thomas Morgan; Co-Chair: William Hinchcliffe; Rapporteur: Julius Vogt

Gatlin B

3:30 PM
Introduction to Related Posters

3:35 PM
The Role of Patient Shielding in Medical Imaging: An Update from the National Council on Radiation Protection and Measurements
Rebecca Milman, Kimberly Applegate, Donald Frush, Jennifer Elee, Summer Kaplan, Cari Kitahara, Emily Marshall, Sarah McKenney, Quentin Moore, Darcy Wolfman
University of Colorado School of Medicine, ICRP, NCRP

3:50 PM
Practical Considerations for Evaluating Shielding Requirements in Diagnostic Clinical and Veterinary Areas using Radioactive Sources and X rays
T. Michael Martin, Latha Vasudevan
Texas A&M University, Texas A&M University Environmental Health and Safety

4:05 PM
Shielding Design for Modern Radiation Oncology Equipment and Techniques
Melissa Martin
Therapy Physics Inc

4:20 PM
Updating workload for the design of operational radiation protection of proton therapy centers considering new delivery modes
Garcia Gonzalo, Eduardo Gallego
Universidad Politécnica de Madrid

4:35 PM
Radiation Transmission Data for Shielding Design in Proton Therapy Facilities
Jorge Carelli, Matias Cruzate

4:50 PM
Q&A

3:30 PM – 5:00 PM

MA8: Radiation Protection in NIR Applications
Non-ionizing Radiation Protection

Chair: Emilie Van Deventer;
Co-Chair: Hans-Dieter Reidenbach;
Rapporteur: Zachariah Tribbett

Gatlin A3

3:30 PM
Introduction to Related Posters

3:35 PM
Keeping Crew Safe: The Integration of new NIR Requirements and Standards Supporting the Future of Human Spaceflight
Sabrina Houston, Ramona Gaza
KBR/NASA, NASA/Leidos

3:50 PM
DOD EMF Exposure Incident Investigation
Bal Parajuli, Adam Boey
USAF School of Aerospace Medicine

4:05 PM
Development of an NCRP Website on Possible Health Effects of Nonionizing Radiation
Kathryn Held, David Savitz, Manuela Buonanno, Randall N Hyer, Donald Miller, Martin Roosle, Martha-S Linet
NCRP, Brown University

4:20 PM
Laser Control Groups: An Emerging Approach for Laser Hazard Control Measures
Ramona Gaza, Paul Sorensen, Robert Aldrich
NASA/Leidos

4:35 PM
Safety of Consumer Laser Products
John O'Hagan
Loughborough University

4:50 PM
Q&A

TUESDAY – POSTER SESSION #2

Ballroom Foyer

MA1:Underpinning Sciences

P7
Nuclear Submariner Cohort: An Innovative Epidemiologic Health Study Of Multiple Stressors And Low-Level Radiation
Loren Lipworth, Amir Bahadori, Michael Mumma, Lawrence Dauer, John Boice
Vanderbilt University Medical Center, Kansas State University, Memorial Sloan Kettering, NCRP

P30
Utilization of Statistical Methods of Data Simulation for Use in Biokinetic Modelling – Simulating Individual-Level Data from Aggregated Animal Experiment Results
Sara Howard, Lotem Buchbinder-Shadur, Shaheen Dewji, Ashley Golden
ORAU/ORISE, Georgia Institute of Technology, Georgia Tech

P34
Low-dose radiation exposure and the risk of hypertension: a retrospective cohort study
Huan Hu, Toshiteru Okubo

P62
Co-exposure to low-dose gamma irradiation with a chemical stressor causes differential outcomes on brain toxicity parameters in rat
Chrystelle Ibanez
Institut de Radioprotection et de Sûreté Nucléaire

P122
Evaluation for Committed Effective Dose from ingestion of Dietary Foods for Taiwanese Adults
Wei-Yu Kao, Ting-Han Ko, Chen Yu-Chun, Tao Liang-Yu

P224
Inhibition Of The TGF-B Receptor Enhances Radiosensitivity To Boron Neutron Capture Therapy (BNCT) In Vitro
Susana Nievas, María Dagrosa, Marina Perona, Luciano Rossich, Emiliano Pozzi, Antonella Pastini, Marina Carpano
National Atomic Energy Commission, CNEA

P314

Use of the linear no-threshold (LNT) model in radiation protection: a viewpoint

Dominique Laurier, Yann Billarand, Dmitry Klokov, Klervi Leuraud
Institute for Radiological Protection and Nuclear Safety (IRSN)

P318

The Global Register of Low-Dose Research Projects

Dmitry Klokov, Nicholas Priest, Nicolas Soppera, Paul Locke, Jacqueline Garnier-Laplace, Dominique Laurier
OECD-NEA, Institute for Radiological Protection and Nuclear Safety (IRSN)

P334

Healthy worker selection and survival effect in medical radiation workers

Won Jin Lee
Korea University College of Medicine

P346

Incidence of solid cancer among the residents living near nuclear facilities: A systematic review and meta-analysis

Ga Bin Lee, Yerin Hwang, Soojin Park, Eun-Shil Cha, Dalnim Lee, Minsu Cho, Songwon Seo
Korea Institute of Radiological & Medical Sciences

P403

Examining the impact of ionizing radiation and 17-α ethinylestradiol on Arabidopsis thaliana seed development

Lisa Manglass, Nicole Martinez
Francis Marion University, Clemson University/ORNL

P412

Histamine H1 Receptor Antihistamines As Regulators Of Radio-Induced Epithelial-Mesenchymal Transition And Cancer Stem Cells Enrichment In Breast Cancer Cells. A New Approach For Combination Radiation Therapies

Tamara Galarza, Rosa Bergoc, Ana Bomben, Ernesto Crescenti, Juan Perazzo, Nora Mohamad, Gabriela Martin
Laboratory of Radioisotopes, School of Pharmacy and Biochemistry, University of Buenos Aires, Argentina, Universidad de Buenos Aires. Facultad de Farmacia y Bioquímica.Laboratorio de Radioisótopos. CONICET

P415

A Potential Role of Histamine H2 Receptors in the Response of Pancreatic Ductal Adenocarcinoma to Chemoradiotherapy

Nora Mohamad, Tamara Galarza, Ana Bomben, Maria Cancela, Andres Rossini, Alicia Klecha, Gabriela Martin
Laboratory of Radioisotopes, School of Pharmacy and Biochemistry, University of Buenos Aires, Argentina, Universidad de Buenos Aires. Facultad de Farmacia y Bioquímica.Laboratorio de Radioisótopos. CONICET

P439

A Review Of The Acquistion And Use Of Knowledge on Health Effects of Plutonium From Seaaborg's Discovery of This New Element In 1940 To The Present

Roger Orville McClellan
Independent Advisor, Toxicology and Risk Analysis

P451

Degree of intra-, and inter-individual variability in radiotherapy-induced translocation frequency as biomarker of risk for second malignant neoplasms.

Prabodha Kumar Meher, Magdalena Płódowska, Halina Lisowska, Aneta Węgierek-Ciuk, Janusz Braziewicz, Renu Dayal, Leen Pieters, Ans Baeyens, Anne Vral, Andrzej Wojcik
Center for Radiation Protection Research, Department of Molecular Biosciences, Stockholm University, Stockholm, Sweden, Stockholm University

P480

A Systematic Review And Meta-Analysis Of Adult Radiation Exposure And Thyroid Cancer Risk

Nafiseh Beygom Mirkatouli, Shinji Yoshinaga, Seiko Hirota
Hiroshima University, Radiation Biology and Medicine

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation

P6
ISO/TC 85 and IAEA Cooperation in International Radiological Protection Standardization
Jim Herrold
University of Wyoming, ISO/TC 85

P18
We're Engaged!! Working with the National Council on Radiation Protection and Measurements
Kathryn Higley, Jerrold Bushberg
NCRP, Oregon State University, NCRP

P322
Management System for Safety in Nuclear Regulatory Authority (ARN) of Argentina
Alejandro Leciñana-Blanchard, Nelida Serdeiro
SAR Vicepresident, Manager

MA3: Communication, Stakeholder Involvement, Education and Training

P66
Occupationally Exposed Workers Training in Radiation Protection and Safety Program in Ghana
Stephen Inkoom, Francis Otoo, Kofi Okyere Akyea-Larbi, Joana Otoo, Daniel Adjei, Oscar Adukpo, David Kpeglo, Eric Tetteh Glover, Philip Owusu-Manteaw, Philip Deatanyah
Radiation Protection Institute, Ghana Atomic Energy Commission, School of Nuclear and Allied Sciences, Unoversity of Ghana, Atomic Campus

P98
Radiophobia: the (in)evolution of industrial radiography in Brazil and the quest for safety, productivity, and the restoration of clients users trust.
Joao Jose
Arctest Serviços Técnicos De Inspeção E Manutenção Industrial LTDA

P102
Education and Training in Radiation Protection: Bridging The Gab Between Theory and Practice
Dlama Joseph, Flavious Nkubli, Mohammed Sani
Federal University of Lafia, University of Maiduguri

P106
Utilizing e-Learning and Augmented Resources in Training The Next Generation of Radiation Protection Experts: Special Focus On IAEA Recommendations
Dlama Joseph, Flavious Nkubli, Mohammed Sani, Musa Dembele
Federal University of Lafia, University of Maiduguri

P150
A Virtual Reality Source-Finding Game for Learning Radiation Detection and Surveying
Rachel Mecca, Fiona Lin, Jackson Eggerd, Jordan Noey, Kimberlee Kearfott
University of Michigan

P154
A Radiation Physics Tutorial Laboratory for the DoseBusters Virtual Reality Radiation Detection and Protection Simulation Tool
Jackson Eggerd, Jordan Noey, Kimberlee Kearfott
University of Michigan

P156
Review Analysis of Request Forms Necessary for Radiological Procedures: Is the Information Justifiable?
Stephen Mkoloma, Antony Burambo
Radiography Scientist

P158
Simple Radiation Shielding Scenarios for the DoseBusters Virtual Reality Radiation Physics Game
Nauman Siddiqui, Zhengwu Zhang, Jackson Eggerd, Jordan Noey, Kimberlee Kearfott
University of Michigan

P162
Creating Three-Dimensional Models for the DoseBusters Virtual Reality Radiation Detection and Protection Simulation Tool
Jianyu Tu, Estefania Munoz-Barron, Jackson Eggerd, Jordan Noey, Kimberlee Kearfott
University of Michigann

P202
A Radiation Protection Makerspace: Enhancing Public and Pre-College Outreach, Upgrading University Courses, and Creating Undergraduate Research Opportunities
Jordan Noey, Kimberlee Kearfott
University of Michigan

P228
Building on the New: How to prepare early career professionals to fill your shoes
Ashli Nieves
Temple University

P234
European Metrology Network For Radiation Protection
Behnam Khanbabaee, Annette Röttger, Steffen Ketelhut, Hayo Zutz, Oliver Hupe, Attila Veres, Vladimír Sochor, Massimo Pinto, Michal Derlacinski, Mihail-Razvan Ioan, Amra Šabeta, Robert Bernat, Christelle Adam-Guillermin, João Henrique Garcia-Alves, Margarida Caldeira, Denis Glavič-Cindro, Steven Bell, Britt Wens, Linda Persson, Miloš Živanović, Reetta Nylund, Teemu Siiskonen
Physikalisch-Technische Bundesanstalt (PTB), Ruđer Bošković Institute (IRB), Institut de Radioprotection et de Sureté Nucléaire (IRSN), Instituto Superior Técnico, LPSR-LMRI (IST), National Physical Laboratory (NPL), Belgian Nuclear Research Centre (SCK CEN), Swedish Radiation Safety Authority (SSM), Radiation and Nuclear Safety Authority (STUK)

P238
Use of Artificial Intelligence in Teaching Practices: A Meta-Analysis
Azmat Farooq Ahmad Khurram, Sadaf Aslam
Khwaja Fareed University of Engineering & Information Technology
Rahim Yar Khan

P246
The Development of Radiological Emergency Medical Personnel's Training Using Virtual Reality
Jungjin Kim, Hyungwoo Nam, Minsu Cho
KIRAMS (Korea Institute of Radiological & Medical Sciences)

P278
An Interactive Web Tool for Communicating Dose Estimates
Anna Kogiomtzidis, Clemens Walther
Leibniz University Hannover

P300
Reducing Radiation Risks To Occupationally Exposed Female Workers In Ghana
Joana Otoo, Stephen Inkoom, Daniel Adjei

P302
Genuine Lessons Learned from Discussing Radiation Protection with the Public
Steve Kustka, Kathryn Higley
Student Member, NCRP, Oregon State University

P352
A Journey To Performing A Radiation Safety Culture Assessment In A Large Academic Health Centre
Michèle Légaré
The Ottawa Hospital

P367
Improving Communication on Radiation Protection to Provide Professional Development and Enhance Decision-Making Skills
Denise Levy, Janete Carneiro, Gian Sordi, Demerval Rodrigues
SBPR / IPEN

P382
Preparedness and response for a radiological emergency: developing an effective virtual training
Camila Lima, Davi Oliveira, Francisco Da-Silva

P388
Developing a Communications Strategy for Low Dose and Low Dose-Rate Exposures: Reducing Uncertainty Through Global Networking and the Adverse Outcome Pathway Approach
Paul Locke, Marie-Claude Gregoire, Jacqueline Garnier-Laplace, Dominique Laurier, Vinita Chauhan, Dmitry Klokov, Nicholas Priest, Knut-Erik Tollefson
OECD-NEA, Institute for Radiological Protection and Nuclear Safety (IRSN)

P436
Nurturing Radiation Safety Expertise: A Progressive Approach To Knowledge Management Through Proactive Coaching And Mentoring
Edward Mayaka
Kenya Nuclear Regulatory Authority

P442
Radiation Protection On Social Networks. Ten Years Of Experience
Eduardo Medina-Gironzini
FRALC

P445
Radioprotection Federation of Latin America and the Caribbean – FRALC. 30 years of experience
Eduardo Medina-Gironzini
FRALC

P448
Action Plan on radiological protection for Latin America and the Caribbean 2024 – 2028
Eduardo Medina-Gironzini, Vivian Pereyra, Juan Miguel Olalla
FRALC, Asobolpra

MA4: Dosimetry and Measurements

P10
Research And Planning For The Potential Adaptation Of Environmental Monitoring For Austrian Wastewater Treatment Plants: A Comprehensive Study
Viktoria Herzner, Claudia Landstetter, Bernd Hiegesberger

P14
Dose Assessment For Wood Fuels And Their Ashes Available In Austria
Viktoria Herzner, Christian Katzlberger, Christoph Pfeifer, Franz Josef Maringer, Martin Weigl-Kuska

P22
InstadoseVUE: Hybrid Personal Dosemeters for Photon, Beta and Neutron Radiation
Herbert Hoedlmoser
Mirion Medical GmbH, Munich, Germany

P50
Intercomparison Of Skin Dose Assessment For Contamination Exposure Scenarios In The CANDU Environment - Results And Findings
Daniel Hunton, Jacques Dubeau, Jason Sun
Canadian Nuclear Laboratories, DETEC

P70
Air kerma reference field with the compact linear accelerator to replace RI gamma-rays
Junya Ishii, Daisuke Satoh, Takeshi Fujiwara, Masahito Tanaka, Mashiro Kato, Tadahiro Kurosawa
National Institute of Advanced Industrial Science and Technology

P74
Radiological impacts of alpha particles on the healthy and leukemia blood samples using micro cell irradiation technique
Asaad Ismail, Runas Sula, Ali Alomari
Salahaddin University -Erbil, 44001, IRAQ

P78
Determination Of The Detection Limit For Measurements In Environmental Radiation Monitoring
Dorottya Jakab, Tamas Pazmandi, Péter Zagyvai
HUN-REN Centre for Energy Research

P94
Whose Internal Dose Should We Calculate? A Reminder of the Importance of Reference Individuals in Dosimetry
Derek Jokisch, Caleigh Samuels, Nicole Martinez, Richard Leggett
Francis Marion University/ORNL, ORNL-CRPK, Clemson University/ORNL

P126
Enhancing the efficiency of Optically Stimulated Luminescence readers through optical design
Elif Kara
Ludwig Maxiimilian University

P130
Dose Re-Estimation in Total-Body Computed Tomography (CT) Scans: A Comparison of TT-OSL and PTTL Techniques with BeO OSL Dosimeters
Elif Kara
Ludwig Maxiimilian University

P134
Comparison of the environmental dose rate between measured by CdZnTe detector and derived by distribution of element concentration
Mashiro Kato, Junya Ishii, Tadahiro Kurosawa
National Institute of Advanced Industrial Science and Technology

P166
Fused Filament Fabrication using Tungsten-filled Polyethylene Terephthalate Glycol for Radiation Applications
Hythem Beydoun, Yehansa Dissanayake, Callissa Clarkson, Caleb Bush, Jordan Noey, Kimberlee Kearfott
University of Michigan

P170
Enabling Autonomy for Intelligent Radiation Awareness Drone-Lite Open-Source Terrain Following and Collision Avoidance Software using PX4 Autopilot
Meredith Doan, Hythem Beydoun, Kabir Khwaja, David Garza-Segovia, David Villanueva-Guzmán, Ryan Kim, Kimberlee Kearfott
University of Michigan, Radiological Health Engineering Lab, Universidad de Monterrey, UDEM

P174
Design of a 3D-Printed Airframe for an Intelligent Radiation Awareness Drone
Kabir Khwaja, Hythem Beydoun, Liam O'Driscoll, Callissa Clarkson, Yehansa Dissanayake, Kimberlee Kearfott
Radiological Health Engineering Lab, University of Michigan

P178
Avionics Considerations for a Student-designed 2-kg Payload-capable Radiation Detection Drone
Hythem Beydoun, Kabir Khwaja, Liam O'Driscoll, Kimberlee Kearfott
University of Michigan, Radiological Health Engineering Lab

P182
Intelligent Radiation Awareness Drones (iRADs): Platforms for Implementation of Efficient Hazardous Navigation Algorithms for Environmental Radiation Surveying
Hythem Beydoun, Kabir Khwaja, Clay Hudson, Caleb Bush, Meredith Doan, Callissa Clarkson, Yehansa Dissanayake, Ryan Kim, Liam O'Driscoll, Kimberlee Kearfott
University of Michigan, Radiological Health Engineering Lab

P184
Determination Of Activity, Enrichment And Nuclear Material Inventory By Gamma Spectrometry On Spherical Fuel Elements
Sven Nagels
Fachverband für Strahlenschutz e. V.

P186
Surveying the Electromagnetic Spectra: Open-Source Mapping of Aerial Multispectral Ionizing and Non-Ionizing Radiation Measurements
Clay Hudson, Caleb Bush, Hythem Beydoun, Ryan Kim, Wiest Jakob, Kimberlee Kearfott
University of Michigan

P206
Final Design and Testing of a Do-It-Yourself Geiger-Mueller Smart Radiation Detection System
Jordan Noey, Kimberlee Kearfott
University of Michigan

P210
Implementing a Phase II Quality Control Protocol for a Cs-137 Dosimetry Calibration Source
Jordan Noey, Kimberlee Kearfott
University of Michigan

P214
Radiation Safety Considerations and Residual Estimation Following Cremation of Recently Implanted Cs-131 GammaTile Patient
Brian Kelley
The University of Texas MD Anderson Cancer Center

P222
Improvements and future challenges in Radiation Protection Dosimetry in the European Partnership Project GuideRadPROS
Steffen Ketelhut, Hayo Zutz, Oliver Hupe, Teemu Siiskonen, Argiro Boziari, Miloš Živanović, Nikola Kržanović, Olivier Von-Hoey, Amra Šabeta
Physikalisch-Technische Bundesanstalt (PTB), Radiation and Nuclear Safety Authority (STUK)

P226
Report on a supplementary comparison for photon radiation in terms of H*(10) under the framework of the EURAMET DOSEtrace project
Steffen Ketelhut, Miloš Živanović, Hayo Zutz, Oliver Hupe, Amra Šabeta, Stanislav Sandtner, Nikola Kržanović, João Henrique Garcia-Alves, Argiro Boziari, Denis Glavič-Cindro, Margarida Caldeira
Physikalisch-Technische Bundesanstalt (PTB), Instituto Superior Técnico, LPSR-LMRI (IST), 0Instituto Superior Técnico, LPSR-LMRI (IST)

P230
A pilot study as training comparison to support ISO 17025 accreditations for calibration laboratories
Steffen Ketelhut, Hayo Zutz, Boštjan Črnič, Jussi Huikari, Nikola Kržanović, Liviu-Cristian Mihailescu, Johann Plagnard, Stanislav Sandtner, Vladimír Sochor, Miloš Živanović
Physikalisch-Technische Bundesanstalt (PTB)

P254
Evaluation of Radionuclide Identification Approach Based on Ratios of Scintillation Light Outputs
Seunghyeon Kim, Jae Hyung Park, Sangjun Lee, Jinhong Kim, Seokhyeon Jegal, Siwon Song, Bongsoo Lee
Chung-Ang University, Radiation Health Institute, Korea Hydro & Nuclear Power Co., Ltd.

P256
Comprehensive Evaluation of Angiography Equipment: Ensuring Precision and Compliance in High-Precision Medical Procedures
Gerardo Antonio Noguera-Vega
Universidad de Costa Rica

P258
Design and Fabrication of Neutron Generator Shielding Facility through MCNP6 Simulation
Jae Chang Kim, Junehyung Bernaski, JuHyng Kim, Seung Beom Goh, Yong Kyun Kim
Hanyang University

P262
Neutron Spectrum Shaping Based on a Linear Accelerator for Occupational Neutron Dose Estimation of Nuclear Power Plant Workers
Jeongin Kim, Baek Yunmi, Seo Kon Kang
Radiation Health Institute, KHNP

P270
Autonomous Radiation Source Detection Approach for Mobile Robots Using Reinforcement Learning
Jiyun Kim, Sihyun Lee, Rae Hyun Lee, Byoungwoo Kim
GIST (Gwangju Institute of Science and Technology), GIST(Gwangju Institute of Science and Technology), RMTEC

P272
Reliability of Environmental Neutron Dose Evaluation by Al2O3:C OSL Albedo Dosimeter
Tohru Okazaki, Masato Narita, Hiroshi Sekiguchi, Hironobu Komori, Ryuichi Shiromoto, Kazuhiro Ajiro, Yasuo Ishii, Hiromi Akasaka
Nagase-Landauer, Ltd., Naka fusion institute

P284
Determination of Bioaccessibility of Radionuclides in Herbal Aphrodisiac for Internal Dose Assessment
Thomas Onumah
Graduate School of Nuclear and Allied Sciences, University of Ghana.

P304
AmBe Source Room MCNP Simulation and Humidity Evaluation to Estimate the Dose Rates Within Mirion Technologies Neutron Facility
Aaron Otterstein, Rich Brey
Idaho State University

P320
Feasibility Study for a Machine Learning Algorithm of a Radiation Source Location Tracking Detection System
Kihong Pak, JaeYoung Jeong, Yong Kyun Kim
Hanyang Univ. South Korea., Hanyang University

P328
Determination Of Thyroid Measurement Uncertainties Using Monte Carlo Simulation
Anna Pantya, Diyor Kazratov, Ezzdin Hutli, Péter Zagyvai, Tamas Pazmandi
HUN REN Centre for Energy Research

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Evaluation of TLD response for health effect assessment of Korean radiation workers
Byungmin Lee, Jaeseok Kim
Korea Institute of Radiological and Medical Sciences (KIRAMS)

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Min-Gwan Lee, Chanrok Park
Eulji University

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Hui Li, Qing Fan, Hua Li, Liye Liu, Faguo Cheng
China Institute for Radiation Protection

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China Society of Radiation Protection (CSRP)

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Dehong LI
National Institute of Metrology, China

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University of Alabama at Birmingham

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Georgia Tech, Sandia National Laboratories, Sandia National Labs

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Nicole Martinez, Derek Jokisch, Michael Mumma, Sergey Tolmachev, Maia Avtandilashvili, George Tabatadze, Richard Leggett, Caleigh Samuels, Lawrence Dauer, John Boice
Clemson University/ORNL, Francis Marion University/ORNL, USTUR/WSU, USTUR, Washington State University, USTUR, WSU, ORNL-CRPK, Memorial Sloan Kettering, NCRP

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Emmanuel Mate-Kole, Ignacio Bartol, Martin S. Graffigna-Palomba, Shaheen Dewji
Georgia Tech

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Emmanuel Mate-Kole, Dmitri Margot, Shaheen Dewji
Georgia Tech

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Radiation Biology, National Center for Radiation Research and Technology, Egyptian Atomic Energy Authority

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Andrew Najjar
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IPEN, IPEN - CNEN/SP, Nuclear and Energy Research Institute

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Siwidhani Ndovi, Remigius Kawalla, Aurelia Mwangonela, David Kpeglo
Tanzania Atomic Energy Commission, School of Nuclear and Allied Sciences, Unoversity of Ghana, Atomic Campus

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Joana Otoo, Mark Pokoo-Aikins

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Geraldine Landon, Guillaume Phan, François Fay, Céline Bouvier, Elias Fattal
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James Owusu, Daniel Achel, David Kpeglo
School of Nuclear and Allied Sciences, University of Ghana

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Carolien Leijen, Kitty Hoornstra
UMC Utrecht, Umc Utrecht Hospital

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França Fiuza Bacelar Letícia, Maria Da Penha Potiens, Roberto Vicente, Ademar Potiens-Junior
IPEN/USP, Nuclear and Energy Research Institute, Brazilian National Commission of Nuclear Energy, Nuclear and Energy Research Institute - IPEN

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Anna Manfredo
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John Metyko, Sandra Ramirez
MD Anderson Cancer Center, UT MD Anderson Cancer Ctr

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EnergySolutions, North American Tech Center

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Chosun University

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Luan Padilha, Nadja Carvalho, Lucas Gomes-Padilha-Filho, Cátia Padilha
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Shindong Lee, Kwang Pyo Kim, Hyeok Jae Kim, Geon Woo Son
Kyunghee University

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David Miller
North American Tech Center

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Experiences in Senior Management Leadership in Embracing New HP Innovations
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University of Rwanda

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Flavious Nkubli, Fatima Buba, Suleiman Bello, Kenyanya Jevas, Stephen Mkoloma, Mohammed Umar, Joshua Ndrimbula, Dlama Joseph, Mark Okeji, Christian Nzotta
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Luan Padilha, Nadja Carvalho, Cátia Padilha

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IAEA, Universidad de la Habana, Cuba

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As Low As Reasonabley Achievable (ALARA) Work Place Implementation At Canadian Nuclear Laboratories (CNL)
Anthony Masters
Canadian Nuclear Laboratories (CNL)

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Tim Mikulski
U.S. Army

MA8: Radiation Protection in NIR Applications

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Whitney Day, Christina Hewett, Wenhuan Jiang
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Samuel Osei, Collins Azah, Emmanuel Quarshie, Abdul-Razak Fuseini, Richard Dogbey, Philip Deatanyah, Joseph Amoako, John Owusu-Banahene
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Student Measurements of EMF in Homes & Power Lines inn Bangladesh
Munima Haque, David Miller, Labiba Tasnim Zeba, Mahamud Asad, Mehedi Hasan Durjoy
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Korea Institute of Radiological Medical Sciences

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Hythem Beydoun, Caleb Bush, Meredith Doan, Ryan Kim, Clay Hudson, Kimberlee Kearfott
University of Michigan

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Christopher Davis, Abhishek Dahad, Kimberlee Kearfott
University of Michigan

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Abhishek Dahad, Christopher Davis, Kimberlee Kearfott
University of Michigan

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Shigeo Nakama, Kotaro Ochi, Yukihisa Sanada
Japan Atomic Energy Agency

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Hyung-Woo Nam, Jungjin Kim, Minsu Cho
KIRAMS(Korea Institute of Radiological & Medical Sciences)

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Tadashi Narabayashi, Yasuhiro Kawahara, Hideharu Toyoda, Akari Shiino, Tomohiko Yoshii, Masaki Nagashio, Koji Endo, Yoshihiro Ishikawa, Toshiki kobayashi, Tomonori Watanabe
Tokyo Institute of Technology

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Audrey Nguyen
Sandia National Laboratories

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Practical Application of IAEA General Criteria for the Return of Populations to an Affected Area after a Large-scale Nuclear Accident
Hyun Ki Kim, Ilje Cho

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Kotaro Ochi, Hironori Funaki, Yukihisa Sanada
Japan Atomic Energy Agency

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Young Min Lee, Wi-Ho Ha, Hyun Ki Kim, Hyunha Lee
Korea Institute of Nuclear Safety

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Sejong Lee, Geumcheol Jeong

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Sihyun Lee, Jiyun Kim, Youngtae Ahn
GIST (Gwangju Institute of Science and Technology)

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Mary Lin
Y-12, Department of Energy

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Jacob Kamen, Robert Golduber
Mount Sinai Health System, Mount Sinai Hospital

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Declassification of scintillation liquids containing tritium in México. Sharing the experience.
Gustavo Molna, Norma Zarate, Huemantzin Ortiz, David Lizcano, Fabiola Monroy
Instituto Nacional de Investigaciones Nucleares

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Ryo Nakabayashi, Kazuma Kuroda, Daisuke Sugiyama
Central Research Institute of Electric Power Industry

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Dave Niven, Meghan Sanderson, Josip Zic
McMaster University

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Jordan Noey, Sunil Chitra
University of Michigan

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Yusik Won, Yongha Kim

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Olalekan Olatunji
Keele University, United Kingdom

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Optimization methodology for the facility design of radioactive waste disposal using probabilistic approach incorporating the change in exposure dose over time
Kazuma Kuroda, Ryo Nakabayashi, Daisuke Sugiyama
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Gabriel Martins, Sabine Guilhen, Julio Marumo, Leandro Goulart-de-Araujo
University of São Paulo, IPEN-CNEN/SP

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Eriksen Matta
Jabarra Radiation Protection Services

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Jim Hondros, Rainer Gellermann
Nuclear Control & Consulting GmbH

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Seongwon Hwang, Dong Wook Cha, Youngbin Oh, Park Seohyoung, Seungyeon Cho
Yonsei University

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Development of Methodology for Radiological Environmental Impact Assessment for NORM Industry in Korea
Seong Hun Jeon, Seong Yeon Lee, Yong Ho Jin
Kyung Hee University

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Jin-Goo Kang, Geehyun Kim
Seoul National University

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Evaluation of a Consumer-grade Temporal Radon Measurement System under As-deployed Conditions in a Basement Area with Elevated Radon Gas
Carly Evans, Ryan Kim, Kimberlee Kearfott
University of Michigan

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NORM Management in Brazilian Scrap Metal
Luiza Mocarzel, Gabriel Jabarra, Clarice Jabarra
Jabarra Radiation Protection Services

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Assessment of natural radiation exposure for residents at a former tin mining area in Kanchanaburi Province, Thailand
Saowarak Musikawan, Chutima Kranrod, Khemruthai Kheamsiri, Radhia Pradana, Hiromi Kudo, Yasutaka Omori, Masahiro Hosoda, Hirofumi Tazoe, Naofumi Akata, Shinji Tokonami
Hirosaki University

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Estimation of Annual Effective Dose and Excess Lifetime Cancer Risk from Background Ionizing Radiation Levels in Areas Around Cement factories in Malawi
Aeron Madalitso Anastanzio Nahuku, E. W. Katengeza, Benard Thole, Chikumbusko Kaonga
Kamuzu University of Health Sciences

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Design of a Large Volume Gamma-Ray Spectroscopic System for Community Examination of Environmental Samples
Jordan Noey, Kimberlee Kearfott
University of Michigan

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New Safety Report - Occupational Radiation Protection in the Water Supply and Treatment Industry
Burcin Okyar, Jizeng Ma, Miroslav Pinak
International Atomic Energy Agency

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Indoor Radon Concentration Within The Selected Areas Of GA-East District In Greater Accra Region Of Ghana
Rita Kpordzro, Joseph. K. Gbadago, Francis Otoo, Edward Gyasi, Anthony Amable, Godfred-Obeng Asiedu
Radiation Protection Institute, Ghana Atomic Energy Commission

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Radon Monitoring Programme - A case study in Ghana
Francis Otoo, Rita Kpordzro, David Kpeglo, Oscar Adukpo, Stephen Inkoom, Eric-Tetteh Glover
Radiation Protection Institute, Ghana Atomic Energy Commission, School of Nuclear and Allied Sciences, University of Ghana, Atomic Campus

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Radiological Danger arising from "Negative Ion" Consumer Goods emitting Ionizing Radiation
Helge Kroeger, Uwe Haeusler, Mabel Baier, Uwe Schkade

P310
Assessment of Natural Radioactivity Levels and Radiological Hazard in Soils and Water at Gold Mine Tailings in Selected Towns in Osun State, Southwestern, Nigeria
Bamidele Lateef
Nigeria Institute of Physics

P332
Evaluation, Characterization and Management of Naturally Occurring Radioactive Materials and Disused Radioactive Waste in Water and Soil Sample
Mamo Jemera
Ethiopian Technology Authority

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The use of sludge as fertilizer: radiological impact to members of the public and agricultural workers of sludge related to NORM involving industries.
Federica Leonardi, Raffaella Ugolini, Flavio Trotti, Laura Urso, Gennaro Venoso, Cristina Nuccetelli, rosabianca trevisi, Francesca Duchi
INAIL, German Federal Office for Radiation Protection, Italian National Institute of Health

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Exposure of SSNTD in radon reference chamber: a focus on the role of "transits" and on the influence of radon absorption in the measuring device
Federica Leonardi, Luisella Garlati, Enrico Chiaberto, Stefano Coria, Antonio Parravicini, rosabianca trevisi
INAIL

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Gender Differences in Urinary Tract Cancer Susceptibility Associated With Radon in Water: A Population Based Study from Finland
Peng Li, Mikko Myrskylä, Pekka Martikainen
Max Planck Institute For Demographic Research

P463
Discovery of Radon In Pennsylvania Homes by Nuclear Utility in 1980: HP Corporate Manager Experience
David Miller
North American Tech Center

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CEL-2 **Gatlin A4**
Achieving Laser Safety in the University Setting
Ken Lynn Barat
Laser Safety Solutions

CEL-4 **St Johns 22/23**
Three Mile Island: Past, Present & Future
David Allard
TMI U2 CAP

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Refresher Course 5 **Gatlin B**
Review of the ICNIRP System of Protection
Rodney Croft

Refresher Course 6 **Gatlin A1**
Radiation Detriment: Concept and Calculation Methodology
Ludovic Vaillant
CEPN

Refresher Course 7 **Gatlin A2**
NORM Management
Rainer Gellermann
Nuclear Control & Consulting GmbH

Refresher Course 8 **Gatlin A3**
Overview of Medical Management of Radiological/ Nuclear (R/N) Incidents
Carol Iddins
ORISE REAC/TS

9:00 AM – 10:30 AM

MA1: Underpinning Sciences
Radiation Epidemiology Studies for Radiation Risk Assessment: Methods and Dosimetry

Chair: Dominique Laurier; Co-Chair: Simon Bouffler; Rapporteur: Michael Bellamy

Gatlin A1

9:00 AM
Introduction to Related Posters

9:05 AM
Impact Of Death Certificate Misclassifications On Radiation Health Risk Models
Xirui Liu, Stacey McComish, Sergey Tolmachev, Joey Zhou
US Transuranium and Uranium Registries, Washington State University, DOE

9:20 AM
Comparing Dose-Response Strategies for Multiple Dose Realizations in Radiation Epidemiology Studies
Steven Simon, Daniel Stram, Deukwoo Kwon, Dale Preston, F. Owen Hoffman, Ruth Pfeiffer, Brian Moroz, Iulian Apostoaei, Joey Zhou
DOE

9:35 AM
The Importance Of Data Repositories In The Million Person Study And Radiation Epidemiology Research
Sara Howard, Ashley Golden
ORAU/ORISE

9:50 AM
Colossus: Software for Radiation Epidemiologic Studies with Big Data
Eric Giunta, Dawson Stutzman, Sarah Cohen, Benjamin French, Linda Walsh, Lawrence Dauer, John Boice, Steve Blattnig, Daniel Andresen, Amir Bahadori
Kansas State University, Vanderbilt University Medical Center, Memorial Sloan Kettering, NCRP, NASA

10:05 AM
The International Pooled Analysis of Uranium Processing Workers
Ashley Golden, Rachel Lane
ORAU/ORISE, Canadian Nuclear Safety Commission

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA3: Communication, Stakeholder Involvement, Education and Training
Risk Perception and Communication

Chair: Nicole Martinez; Co-Chair: Michiya Sasaki; Rapporteur: Brooke Stagich

Gatlin A4

9:00 AM
Introduction to Related Posters

9:05 AM
Raising the Veil of Mistrust: Marshall Islands Communication Challenges
Christopher Jackson
U.S. Department of Energy

9:20 AM
Addressing Community Risk Perceptions: The Evolution, Challenges, and Successes of the Community Environmental Monitoring Program
William Hartwell, Beverly Parker
Desert Research Institute, Health Physics Society

9:50 AM
Transdisciplinary research on nuclear waste management in Germany: A novel approach for involvement of the public
Clemens Walther, Klaus Roehlig, Kruetli Plus, Roman Seidl, Schulz Wolfgnag
Leibniz University Hannover

10:05 AM
Knowledge, Attitude and Awareness of the Society about Medical Radiation in Tanzania
Stephen Mkoloma, Jane Motto, Wilbroad Muhogora
Radiography Scientist

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA4: Dosimetry and Measurements
Internal Exposure Assessment

Chair: Martina Froning; Co-Chair: Yuki Tamakuma; Rapporteur: Robert Joseph Dawson

Gatlin A2

9:00 AM
Introduction to Related Posters

9:05 AM
Demonstration Of Uncertainties In The Dose Estimation Of Internal Exposure
Anna Pantya, Zsófia Rékasi, Péter Zagyvai, Tamas Pazmandi
HUN REN Centre for Energy Research

9:20 AM
The European Intercomparison Of In Vivo Monitoring Laboratories: The Eivic Project
Tiffany Beaumont, Maria Antonia Lopez, Oliver Meisenberg, Werner Buchholz, Juan Francisco Navarro, Begoña Pérez López, Kerstin Hürkamp, Bastian Breustedt, Filip Vanhavere, Didier Franck
IRSN, CIEMAT, SCK CEN, Belgian Nuclear Research Centre

9:35 AM
Learning from Former Nuclear Workers: Specifying Plutonium Material Type for Worksite-specific Dose Assessment
Maia Avtandilashvili, Elizabeth Thomas, George Tabatadze, Sergey Tolmachev
USTUR, Washington State University

9:50 AM
Investigation into the improvement of the background subtraction of natural uranium from dietary sources
Jonathan Reynolds, John Klumpp, Sara Dumit, Deepesh Poudel
Los Alamos National Laboratory

10:05 AM
Advancing Radiation Dosimetry in Nuclear Medicine for Pregnant Patients
Tianwu Xie, Michael Stabin

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA5: Radiation Protection in Healthcare
Radiation Protection in Healthcare: Imaging and Nuclear Medicine

Chair: Marie Claire Cantone; Co-Chair: Lawrence T. Dauer; Rapporteur: Bae Chu

Gatlin B

9:00 AM
Introduction to Related Posters

9:05 AM
A machine-learning based methodology for the estimation of partially exposed organs in X-ray Computed Tomography
John Damilakis
University of Crete, School of Medicine, Iraklion

9:20 AM
Measuring the Effects on Operator Dose of Changing Clinical Settings in Interventional Radiology
Millicent Tysinger

9:35 AM
The Importance and Implication of Radiation Protection during Lutetieum-177 Therapy: Operational Experience of CHU de Quebec – Universite Laval
Mario Chretien, Kim Pomerleau-Jobidon, Jean-Mathieu Beauregard

9:50 AM
Dose and risk reduction for resilience enhancement when handling pharmaceutical radionuclides in production and application
Julius Vogt

10:05 AM
Rehearsing contingency plans in a busy Nuclear Medicine Department
Joanna Sillars, Jodie Hudson, Vanessa Kilhams
Maidstone and Tunbridge Wells NHS Trust

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA11: Radon and Naturally Occurring Radiation
NORM – Practical NORM - 1

Chair: Burcin Okyar; Co-Chair: Kimberlee Jane Kearfott

Gatlin A3

9:00 AM
Introduction to Related Posters

9:05 AM
NORM exposures: looking for a practical approach
Analia Canoba, Jim Hondros
Member

9:20 AM
Proposal for NORM Treatment and Final Disposal in Brazil
Luiza Mocarzel, Cleber da-Silva, Clarice Jabarra
Jabarra Radiation Protection Services

9:35 AM
Modeling Naturally Occurring Radioactive industry with the use of Monte Carlo geant4
Asmae Ettoufi
Hassan II University of Casablanca

9:50 AM
The impact of updated dose coefficients on dose evaluation for NORM situations
Gennaro Venoso, Cristina Nuccetelli, Andrea Maiorana, Ilaria Peroni, Gabriele Pratesi, Flavio Trotti, Raffaella Ugolini, Federica Leonardi, Rosabianca Trevisi, Laura Urso
Italian National Institute of Health, INAIL, German Federal Office for Radiation Protection

10:20 AM
Potential exposure to ionizing radiation from uranium tiles in Dutch houses
Teun van-Dillen, Yenny Szeto
Dutch National Institute of Public Health and Environment (RIVM)

10:35 AM
Q&A

11:00 AM – 12:30 PM

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation
Optimisation of Protection and Limits: Ethical Considerations of Reasonableness and Tolerability

Chair: Daniele Giuffrida; Co-Chair: Haruyuki Ogino; Rapporteur: Yuki Takaku

Gatlin B

11:00 AM
Introduction to Related Posters

11:05 AM
Revisiting the System of Radiological Protection: Tolerability of risk and reasonableness in the optimization process
Thierry Schneider
CEPN

11:20 AM
Evolution In the Implementation Of ICRPs ALARA Optimization Principle
Douglas Chambers, Sorouche Mirmiran
Member CRPA

11:35 AM
A Practical Approach to Optimisation
Jim Hondros, Analia Canoba, Cameron Jeffries, Peter Bryant
Member, South Australia Medical Imaging

11:50 AM
Characteristics of Occupational Exposure Limits for Carcinogenic Chemical Risk and Annual Risk Calculation as Possible Reference Risks for Radiation
Michiya Sasaki, Tatsuki Kimura
Central Research Institute of Electric Power Industry

12:05 PM
Q&A

11:00 AM – 12:30 PM

MA6: Radiation Protection in Nuclear Power and Fuel Cycle Industries

Radiation Protection in Nuclear Power Generation

Chair: Sven Nagels;
Co-Chair: Theresa Valentine Clark;
Rapporteur: David Hajdu

Gatlin A2

11:00 AM
Introduction to Related Posters

11:05 AM
Development of a SMArt Radiation Protection (SMARP) system to support the ALARA practices of occupational radiation protection in nuclear power plant
Liye Liu, Chuan Wang, Yuan Zhao, Hua Li, Boxuan Shi, Junnan He, Qinjian Cao, Peitao Song
China Institute for Radiation Protection

11:35 AM
Pixelated, 3D CZT New Technology in Nuclear Power Instrumentation & Medical Imaging
David Miller
North American Tech Center

11:50 AM
Individual Sensitivity and the Nuclear Industry
Sameh Issa Abd. Al-Salam Melhem, Marcel Lips, Roger Coates, Jim Hondros
World Nuclear Association, Consultant

12:05 PM
Q&A

11:00 AM – 12:30 PM

MA7: Radiation Protection in Practices

Industrial, Agricultural, and Veterinary Applications

Chair: Debbie Gilley; Co-Chair: Helena Janžekovič;
Rapporteur: Jason Rusch

Gatlin A1

11:00 AM
Introduction to Related Posters

11:05 AM
An overview on Radiation Protection studies at CERN's Large Hadron Collider complex: from operation to future projects
Angelo Infantino, Patrycja Dyrcz, Francesca Luoni, Vasco Aguiar-Monteiro-Martins-Mendes, Marco Tisi, Heinz Vincke
CERN - European Organization for Nuclear Research, AIRP

11:20 AM
Radiation Protection Assessment of Accelerator Test Facility
Andrew Rosenstrom, Sayed Rokni, Mario Santana, James Liu, Mark Palmer
SLAC National Accelerator Laboratory

11:35 AM
ICRP Activities to Enhance Radiological Protection of Space Crew
Constantinos Zervides, Chunsheng Li
The Mediterranean Hospital of Cyprus, Health Canada

11:50 AM
Radiation Shielding during Deep-Space Missions: Dose Measurements, Monte Carlo Simulations, and Nuclear Cross-Sections
Francesca Luoni
AIRP

12:05 PM
Practical Health Physics Challenges using Portable X-ray devices in Medical and Veterinary Applications.
Latha Vasudevan, T. Michael Martin
Texas A&M University

12:20 PM
Q&A

11:00 AM – 12:30 PM

MA9: Nuclear and Radiological Emergencies
Internal Contamination Assessment and Management for Actinides

Chair: Matthias Port;
Rapporteur: Shaheen Dewji

Gatlin A3

11:00 AM
Introduction to Related Posters

11:05 AM
Medical Management Of Internally Contaminated Workers – The example of the Marcoule French Nuclear Center
Anne-Laure Agrinier, Lise Carbone, Estelle Davesne, Olivier Grémy, Sophie Le-Maout, Pierre Laroche, Denis Michard, Anne Van-Der-Meeren
CEA France, CEA Radiotoxicology Lab

11:20 AM
Risk-Benefit Analysis of Surgical Excision of Plutonium Contaminated Wounds
John Klumpp, Deepesh Poudel, Sara Dumit, Lauren Glover, Lauren Smith, Paul Daly, Tom Waters
Los Alamos National Laboratory

11:35 AM
Modeling Plutonium Decorporation In Female Nuclear Worker Treated With Ca-DTPA
Sara Dumit, Maia Avtandilashvili, Stacey McComish, Guthrie Miller, Jasen Swanson, Sergey Tolmachev
Los Alamos National Laboratory, Washington State University, US Transuranium and Uranium Registries, US Army

11:50 AM
Americium Inhalational Exposure with Successful Chelation Therapy
Joseph Bravenec
Health Physics Society

12:05 PM
WHO Guidelines on internal Contamination Assessment and Management (iCAM): Transuranium Actinides
Zhanat Carr-Kenbayeva, Chunsheng Li, Hajo Zeeb, Juan Jose Yepes-Nuñez, Nicholas Dainiak
World Health Organization, Health Canada

12:20 PM
Q&A

11:00 AM – 12:30 PM

MA10: Radioactive Waste Management in Nuclear, Medical and Industrial Facilities
Disposal of Radioactive Waste

Chairs: Yann Billarand; Co-Chair: Ryo Nakabayashi;
Rapporteur: Kendall Berry

Gatlin A4

11:00 AM
Introduction to Related Posters

11:05 AM
ICRP Recommendations on Radiological protection in Surface and Near-Surface Disposal of Solid Radioactive Waste
Phil Metcalf

11:25 AM
Consent based siting with NC State
Robert Hayes, Matthew Tinsley, Patrick Hartwell
North Carolina State University

11:40 AM
Hot Stuff: A Municipal Waste Tale of Woe
Kendall Berry, Jessica Rodgers, James Hambor
Fox Chase Cancer Center

11:55 AM
Radiological Characterization for the Disposal of the LHC Beam Dumping System at CERN
Nabil Menaa, Ana-Paula Bernardes, Luca Bruno, Marco Calviani, Gerald Dumont, Angelo Infantino, Matteo Magistris, Richard Harbron, Chris Theis, Patrycja Dyrcz
CERN - European Organization for Nuclear Research

12:10 PM
Q&A

2:00 PM – 3:30 PM

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation
Challenges and Opportunities

Chair: Thierry Schneider; Co-Chair: Clemens Walther;
Rapporteur: Buthaina Al Ameri

Gatlin B

2:00 PM
Introduction to Related Posters

2:05 PM
Decommissioning of Gamma Cell Irradiators at a Large Academic Institution
Daniel Cardenas
University of Toronto

2:20 PM
Contributions to the Future of the System of Radiological Protection Based on the Achievements and Challenges at Nuclear Power Plants in Germany
Ralph Brunner
PreussenElektra GmbH

2:35 PM
Use of life cycle assessment (LCA) to advance optimisation of radiological protection and safety
Bryanna Wattier, Nicole Martinez, Michael Carbajales-Dale, Lindsay Shuller-Nickles
Clemson University, ORNL

2:50 PM
From ISS to the Moon and Beyond: Non-Ionizing Radiation Risk Mitigation for Space Crews
Ramona Gaza
NASA/Leidos

3:05 PM
Q&A

2:00 PM – 3:30 PM

Plenary Panel Sessions

2:00 PM **Gatlin A2**
Plenary Panel Discussion IRPA/IOMP/WHO/IAEA Safety Culture initiative in healthcare

2:00 PM **Gatlin A3**
Plenary Panel Discussion World Café "Finding the next Generation of Radiation Protection Professionals"

2:00 PM **Gatlin A1**
Plenary Round Table WIN/WIR

2:00 PM – 3:30 PM

MA10: Radioactive Waste Management in Nuclear, Medical and Industrial Facilities

Legal and Regulatory Aspects of Radioactive Waste Management

Chair: Phil Metcalf; Co-Chair: Gustavo Molna; Rapporteur: Nam-Suk Jung

Gatlin A4

2:00 PM
Introduction to Related Posters

2:05 PM
Management of treated water from the Fukushima Daiichi accident: IAEA Provisions for the application of International Safety Standards
Gustavo Caruso
IAEA

2:30 PM
IAEA support to establish the National Regulatory Infrastructure and Radiation Safety in Latin America Countries
Ronald Pacheco-Jimenez, Eva Ciurana
IAEA

2:45 PM
Regulatory Radiation Dose Criteria for Site Reuse after Decommissioning of Nuclear Installations in Korea
Haiyong Jung, Hojin Lee
Korea Institute of Nuclear Safety

3:15 PM
Q&A

3:30 PM – 7:00 PM

IRPA General Assembly

Voting Delegates Only

Gatlin A1

WEDNESDAY – POSTER SESSION #3

Ballroom Foyer

MA1: Underpinning Sciences

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X-ray uses in Trace Elemental Analysis in-Teeth: A Comparison of Methods
Abu Sayed Mohammed Sayam, Aaron Specht, Marc Weisskopf, Tracy Punshon, Brian Jackson, Christian Hoover
Purdue University

P344
The damage mechanisms of non-ionizing radiation
Rodolfo Touzet
Comisión Nacional de Energía Atómica

P413
Strategic Research Agenda 2035 for Radiation Protection in China
Renze Wang

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation

P155
Legislative Decree 101/2020 and Corrective Decree 203/2023: analysis of critical issues and proposals for a better health and safety implementation in Italy
Loriana Ricciardi, Claudia Giliberti

P287
Beyond the System of RP: The Ten Principles and Ten Commandments of Radiation Protection Describe Actions
Daniel Strom
USTUR - WSU

P347
Differences and similarities between Radiological Protection systems for Ionizing and Non-Ionizing Radiations
Rodolfo Touzet
Comisión Nacional de Energía Atómica

P350
Challenges with the practical application of the system of protection to NIR
Rodolfo Touzet
Comisión Nacional de Energía Atómica

MA3: Communication, Stakeholder Involvement, Education and Training

P31
Beyond the Basics: A Study on Improving Radiological Training in the Military
Branden Passons, Erwin Arias

P51
Design of a training program for professionals responsible for inspection, surveillance and control in territorial entities in Colombia
Bibiana Peña, Oscar Marín, Jorge Anselmo Puerta-Ortiz

P103
Advancing Excellence: Enhancing the Final Summative Assessment for Master of Radiation Health Physics Students at Oregon State University's School of Nuclear Science and Engineering
Lily Ranjbar
Oregon State University

P119
Implementing a Nuclear Knowledge Management Program at the Institute of Radiation Protection and Dosimetry
Fernando Razuck
National Comission Of Nuclear Energy (CNEN)

P127
Professional Qualification Course in Radiation Protection to Obtain the Registration of Supervisor of Radiation Protection to work at Research and Development Facilities in Brazil
Fernando Razuck
National Comission Of Nuclear Energy (CNEN)

P131
Development of Materials Using Augmented Reality for Application in Teaching of Dosimetry and Metrology of Ionizing Radiation
Fernando Razuck
National Comission Of Nuclear Energy (CNEN)

P135
An Inventory Of Territorial Approaches To The Management Of Domestic Radon Risks In France: Difficulties, key successes and ways forward
Cynthia Reaud, Sylvie Charron
IRSN

P139
Nuclear and radiological risk perception amoung young people in France: analyse and early perspectives for action
Cynthia Reaud
IRSN

P143
Regulatory Infrastructure Development Projects: a New Approach to Assist Countries to Build Regulatory Infrastructures Safety and Security Friendly
Manuel Recio-Santamaria, Luisa Aniuska Betancourt-Hernandez, Merinda Volia, Tamer Kasht, Margaret Cervera, Ronald Pacheco Jimenez, Alessia Maria Rodriguez-y-Baena
International Atomic Energy Agency

P167
Certification of Radiation Protection Professionals in Australasia
Brent Rogers, Cameron Jeffries, Kent Gregory, Tomas Kron
Australasian Radiation Protection Society (ARPS), South Australia Medical Imaging

P191
Meeting Training and Communication Needs in LMIC, A Case Study of Radiological Applications and Protection Training in Kenya and Tanzania
Joseph Rugut
Medical and Dosimetry

P380
Regulations Traceability An Importan Step Towards The Knowledge Management And Transfer
Lucia Isabel Valentino, Maria Laura Duarte
Nuclear Regulatory Authority (ARN)

P383
Contribution Of The Argentinian, Brazilian And Peruvian Radiation Protection Societies To The Development And Fostering Of Radiological Protection Culture
Lucia Isabel Valentino, Eduardo Medina-Gironzini, Josilto Oliveira-de-Aquino, J Osores
Nuclear Regulatory Authority (ARN), FRALC

P407
Radiation Emergency Assistance Center/Training Site : An Overview In Response And Preparedness
James Vogt, Meghan Dieffenthaller, Joshua Hayes
ORAU REAC/TS, REAC/TS

P410
Twenty Years of Capacity Building in Health Physics and Radiation Science at Ontario Tech U
Edward Waller
Ontario Tech University

P431
Education and training activities of PIANOFORTE - the European Partnership for Radiation Protection Research
Andrzej Wojcik, Anne von-Euler, Deborah Oughton, Michele Coeck, Tom Clarijs, Balazs Madas
Stockholm University

P476
The Future of Our Radiation Protection Profession
Josip Zic
McMaster University

P482
Battle of the Knives: X-ray vs. Gamma
Shraddha Rane, Jawad Moussa
Sandia National Lab

MA4: Dosimetry and Measurements

P3
Characterization, Dose Quantification, and Dosimeter Considerations of a Self-shielded Cs-137 Irradiator
Kevin Filip, Chu Wang, Terry Yoshizumi
Duke University

P11
International Intercomparison on Internal Dose Assessment (ICIDOSE#2)
Anna Pantya, Bastian Breustedt, Derek Bingham, David Broggio, Guillaume Drouet, Pavel Fojtík, Jakub Osko, Augusto Giussani, David Spencer, Zsófia Rékasi Tamás Pázmándi
HUN REN Centre for Energy Research

P15
Evaluation of transfer efficiency and operation length of liquid light guide based remote radiation sensor
Jae Hyung Park, Sangjun Lee, Jinhong Kim, Siwon Song, Seunghyeon Kim, Seokhyeon Jegal, Wook Jae Yoo, Bongsoo Lee
Chung-Ang University, ORBITECH Co., Ltd., Radiation Health Institute, Korea Hydro & Nuclear Power Co., Ltd.

P23
Virtual calibration with mesh-type computational phantoms to determine the counting efficiencies in whole-body counting measurement
Byungmin Lee, Minseok Park
Korea Institute of Radiological and Medical Sciences (KIRAMS)

P35
Refined Inter-Organ Vascular Models Within The Adult Mesh-Type Reference Computational Phantoms For Applications To Internal Dosimetry
Shreya Pathak, Julia Withrow, Wesley Bolch
University of Florida

P39
Capacities of the Internal Dosimetry Laboratory of the National Authority – Argentina
Erica Pedemonti, Adrián Villella, Claudio Renzi
Autoridad Regulatoria Nuclear - Argentina

P47
Comparison of Dose Coefficients of Pure Beta Emitters for Reference Adult Male and Reference Adult Female using the methodologies proposed by the International Commission on Radiological Protection
Bibiana Peña, Jorge Anselmo Puerta-Ortiz

P83
Mechanisms for Long-term Retention of Plutonium in the Respiratory Tract: Inferences from Animal and Human Studies
Deepesh Poudel, John Klumpp, Maia Avtandilashvili, Sergey Tolmachev
Los Alamos National Laboratory,USTUR, Washington State University

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3D Reconstruction of Lung Tissue from Iondine-Stained Histology Slides
Bonnie President, Yitian Wang, Elizabeth Marlin, John Aris, Wesley Bolch
University of Florida

P91
Dosimetric Evaluation for Seven Histology-based 3D Models of the Renal Cortical Labyrinth for Alpha Radiopharmaceutical Therapy
Bonnie President, Ronnie Bolden-II, Lauren Ellis, Andrew Sforza, Adam Haneberg, Madison Bushloper, Carlos Colon-Ortiz, Alexander Zorrilla, John Aris, Wesley Bolch
University of Florida

P107
Advances in Detector Technology based on Plastic Scintillators for α, β and ɣ Radiation
Nasser Rashidifard, Tobias Baer, Frederic Meyers, Philippe Talent
Mirion Technologies

P111
Mirion Connected Electronic Dosimetry & Vision
Olivier Bleuse, Perry White

P115
Dosimetry and the stochastic nature of radioactivity: comparing direct measurements with indirect activity-dose transformation for the case of the sand beaches of Taolagnaro, South-East Madagascar
Justin Francis Ratovonjanahary, Rabesiranana Naivo, Ralaivelo Mbolatiana-Ralaivelo-Luc, Ratovonjanahary Justinien-Franck
ANARAP-Madagascar, University of Antananarivo, National Institute for Nuclear Science and Technologies, Laboratoire de Physique Nucléaire et Physique de l'Environnement (LPNPE), Université d'Antananarivo, Madagascar

P147
Hand, Foot and Clothing contamination monitor; spot on?
Jop Reijerink
TU Delft

P152
Effects of Liquid Scintillation Sample Preparation on Quench Curves
Jason Rusch
University of Wisconsin - Madison

P179
QC phantom for geometry reconstruction and dosimetry in brachtherapy
Elham Rostampour, Ramin Jaberi, Zahra Siavashpour
IRPS, Tehran University Medical Sciences (TUMS)

P183
Neutron Radiation Identification & Dosimetry
Joe Rotunda, Steve Bellinger
HPS

P195
Establishment of reference conditions for dosimetry in Intrabeam
Fábio Sabará-Dias, Leonardo Camargo-dos-Santos, Maria da Penha Potiens
Nuclear and Energy Research Institute

P207
Iron and plutonium: case studies in development of sex-specific biokinetic models
Caleigh Samuels, Derek Jokisch, Richard Leggett
ORNL-CRPK, Francis Marion University/ORNL

P219
Investigation on Conservatism in the Derivation of Surface Contamination Limit
Michiya Sasaki, Tatsuki Kimura
Central Research Institute of Electric Power Industry, CRIEPI

P227
Evaluation of Bayesian Modeling of Uncertainty in Plutonium Organ Doses Using Post-mortem Measurements
Maia Avtandilashvili, Martin Sefl, Joey Zhou, Sergey Tolmachev
USTUR, Washington State University, DOE

P231
Ten years of individual dosimetric monitoring of workers exposed to ionizing radiation in Senegal
Cheikh Senghor
Autorité Sénégalaise de Radioprotection et de Sûreté Nucléaire (ARSN)

P235
A Vascular Model Within The Mouse Whole-Body Phantom For Blood Radiation Dosimetry
Andrew Sforza, Robert Dawson, Julia Withrow, Natalia Carrasco-Rojas, Wesley Bolch, Harald Paganetti, Peter McFetridge
University of Florida

P239
Performance Evaluation of Drone-Based Aerial Radiation Monitoring System Software Using Radioisotope Discrimination Data
Sanghun Shin, Heekwon Ku, Minbeom Heo, Jaewook Kim, Wook Jae Yoo
FNC Technology Co. Ltd, Orbitech Co. Ltd

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Environmental dose measurements in the high natural background radiation area in Ramsar, Iran using thermoluminescence dosimeters
Sedigheh Sina, Mehrnoosh Karimipourfard, Fatemeh N. Alizadeh, Amir Ali Falakian, Fatemeh Lotfalizadeh, Zahra Rakeb, Mohammad Amin Nazari-Jahromi, Mohammad Reza Ghanbarpour

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Analysis of natural radioactivity in soil, water, and plant samples of high background area of Ramsar, Iran
Mehrnoosh Karimipourfard, Sedigheh Sina, Amir Ali Falakian, Mohammad Reza Ghanbarpour, Fatemeh N. Alizadeh, Mohammad-Amin Nazari Jahromi, Fatemeh Lotfalizadeh, Zahra Rakeb

P279
Quantification of Neutron Radiation Fields by using Bonner Sphere Spectrometer
Youngbeom Song, Sung Jin Noh, Da Yeong Gwon, Kitaek Han
Korean Association for Radiation Application

P303
Development Of A Systemic Model For Rats Using Americium-241 Inhalation And Intravenous Injection Exposure Data
Jasen Swanson, Sara Dumit, Guthrie Miller
Los Alamos National Laboratory (LANL)

P307
Radionuclides in wastewater: I-131 and Lu-177 detected in Dutch sewage system
Yenny Szeto, Charlotte Rosenbaum, Marloes Velsema
Dutch National Institute of Public Health and Environment (RIVM)

P311
From Deposition to Detection: the USTUR Approach to Measurement Quality
George Tabatadze, Daniel Strom, Maia Avtandilashvili, Stacey McComish, Sergey Tolmachev
Washington State University, US Transuranium and Uranium Registries

P315
Influence of radionuclide biodistributions on peak efficiencies of a whole-body counter at the QST
Yuki Tamakuma, Masayuki Naito, Kotaro Tani, Yu Abe, Naoko Fukuda, Kazuaki Yajima, Eunjoo Kim, Munehiko Kowatari, Osamu Kurihara, Nobuhito Ishigure
Nagasaki University

P331
A New Method to Lower the Detection Limit of Commercial Ceramics
Matthew Tinsley, Robert Hayes, Nik Fickenscher
North Carolina State University

P341
Distribution of Plutonium and Radium in the Human Heart
Sergey Tolmachev, Florencio Martinez, Jessica Linson, John Brockman, Elizabeth Thomas, Maia Avtandilashvili, George Tabatadze, Richard Leggett, Caleigh Samuels, Nicole Martinez, Derek Jokisch, John Boice, Lawrence Dauer
Washington State University, USTUR, ORNL-CRPK, Clemson University, Francis Marion University, NCRP, Memorial Sloan Kettering

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H*(10) and fluences in a neutron Howitzer with a 226Ra-Be source
Bedher Omar Vega-Cabrera, Palacios Daniel, Patrizia Pereyra, Maria Elena López-Herrera
Si, Pontificia Universidad Católica del Perú

P416
Skeletal S values for a series of non-reference bone dosimetry models and their comparisons to reference dosimetry
Yitian Wang, Wesley Bolch, Robert Dawson, Chansoo Choi, Bangho Shin
University of Florida

P419
Wide Area Sampling for Cs-137 in Soil
Rick Whitman
UMICH IU BSU

P425
Heart and Lung Vascular Models within the Adult Mesh-Type Reference Computational Phantoms for Applications to Blood Dose Tracking
Julia Withrow, Shreya Pathak, Robert Dawson, Chris Beekman, Camilo Correa-Alfonso, Sean Domal, Harald Paganetti, Wesley Bolch
University of Florida

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Development of an Alanine Neutron Dosimetry System at Colorado State University
Paige Witter, Alexander Brandl
Colorado State University

P437
Three-layer instrument for neutron dose evaluation
Hirokuni Yamanishi
Kindai University

P440
Development of a Skin Imitation Layer for Local Skin Dose Assessment using 3D-printed plastic scintillator
Han Cheol Yang, Seung Beom Goh, Kihong Pak, JaeYoung Jeong, Chanjung Kim, YoungHo Roh, Yong Kyun Kim
Hanyang University, South Korea

P446
The Effects of Machine Washing on TLD Dosimeters
Yanling Yi, Michael Stabin
Fudan University

P449
How much does the introduction of the ICRU95 operational quantities affect the angular response of the personal dosemeters?
Hiroshi Yoshitomi, Tomoya Tsuji, Sho Nishino, Yoshihiko Tanimura
Japan Atomic Energy Agency

P452
Applicability of the RESRAD Codes and the PRG Calculator for DOE CERCLA Sites
Charley Yu, Jing-Jy Cheng, Sunita Kamboj, Emmanuel Gnanapragasam, David Lepoire
ANL

P458
The study for effectiveness of WBC measurement positions in gamma internal dosimetry assessment
Seo Kon Kang, Jeongin Kim, Baek Yunmi
Radiation Health Institute, KHNP

MA5: Radiation Protection in Healthcare

P19
Study on improvement of reduction for radiation exposure and image quality using the U-net deep learning architecture and GATE toolkit in nuclear medicine thyroid scan
Chanrok Park, Min-Gwan Lee
Eulji University

P67
Optimization of Radiological Protection in Pediatric Cardiac Catheterization in Latin America and Caribbean project: Patient Doses and Categorization of Procedures in one of the Hospitals enrolled.
Mar Perez-Pena, Patricia Miranda, Pablo Jimenez, Carlos Ubeda, Jose Miguel Fernandez-Soto, Eliseo Vaño, Walter Fernando Mosquera, Raúl Ramírez, Emilie Van-Deventer
External Consultant Radiologist WHO, PAHO/WHO, Hospital Clinico San Carlos. Madrid (Spain), World Health Organization

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Categorization of Pediatric Cardiac Catheterization Procedures Based on Expected Radiation Exposure Levels: consensus achieved in "Optimization of Radiation Protection in Pediatric Interventional Procedures in Latin America and Caribbean" Program
Patricia Miranda, Mar Perez-Pena, Walter Fernando Mosquera, Daniel Aguirre, Cecilia Britton, Rafael-Alberto Gutierrez, Midael Gámez, Aldo Campos, Celia Silva, Carlos Ubeda
External Consultant Radiologist WHO

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Dicom Data Extraction Using Python
Ademar Potiens-Junior, Roberto Vicente, Maria Da Penha Potiens, Miguel Miranda, Fabricio Alves, França-Fiuza-Bacelar Letícia
Nuclear and Energy Research Institute, Brazilian National Commission of Nuclear Energy, Clínica São Judas Tadeu, IPEN/USP

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Optimization Of Patient Radiation Dose In Contrast Enhanced Digital Fluoroscopic Examinations: A Case Of Two Rwandan Radiology Departments
Bana Remy-Wilson
Rwanda

P187
Towards Establishing Local Diagnostic Reference Levels (DRLs) for Common Adult CT Examinations: A multi-center Survey in The Tunis Region
Rahma Rouissi, Abir Bouaoun, Chiraz Chammakhi, Latifa Ben-Omrane, Mohamed Bahrini, Rim Bounouh, Alifa Daghfous, Dorsaf Nouri, Sana Boussetta
Tunisian Association for Protection Against Ionizing and Non-Ionizing Radiation (ATPRI&NI)

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ALARA In Focus
Adelia Sahyun, Clarice Perez
ASW Consultants Ltda

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Defense Health Agency (DHA) Inspection Program – Site Assistance Visits
Shabbir Shivji, Kaylie Hammersborg, James Allen, William Bosley, Chris Dufford, Said Daibes Figueroa, Neil Keeney, Neena Patel, Ricardo Reyes
Defense Health Agency

P263
Measurement of the dose to the hands, and bodies of the people responsible for the immobilization of the animals in veterinary radiology
Minoo Shakerian, Elnaz Saeedian, Sedigheh Sina

P267
Measurement of the entrance skin dose, and the absorbed dose to organs of the patients in diagnostic radiology, a phantom study
Sadegh Abbaspour, Shima Alizadeh, Mozhgan Dalir, Mohaddeseh Heydariniya, Mobarakeh Nasiri, Elnaz Saeedian, Minoo Shakerian, Kazem Sadeghi-Ebrahim-Mohammadi, Sedigheh Sina, Mahboobeh Sheikhi

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Patterns of practice survey on radiation therapy for pancreatic cancer in Korea
Changhoon Song
Seoul National University Bundang Hospital

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Design and Development of a Web-based Application for Structural Shielding Calculation of Medical X-Ray Imaging Facilities
Cristian David Sosa-Vera, Pablo Andres
Uruguay National Authority in Radiation Protection, National Atomic Energy Commission

P356
Effective practices for training interventional cardiolangiologists
Rodolfo Touzet
Comisión Nacional de Energía Atómica

P359
Safety Culture and Quality Systems
Rodolfo Touzet
Comisión Nacional de Energía Atómica

P362
Occupational Radiation Protection at a Large Tertiary Hospital in South Africa
Christoph Trauernicht, Ricus Van-Reenen, Matty-Anne Claassens

P404
Statistical study of the percentage of breast glandularity from Mammography images in patients from Antioquia.
Carolina Viloria-Barragan, Bibiana Peña, Jorge Anselmo Puerta-Ortiz

P464
Animal PET-Imaging studies: the beta-dose reduction challenge.
Andre Zandvoort, Hielke-Freerk Boersma, Rick Havinga
University of Groningen

MA6: Radiation Protection in Nuclear Power and Fuel Cycle Industries

P175
Post Fukushima-Daiichi measures on Radiation Protection required by the Spanish Nuclear Safety Council
Elvira Romera
Commissioner

P319
Discrimination of artificial radionuclides through alpha energy spectrum analysis using radioactive aerosol monitors
Manaya Taoka, Mizuki Kiso, Yuki Abe, Michika Kon, Ryohei Yamada, Chutima Kranrod, Yasutaka Omori, Masahiro Hosoda, Shinji Tokonami
Hirosaki University

MA7: Radiation Protection in Practices

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Occupational Dose and Radiation Monitoring Trends Within Veterinary Institutions
Christopher Passsmore, Mirela Kirr
RDC, Radiation Detection Company

P95
Hard to Detect Radionuclides
David Pugh, George Chiu
US Department of Energy

P99
Operator Safety for Field Use of a Portable, Neutron Generator Isotopic Assessment System
Jill Rahon
MIT & U.S. Army

P159
Neutron dose in a self shielded 11 MeV cyclotron
Paulo Rios
CMR Campinas Pharma

P163
Self shielded safety circuit test
Paulo Rios, Denise Rios
CMR Campinas Pharma

P203
Evaluation Of The Effectiveness Of The Interface Between Protection And Safety During The Transport Of Radioactive Material
Adelia Sahyun, Clarice Perez
ASW Consultants Ltda

P259
Thermoluminescence dosimetry for determination of ESD to animals undergoing digital radiology imaging in the veterinary school of Shiraz University
Elnaz Saeedian, Minoo Shakerian, Fatemeh N.alizadeh, Mohsen Nowroozi, Mehrnoosh Karimipourfard, Zahra Rakeb, Sedigheh Sina

P335
Comparison of radiation shieling properties between metal ion solution and metal oxide particle dispersion
Ryoma Tokonami
Graduate School of Organic Materials Science, Yamagata University

P371
The Establishment Of The Key Technical Support System For National Food Radioactive Contamination Monitoring And Application
Fei Tuo
National Institute for Radiological Protection (NIRP), China CDC

P386
Partnering To Advance The Security Of Irradiation Systems
Meghan Van-Den-Avyle, Tim Erdoesi, Tom Rice, Eik Meier

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Cf-252 Source Operation Investigation
James Vigil

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Defense Public Health Center - Dayton Radioanalytical Lab
Jian Zhang, Aurelie Soreefan, Ty Richards
United States Air Force

P470
Defense Public Health Center - Dayton Radiation Calibration Lab
Jian Zhang, Matthew Patrick
United States Air Force

P483
Evaluation of Alternative Modalities for Sterile Insect Technique
Andrew Wilcox

MA8: Radiation Protection in NIR Applications

P247
Exploring the Photoprotective Potential of Jazan's Indigenous Plant Species for Ultraviolet Protection and Skin Health
Nasser Shubayr, Kimberlee Kearfott
Jazan University, University of Michigan

P353
Radiation Protection in Electromagnetic fields
Rodolfo Touzet
Comisión Nacional de Energía Atómica

MA9: Nuclear and Radiological Emergencies

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From An Actual Case, The Care For Acute Mixed Radioactive Contaminated Wounds In A Nuclear Power Plant
Hubert Peiffer
EDF - Eletricité de France

P171
United States Navy Nuclear Accident Dosimetry Program: History and Current Status
Alexander Romanyukha, Jessica Saunders, Keith Consani, David Boozer, Jeffrey Delzer
Armed Forces Radiobiology Research Institute, US Navy

P211
Environmental radiation measurement after the nuclear power plant accident i) Current status of environmental radiological survey and government policy 12 years after the accident
Yukihisa Sanada, Miyuki Sasaki, Kotaro Ochi, Shigeo Nakama
Japan Atomic Energy Agency

P271
Development of Military Computational Phantom-Specific Radionuclide S Values and Detector Count Rate Efficiencies for In-Field Radionuclide Contamination Triaging
Wyatt Smither, Robert Dawson, Chansoo Choi, Yitian Wang, Wesley Bolch
University of Florida, J. Crayton Pruitt Family Department of Biomedical Engineering

P291
Characteristics of Gamma Radiation Fields in Subterranean Structures for Radiation Protection and Decision-Making
Sarah Sublett
US Army, CSU

P389
Biological behavior of activated cobalt oxide particles: effect of aging on bioavailability and access to treatments.
Anne Van-der-Meeren, Karine Devilliers, Martine Defrance, Agnès Moureau, Florian Brulfert, Ulli Köster, Nicolas Huot, Catherine Berthomieu, Véronique Malard
CEA Radiotoxicology lab

P392
Efficacy Of Ca-DTPA Products For The Decontamination Of Actinide-Exposed Deep Wound In Rats
Anne Van-der-Meeren, Karine Devilliers, Pierre Laroche, François Caire-Maurisier, Michaël Pasteur, Nina Griffiths
CEA Radiotoxicology lab

P395
Project TIME: Technologies and Information for Monitoring Emergencies
Rebecca Varns
Defence Radiation Protection Services

P434
Biodosimetry and biomarkers of individual sensitivity
Andrzej Wojcik
Stockholm University

P443
A Study on the Development of Guidelines for Radiation Emergency Medical Regulation in Korea
Mihyun Yang
Korea Institute of Radiological & Medical Sciences (KIRAMS)

P455
Study on the relationship between health behavior and chromosomal abnormalities of male office workers in nuclear power plants
Baek Yunmi, Jeongin Kim, Seo Kon Kang
Radiation Health Institute, KHNP

P473
Strategies for Responding to Nuclear and Radiation Emergency Situations
Huanteng Zhang

MA10: Radioactive Waste Management in Nuclear, Medical and Industrial Facilities

P75
Clearance Process For Compacted Solid Radioactive Waste
Ademar Potiens-Junior, José Dellamano
Nuclear and Energy Research Institute - IPEN

P374
Nuclear Ship Savannah - Where Decommissioning and Historic Preservation Intersect
Edward Tupin, Erhard Koehler
HPS

MA11: Radon and Naturally Occurring Radiation

P59
Evaluation of lung cancer risks associated with residential indoor radon specific concentration in Lima, Peru
Patrizia Pereyra, Palacios Daniel, Bertin Perez, Laszlo Sajo-Bohus, Tony Viloria, Agustin Martinez
Pontificia Universidad Católica del Perú

P63
Assessing Naturally Occurring Radioactivity and Potential Risks of the Volcanic Ash of Ubinas Volcano Eruption, Peru
Patrizia Pereyra, Palacios Daniel, Laszlo Sajo-Bohus, Bertin Perez, Vilcapoma Luis, Cesar Guevara
Pontificia Universidad Católica del Perú

P123
An Analysis of the Scientific Production on Radon in Nuclear Area at Brazil
Fernando Razuck
National Comission Of Nuclear Energy (CNEN)

P215
Radon Level Measurements With Digital Detectors In The Department Of Radiation Therapy-BC Cancer Surrey.
Gurpreet K Sandhu, Vicky Huang, Anne-Marie Nicol, Brennen Dobberthien
CRPA, HPS

P295
Hot Spring's Radon Concentration in Peninsular Malaysia.
Hasbi Husein Sulkifli
Malaysia Nuclear Agency

P299
Treatment of Radioactive Oil Sludge By The Microwave Pyrolysis Method
Uryan Suman, Sara Arantes, Ademar Potiens-Junior, Julio Marumo
Nuclear and Energy Research Institute - IPEN, IPEN-CNEN/SP

P323
Quantitative Assessment of Pb-210 and Po-210 Concentrations in TENORM Materials Using Gross Alpha/Beta Measurements and NaI Gamma Spectrometry
Evgeny Taskaev, Taylor Weilert

P327
Assessments of Natural Occurring Radionuclides in Soils and Water in Some Mining Communities in Ghana
Lordford Tettey-Larbi, Esther Osei Akuo-ko, Gergely Tóth, Augustine Faanu, Amin Shahrokhi, Edit Tóth-Bodrogi, Tibor Kovacs
University of Pannonia

P338
An Experimental review of ICRP Lung Model for Radon/ Thoron Progeny Inhalation
Shinji Tokonami, Chutima Kranrod, Yasutaka Omori, Masahiro Hosoda, Aoi Sampei, Mizuki Kiso, Yuki Abe, Hiroki Hashimoto, Minoru Osanai, Yuki Tamakuma
Hirosaki University, Nagasaki University

P365
Analysis of the effectiveness of different radon remedial actions in a historical building located in a karst area
Rosabianca Trevisi, Maria Antonietta Aiello, Teresa Botti, Annapaola Caricato, Alberto Chezzi, Giovanni D'amato, Francesca Duchi, Gabriella Gianfrate, Giuseppe Mesiano, Federica Leonardi
INAIL

P368
Evaluation of Radionuclides in Air and Water Near the White Mesa Uranium Mill White Mesa, San Juan County, Utah
Anthony Trubiano
Agency for Toxic Substances and Disease Registry (ATSDR)

P422
Biogeochemical Controls of Cesium-137 Migration in Surface Waters and Vadose Zone Sediments at the Savannah River Site
Reid Williams, Fanny Coutelot, Daniel Kaplan, Brian Powel
Clemson University

P461
Determination Of Natural Radioactive Materials In Fertilizers In The Region Of El Bosque, Antioquia
Maribel Zabala, Jorge Anselmo Puerta-Ortiz
Universidad Nacional De Colombia Sede Medellin

7:45 AM – 8:45 AM

CEL-3 **Gatlin A4**
Radiobiological Studies Using X and Gamma Rays
Charles Potter
Sandia National Laboratories

7:45 AM – 8:45 AM

Refresher Course 9 **Gatlin B**
When NIR Causes IR Problems
John O'Hagan
Loughborough University

Refresher Course 10 **Gatlin A1**
The Basics of Relative Biological Effectiveness and Its Applications in Radiobiology
Gayle Woloschak
Northwestern University

Refresher Course 11 **Gatlin A2**
Ethical values in radiological protection and their implementation
Nicole Martinez, Thierry Schneider
Clemson University/ORNL
CEPN

Refresher Course 12 **Gatlin A3**
Internal dosimetry of Uranium Workers. An update.
Maria Antonia Lopez
CIEMAT

9:00 AM – 10:30 AM

MA1: Underpinning Sciences
Radiation Epidemiology Studies for Radiation Risk Assessment: Findings

Chair: Ashley Golden; Co-Chair: Sara Howard; Rapporteur: Luana Hafner

Gatlin A1

9:00 AM
Introduction to Related Posters

9:05 AM
Chronic Inflammation in a Radium Dial Painter Cohort: Elevated Neutrophil to Lymphocyte Ratio and Radiation-induced Hearing Loss
Ronald Goans, Lawrence Dauer, Carol Iddins, Michael Mumma, Stacey McComish, Sergey Tolmachev
MJW Corporation, Memorial Sloan Kettering, ORISE REAC/TS, US Transuranium and Uranium Registries, Washington State University

9:20 AM
Updates on the International Nuclear Workers Study (INWORKS)
David Richardson, Klervi Leuraud, Dominique Laurier, Michael Gillies, Richard Haylock, Kaitlin Kelly-Reif, Stephen Bertke, Robert Daniels, Isabelle Thierry-Chef, Mary Schubauer-Berigan
University of California, Irvine, Institute for Radiological Protection and Nuclear Safety

9:35 AM
Mortality Analysis of SELTINE, the French Cohort of Nuclear Workers, 1968–2014
Dominique Laurier, Olivier Laurent, Eric Samson, Sylvaine Caer-Lorho, Lucie Fournier, Klervi Leuraud
Institute for Radiological Protection and Nuclear Safety (IRSN)

9:50 AM
Chronic Radiation Health Effects in the Million Person Study: Incidence and Mortality
Amir Bahadori, Loren Lipworth, John Boice, Lawrence Dauer
Kansas State University, Vanderbilt University Medical Center, NCRP, Memorial Sloan Kettering

10:05 AM
Lifetime excess absolute risk for lung cancer due to exposure to radon – the contribution of the PUMA study (Pooled Uranium Miners Analysis)
Dominique Laurier, Michaela Kreuzer, Manuel Sommer, Veronika Deffner, Stephen Bertke, Paul Demers, Kaitlin Kelly-Reif, Estelle Rage, David Richardson, Jon Samet
Institute for Radiological Protection and Nuclear Safety (IRSN), University of California, Irvine

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA3: Communication, Stakeholder Involvement, Education and Training

Stakeholder Involvement, Radiation Protection Culture

Chair: Bernard Le Guen;
Co-Chair: Christopher Clement;
Rapporteur: Ferid Shannoun

Gatlin A4

9:00 AM
Introduction to Related Posters

9:05 AM
Stakeholder Participation In The Removal Of Multiple Radioactive Sources Following The Breach Of A Cesium-137 Source
Philip Campbell
University of Washington

9:20 AM
Feedback from technical dialogue set up with civil society on HWL & IL-LL waste management in France
Cynthia Reaud, Delphine Pellegrini, Yves Lheureux
IRSN

9:35 AM
Safety Culture Self-Assessment experience at the IAEA Radiation Safety Technical Services
Rodolfo Cruz-Suarez, Marta Bavio, Allison Wilding, Michael Hajek
International Atomic Energy Agency

9:50 AM
Effective Communication between Radiation Protection Professionals and Medical Care Providers
Steve Sugarman
SummitET

10:05 AM
Ethical Decision Making Tools for Enhancing Organizational Radiological Safety Culture
Janet Gutierrez
UTHealth Houston, EH&S

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA4: Dosimetry and Measurements

Biological Dosimetry and Biomarkers of Exposure

Chair: Andrzej Wojcik;
Co-Chair: Adayabalam Sambasivan Balajee;
Rapporteur: Prabodha Kumar Meher

Gatlin A2

9:00 AM
Introduction to Related Posters

9:05 AM
Experience and Updates of the U.S. Department of Defense Biodosimetry Network Development
Ricardo Reyes, Gerald Burke, Jeffrey Delzer, Alexander Romanyukha, Jessica Saunders, Jim Managbanag, William Blakely
DHA, Armed Forces Radiobiology Research Institute

9:20 AM
Harmonizing Radiation Protection: A Unified Approach to Enhance Chromosomal Aberration Identification in Biodosimetry Using High-speed C-banding
Donovan Anderson, Kai Takebayashi, Naomi Sasaki, Valerie Swee Ting Goh, Ryo Nakayama, Yohei Fujishima, Akifumi Nakata, Tomisato Miura
Hirosaki University

9:35 AM
Technological Scenario of Biodosimetry
Chrysler Ruan, Marcela Freitas, Mariana Reis, Adriana Medeiros-Batista
Universidade Federal de Minas Gerais

10:20 AM
Further Development of a Compact Nanodosimeter and Potential Future Applications
Victor Merza, Reinhard Schulte, Antoni Ruciński, Ana Belchior
University of Lisbon

10:35 AM
Q&A

9:00 AM – 10:30 AM

MA5: Radiation Protection in Healthcare
Radiation Protection in Healthcare: Optimization

Chair: John Damilakis;
Co-Chair: Maria del Rosario Perez Gonzalez;
Rapporteur: Hua Li

Gatlin B

9:00 AM
Introduction to Related Posters

9:05 AM
International Program about the Optimization of Radiological Protection in Pediatric Interventional Radiology in Latin America and the Caribbean
Carlos Ubeda, Eliseo Vaño, Maria Del Rosario Perez-Gonzalez, Pablo Jimenez, Emilie Van-Deventer, Raúl Ramírez, Alejandro Nader, Patricia Miranda, Mar Perez-Pena
PAHO, World Health Organization, External Consultant Radiologist

9:20 AM
Establishing Dose Coefficients for Common Paediatric Diagnostic Fluoroscopic Examinations in Support of ICRP Task Group 113
Wyatt Smither, Kimberly Applegate, Wesley Bolch, Emily Marshall, David Borrego
University of Florida, J. Crayton Pruitt Family Department of Biomedical Engineering, ICRP, NCRP

9:35 AM
Radiological Justification Criteria of Pediatric Computed Tomography in Kenya
Lonah Ong'ayo, Calvince Odeny
Kenyatta University Teaching Referral and Research Hospital, Kenya Nuclear Regulatory Authority

9:50 AM
Comprehensive Assessment of Medical Radiation Dose in Taiwan: Trends and Implications
Hui-Yu Tsai, Chun-Yu Ho, Pei-Shan Ho, Meng-En Lian, Tou-Rong Chen, Szu-Li Chang

10:05 AM
Acceptable Quality Dose Based On Size Specific Dose Estimates For Pediatric Ct Examinations In Nigeria
Mohammed Umar, M Dambele, C Anam, JD Zira, Flavious Nkubli
Baze University Abuja-Nigeria, University of Maiduguri

10:20 AM
Q&A

9:00 AM – 10:30 AM

MA11: Radon and Naturally Occurring Radiation
NORM – Practical NORM – 2 AND Radon

Chair: Shazia Fayyaz;
Co-Chair: Abraham Jozua Van der Westhuizen;
Rapporteur: Alaina Little

Gatlin A3

9:00 AM
Introduction to Related Posters

9:05 AM
Sustainability and NORM – the Practitioner's Perspective
Rainer Gellermann, Analia Canoba, douglas chambers, Jim Hondros, Stéphane Pepin
Nuclear Control & Consulting GmbH, Member, Arcadis

9:20 AM
Management Of Naturally Occurring Radioactive Material (NORM) During Pipe Line Scraping Operations, A Case Study
Omar Al-Somali, Emil Aliyev
Saudi Aramco

9:35 AM
Kinetic Modeling of Radon Accumulation in Indoor Air
Melaan Bender, Wei-Hsung Wang, Yongha Kim
Louisiana State University

9:50 AM
The Radon Effective Dose Calculation Following The Dosimetric Approach:Examples and Challenges
Mauro Magnoni, Enrico Chiaberto, Elena Serena, Marco Frasca
ARPA Piemonte - Department of Physical and Technological Risks

10:05 AM
Q&A

11:00 AM – 12:30 PM

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation
Radiological Protection of the Environment

Chair: Kathryn Ann Higley; Co-Chair: Jonathan Napier; Rapporteur: Jessica Joyce

Gatlin B

11:00 AM
Introduction to Related Posters

11:05 AM
Revisiting the System of Radiological Protection: Environmental Protection
Nicole Martinez
Clemson University/ORNL

11:20 AM
IAEA-Coordinated Research Advances Methods and Data for Radiation Dosimetry of Terrestrial Animals and Plants
Alexander Ulanowski, Thomas Hinton, James Beasley, Jean-Marc Bonzom, Shaofei Cao, Sandrine Frelon, Dmytrii Holiaka, Mathew Johansen, Valery Kashparov, Maksim Kudzin
International Atomic Energy Agency

11:35 AM
The Concept of Reference Animals and Plants for Radiological Protection of the Environment
Kathryn A. Higley
NCRP, Oregon State University, CORVALLIS, OR

11:50 AM
U.S. EPA Approach to Protection of the Environment
Michael Boyd
U.S. EPA

12:05 PM
Q&A

11:00 AM – 12:30 PM

MA6: Radiation Protection in Nuclear Power and Fuel Cycle Industries
Radiation Protection Challenges in New Nuclear Technologies

Chair: Peter Alfred Bryant; Co-Chair: Josip Zic

Gatlin A2

11:00 AM
Introduction to Related Posters

11:20 AM
Developing a Regulatory Framework for U.S. Fusion Systems
Theresa Clark, Duncan White, Dennis Andrukat
U.S. Nuclear Regulatory Commission

11:35 AM
Advancing Radiological Protection Challenges on Small Modular Reactors
Todd Smith, Lucas David Martiri
US Nuclear Regulatory Commission

11:50 AM
Radiation Protection for Advanced Reactors (both large and small) – Lessons from Existing Reactors
Michael Rinker
Bruce Power

12:05 PM
Beyond Radiation Protection, Considerations In setting Emergency Planning Zones For New Nuclear Builds
Douglas Chambers, Peter Bryant
CRPA

12:20 PM
Q&A

11:00 AM – 12:30 PM

MA7: Radiation Protection in Practices
Military Applications

Chair: Jeff Caudill; Co-Chair: Aure Stewart;
Rapporteur: Joel Piechotka

Gatlin A1

11:00 AM
Introduction to Related Posters

11:05 AM
Extending The Norwegian-Ukrainian Regulatory Cooperation Programme To Address The Full-Scale Invasion By Russia
Malgorzata Sneve, Katarzyna Siegen, Yuliya Balashevska, Oleksandr Pecherytsia
Norwegian Radiation and Nuclear Safety Authority

11:20 AM
Radiation Safety Guidance Documents and Notices as Venues to Standardize Radiation Safety Practices at the Defense Health Agency
Ricardo Reyes, shabbir shivji, James Allen, Chris Dufford, William Bosley, Kaylie Hammersborg, Neil Keeney, Neena Patel, Said Daibes-Figueroa
Defense Health Agency

11:35 AM
The Subcrit: Sixty Years of Leader Development through Nuclear Engineering and Radiological Sciences
James Frey, Daniel Schultz
D/P&NE, USMA

11:50 AM
Overview of the Complex Defense Threat Reduction Agency Radiation Safety Program
Geena Quiñones, Dan Sowers
Defense Threat Reduction Agency

12:05 PM
United States Navy Industrial Radiological Controls: Organization, the Naval Radiation Safety Committee, and Implementation of a Master Materials License
Greg Fairchild
U.S. Navy, Pentagon

12:20 PM
Q&A

11:00 AM – 12:30 PM

MA9: Nuclear and Radiological Emergencies
Radiation Emergency Preparedness – International Guidelines and Reports From Different Countries

Chair: Maria Antonia Lopez;
Co-Chair: John Allan Klumpp;
Rapporteur: Cheyenne l'Auclair

Gatlin A3

11:00 AM
Introduction to Related Posters

11:05 AM
The work of ICRP TG120 on Radiation Emergencies and Malicious Events
Chunsheng Li, Anne Nisbet, Volodymyr Berkovskyy, Yann Billarand, Peter Bryant, Brooke Buddemeier, Zhanat Carr-Kenbayeva, Adrienne Ethier, Maren Gruss, Jen Mosser
Health Canada, IRSN, LLNL, World Health Organization, US EPA

11:20 AM
CRC SimPLER v2.0 - Building a computationally efficient discrete event simulation tool for leveraging and evaluating resources at a Community Reception Center using metamodeling
Lauren Finklea, Temilade Sorungbe
CDC

11:35 AM
Development and Verification of National Nuclear Accident Consequence Assessment and Decision Support System
Junfang Zhang, Liye Liu, Minghua Lyu, Rentai Yao
China Society of Radiation Protection (CSRP)

12:05 PM
Medical management of large-scale radiological and nuclear scenarios using early and high-throughput tools for clinical outcome prediction as part of the radiation emergency preparedness.
Matthias Port, Patrick Ostheim, Michael Abend
Bundeswehr Institute of Radiobiology

12:20 PM
Q&A

11:00 AM – 12:30 PM

MA10: Radioactive Waste Management in Nuclear, Medical and Industrial Facilities

Management Of Waste Containing Naturally Occurring Radionuclides and DSRS

Chair: Gerard Bruno; Co-Chair: Pedro Costa; Rapporteur: Gabriel Pessanha Jabarra

Gatlin A4

11:00 AM
Introduction to Related Posters

11:05 AM
Revision of IAEA Safety Report on Radiation Protection and the Management of Radioactive Waste in the Oil and Gas Industry
Burcin Okyar, Jizeng Ma, Miroslav Pinak
International Atomic Energy Agency

11:20 AM
Correlation Between Activity Concentration And Equivalent Dose Rate For Naturally Occurring Radioactive Material
Gabriel P. Jabarra, Camila Gyuricza, Yuniel Tejeda
Jabarra Radiation Protection Services

11:35 AM
To leave or not to leave: a tiered assessment of the impacts of scale residue from decommissioned offshore oil and gas infrastructure in Australia
Amy MacIntosh, T Cresswell, D.J. Koppel, Gillian Hirth, Rick Tinker, Katherine Dafforn, Anthony Chariton, Beth Penrose, A Langendam

11:50 AM
Management of DSRS in Tunisia
Tahar Hamida
National Centre of Radiation Protection - Tunisia

12:05 PM
Q&A

2:00 PM – 3:30 PM

MA2: The Systems of Protection for Ionizing and Non-ionizing Radiation

Fundamental Concepts in Radiological Protection

Chair: Werner Rühm; Co-Chair: Ludovic Vaillant; Rapporteur: Shaheen Dewji

Gatlin B

2:00 PM
Introduction to Related Posters

2:20 PM
Individualisation and Stratification in Radiological Protection
Simon Bouffler
UK Health Security Agency

2:35 PM
Revisiting the System of Radiological Protection: The Principle of Justification
Nobuhiko Ban
Nuclear Regulation Authority

2:50 PM
Revisiting the System of Radiological Protection: Exposure situations and categories of exposure
Yann Billarand
IRSN

3:05 PM
Activity Report of JHPS Committee on Categories of Exposure and Exposure Situations
Nobuyuki Sugiura
Chiyoda Technol Corporation

3:20 PM
Q&A

2:00 PM – 3:30 PM

MA4: Dosimetry and Measurements
Instrumentation, Metrology, and Standards

Chair: Nolan Hertel; Co-Chair: Kimberlee Jane Kearfott; Rapporteur: Garcia Gonzalo

Gatlin A2

2:00 PM
Introduction to Related Posters

2:05 PM
ICRU Report 95 Operational Quantities for External Radiation Exposure: Implication on Occupational Radiation Protection
Rodolfo Cruz-Suarez, Michael Hajek, Allison Wilding
International Atomic Energy Agency

2:20 PM
News in Radiation Protection Standardization
Rolf Behrens, Hayo Zutz, Miroslav Voytchev, François Queinnec, Oliver Hupe
Physikalisch-Technische Bundesanstalt (PTB), Institut de Radioprotection et de Sûreté Nucléaire (IRSN)

2:35 PM
Indoor radon and ambient equivalent dose measurements using a locally manufactured low-cost smart electronic device and validation with reference instruments
Jacob Mbarndouka-Taamté, Saidou Saidou
Research Centre for Nuclear Science and Technology, Institute of Geological and Mining Research

2:50 PM
RadMap: A Flexible Radiation Surveying System Based Upon Sound Card Spectrometry and Open-source Coding on a Single-Board Computer
Caleb Bush, Ryan Kim, Clay Hudson, Wiest Jakob, Jordan Noey, Kimberlee Kearfott
University of Michigan

3:05 PM
Calibration of radiation survey meters and dosimeters, without radioactive source
Gabriel Dupont
ATRON Metrology

3:25 PM
Q&A

2:00 PM – 3:30 PM

MA5: Radiation Protection in Healthcare
Radiation Protection in Healthcare: Radiotherapy Applications

Chair: Cameron Jeffries; Co-Chair: Kimberly Applegate; Rapporteur: Mohammed Sani Umar

Gatlin A4

2:00 PM
Introduction to Related Posters

2:05 PM
Safety in Radiation Oncology (SAFRON): Learning about Incident Causes and Safety Barriers in External Beam Radiotherapy
Vesna Gershan, Ola Holmberg, Maryam Zarei
IAEA

2:20 PM
A Novel Method for Patient-Specific Tetrahedral Mesh Phantom Generation with Applications to Organ Dosimetry Following Radiotherapy
Robert Dawson, Wyatt Smither, Chansoo Choi, Yitian Wang, Erika Kollitz, Wesley Bolch
University of Florida, J. Crayton Pruitt Family Department of Biomedical Engineering

2:35 PM
Development and Application of a Novel Scintillation Gel-based 3D Dosimetry System for Radiotherapy
Hua Li, Liye Liu, Haijing Jin, Xuewen Yan
China Institute for Radiation Protection

2:50 PM
A Novel Breast Tissue Expander For Optimized Imaging And Radiotherapy Of Post-Mastectomy Cancer Patients
Madison Bushloper, Julie Bradley, Robert Dawson, Xiaoying Liang, Michele Manuel, John Murray, Wesley Bolch
University of Florida

3:05 PM
Q&A

2:00 PM – 3:30 PM

MA7: Radiation Protection in Practices
Safety and Security of Radioactive Sources

Chair: Ruth McBurney;
Co-Chair: Carolyn Jean MacKenzie;
Rapporteur: Andrew Najjar

Gatlin A1

2:00 PM
Introduction to Related Posters

2:05 PM
Development Of An Alternative Nuclear Security And Safety Risk Analysis Method Using An Integration Assessment Tool And Consequence Indexing
Theodore Thomas, Jason Harris
Purdue University

2:20 PM
The re-designed German Registry of High-Activity Sealed Sources
Helge Kroeger, Maximilian Banowski, Ralph Dollan

2:35 PM
Determinations of lead equivalent thicknesses of some construction materials, as an alternative to the use of lead sheets
Benjamin Raharison, Mbolatiana Ralaivelo, Charles Randriamaholisoa
ANARAP-Madagascar

2:50 PM
Sensitivity Analysis And Decision Making For A Nuclear Security Scenario Using A Risk Analysis Model
Joeun Lee, Jason Harris
Purdue University

3:05 PM
Safety Culture Assessment Of Six Latin-American Organizations With Industrial Radiography: A Regional Pilot Project
Ruben Ferro-Fernandez, Rodolfo Cruz-Suarez, Cristiane Oliveira, Maria Teresa Alonso-Jiménez, Miguel Aravena, Melina Mondelli, Renan Ramirez, John Lozano, Yamil López-Forteza
Member, IAEA, Comissão Nacional de Energia Nuclear (CNEN), ARNR MIEM, Ministerio de Minas y Energía, Office for Environmental Regulation and Safety - Nuclear Safety Division

3:20 PM
Q&A

2:00 PM – 3:30 PM

MA11: Radon and Naturally Occurring Radiation
Radon

Chair: Philip Vincent Egidi; Co-Chair: Yongha Kim;
Rapporteur: Margaret Wairimu Chege

Gatlin A3

2:00 PM
Introduction to Related Posters

2:05 PM
Radiation Harmonization in Asian-Oceanic Region: AORA's Commitment to Radon
Shinji Tokonami, Chutima Kranrod, Donovan Anderson, Yasutaka Omori, Miroslaw Janik, Jim Hondros
Hirosaki University

2:20 PM
Health Effects of Radon Exposure
Larry Keith, Paul Charp, Obaid Faroon
CDC/ATSDR, CDC

2:35 PM
In-vivo Measurement of Pb-210 as a Biomarker for Assessing Radon-Induced Lung Cancer Risk at China Jinping Underground Laboratory
Yu Wang, Yuanyuan Liu, Bin Wu, Xiangpeng Meng, Jing Wang, Jianping Cheng
Beijing Normal University

2:50 PM
Harmonizing radon exposure assessment in NORM involving industries: from the analysis of different national regulations
Rosabianca Trevisi
INAIL

3:05 PM
Radon-Risk Mapping And Exposure In The Radon-Prone Area Of The Adamawa Region, Cameroon
Soumayah Bachirou, Saidou Saidou, Chutima Kranrod, Masahiro Hosoda, Kwato Njock, Shinji Tokonami
Local Material Promotion Authority, Research Centre for Nuclear Science and Technology, Institute of Geological and Mining Research, Hirosaki University

3:20 PM
Q&A

7:45 AM – 8:45 AM

Refresher Course 13 **Panzacola F-1**
Biodosimetry and Biomarkers of Individual Sensitivity
Andrzej Wojcik
Stockholm University

9:00 AM – 10:30 AM

Plenary Session #3

Chair: Thierry Schneider; Co-Chair: Eduardo Gallego; Rapporteur: Jason Timothy Harris

Panzacola F-1

9:00 AM
Fostering Education, Training and Competences In Radiological Protection
Thierry Schneider, Marie Claire Cantone, Werner Rühm, Wesley Bolch, Jan-Willem Vahlbruch, Yeon Soo Yeom, Andrzej Wojcik, Hildegarde Annie A Vandenhove
CEPN, Milan State University, ICRP Germany, University of Florida, Leibniz University Hannover, Stockholm University, IAEA

9:00 AM – 10:30 AM

Plenary Panel Discussion #4

Chair: Kevin Nelson

Panzacola F-3

9:00 AM
Recurring Medical Exposures of Patients
Kevin Nelson, Rehani Madan, Colin Martin, Kimberly Applegate, Vesna Gershan
Mayo Clinic Arizona, ICRP, NCRP, IAEA

9:00 AM – 10:30 AM

MA4: Dosimetry and Measurements
Environmental Dosimetry, Monitoring, and Modelling

Chair: Charley Yu; Co-Chair: Rodolfo Cruz Suarez; Rapporteur: Donovan Aaron Anderson

Panzacola F-4

9:00 AM
Introduction to Related Posters

9:05 AM
Doses from External Irradiation and Ingestion of 134Cs, 137Cs and 90Sr of the Population of Belarus and Ukraine Accumulated over 35 Years after the Chernobyl Accident
Vladimir Drozdovitch, Sergii Masiuk, Victor Minenko, Evgenia Ostroumova, Tatiana Kukhta, Olga Ivanova, Valentyna Buderatska, Mykola Chepurny, Zulfira Boiko, Natalia Zhadan
National Cancer Institute

9:25 AM
Relationships between protection and operational dosimetric quantities for external exposure to natural background radiation
Alexander Ulanowski, Mikhail Balonov, Nina Petoussi-Henss, Tatsuhiko Sato
International Atomic Energy Agency, UNSCEAR

9:40 AM
Spatial Analysis of Transfer Factors
Jonathan Napier
Pacific Northwest National Laboratory

9:55 AM
Radioecology in Arid Countries: Database and Missing Parameters
Mauritius Hiller, Natalia Semioschkina, Gabriele Voigt, Prasoon Raj, Maryam Almakrani, Francois Foulon, Nemeer Padiyath
RadCon GmbH

10:10 AM
Nuclide Identification using Machine Learning in Gamma Spectroscopic Environmental Monitoring
Harald Breitkreutz, Luca Curcuraci, Josef Mayr, Martin Bleher, Stefan Seifert, Ulrich Stöhlker
Scienta Envinet

10:25 PM
Q&A

11:00 AM – 12:30 PM

11:00 AM
Closing Ceremony Panzacola F-1
YP Award, Recognizing the way forward and how to work together.

PROFESSIONAL ENRICHMENT PROGRAM (PEP)

Sunday 7 July • Rosen Shingle Creek

ONCE AGAIN

The Professional Enrichment Program (PEP) handouts for the Annual Meeting will not be available in hard copy. For those who preregister, you will be provided with an access code for downloading the handouts approximately two weeks prior to the meeting. For those who register for courses on-site, you will be provided the code when you register.

Please note, not all instructors provide downloadable information.

The Professional Enrichment Program (PEP) provides a continuing education opportunity for those attending the Health Physics Society Annual Meeting. The two hours allotted each course ensure that the subjects can be discussed in greater depth than is possible in the shorter programs offered elsewhere in the meeting.

On Sunday, 7 July, a series of 20 courses will be offered between 8:00 AM – 5:30 PM.

Registration for each two-hour course is $105 and is limited to 60 attendees on a first-come, first-served basis. Those whose registrations are received before the preregistration deadline will be sent confirmation of their PEP course registration.

Students with a current ID card will be admitted free of charge to any sessions which still have space available after the waiting list has been admitted. Student admission will be on a first-come, first-served basis and will only begin 15 minutes after the start of the session to allow for completion of ticket processing.

AAHP is evaluating the number of Continuing Education Credits awarded for each of the PEP (and CEL) courses based on technical content. Course instructors will be able to provide this information at the time of the presentation. This information will also be made available on the AAHP recertification site after data entry is completed.

Please Note!!

Please be on time for your sessions. The lecturer will begin promptly at the scheduled time. Please allow time for check-in. The HPS reserves the right to schedule a substitute speaker or cancel a session in case the scheduled speaker is unavailable.

Attendees not present at the starting time of the session cannot be guaranteed a space, as empty spaces will be filled from the wait list at that time. Spaces left after the wait list has been admitted may be filled with students. If your duties at the meeting cause you to be late for your lecture (e.g., chairing a session), contact the PEP registration desk so that your name can be placed on the waiver list and your space held.

Refund Policy

Requests for PEP refunds will be honored if received in writing by 15 June. All refunds will be issued AFTER the meeting. Exceptions will be handled on a case-by-case basis.

Sunday, July 7 • 8:00am – 10:00am

PEP 1-A

Case Studies in "Radiation Deception": Practical Strategies for Avoiding Fraud Based on Lessons Learned

Robert Emery

St. Johns 22

The radiation protection profession has periodically experienced instances of purposeful deception practices that remained undetected for some period of time; upon discovery, the cases revealed gaps in confirmation or validation practices that the radiation protection community should note. This Professional Enrichment Program (PEP) presents summaries of actual "radiation deception" cases along with the process vulnerabilities they exploited. Recommended process improvements that the radiation safety community can consider will be discussed; ample time will be provided for discussion with the overall intent of improving the collective fidelity of radiation protection processes. The radiation protection profession has periodically experienced instances of purposeful deception practices that remained undetected for some period of time; upon discovery, the cases revealed gaps in confirmation or validation practices that the radiation protection community should note.

PEP 1-B

Becoming a science communicator in social media

Robert Hayes

St. Johns 23

The presenter (an associate professor of nuclear engineering and CHP) has been serving as a science communicator for many years doing public videos for TikTok with a focus on nuclear science and technology. Here he feilds at least 3 to 10 technical questions per day from the public with most questions focusing on radiological risk. The difficulties with developing a social media outreach following will be discussed from the lessons learned through generating a social media channel (TikTok) with over 100k followers having over 1M likes (https://www.tiktok.com/@nuclearsciencelover). Tips and ideas for easy but meaningful social media creation will be presented with the session ending with a practical skills application where attendees will be invited to make their own social media content to carry out public comminaction on technical issues under the direction and guidance of the presenter.

PEP 1-C

Experiences with Dental Cone Beam CTs, Thoughts after 10 years Since their Introduction

Frederic Mis, Carl Tarantino

St. Johns 24

While it's been over ten years since the widespread use of Cone Beam Computer Tomography (CBCT) imaging systems was introduced in medical/dental officeComs, many questions remain on the pertinent oversight of these systems. This CEL focuses on some of the significant issues that should be addressed to ensure adequate radiation protection is provided to workers and the general public. The following points will be discussed: 1) Use of Dose Area Product (DAP) and how challenges with device shutters impact the DAP delivered to the patient and the quality of the image; 2) Cracking of plastic covers due to aggressive cleaning and radiative damage to plastic; 3) Inconsistent regulatory enforcement between states; 4) Shielding challenges, due to energies up to 120 kVp. This can cause the need to install at least 1/16th of an inch of lead, or interlocks on doors depending on the State regulations; and 5) Protective measures to staff because of the higher amounts of scatter radiation.

PEP 1-D

Evaluating Hazards When Using Or Processing Radionuclides

John Bliss

St. Johns 25

Identifying potential and explicit hazards is an important step in performing work safely and is vital for working with radionuclides. Several surrogates for rating radionuclide hazard are used in a variety of operational domains leading to a poor understanding of the actual hazard and, at times, poor selection of controls. In addition to the explicit hazards associated with radioactive material, radioactive decay and physical or chemical processing can introduce significant new hazards. As implementation of the "as low as reasonably achievable" (ALARA) process requires a full understanding of hazards and their magnitude, several measures of radionuclide hazard will be discussed and examples of processes that introduce new hazards will be discussed. Application to evaluating radionuclide hazards during an emergency will be introduced. (LA-UR-24-20321)

PEP 1-E

New Pixelated CZT 3D Detection Systems for Applications in Nuclear Power Plants & Medical Imaging Technology

David Miller

St. Johns 26

The health physics presentation discusses HP technology applications of pixelated, 3D CZT for nuclear plants isotopic mapping, medical 3D imaging, homeland security surveillance, and decommissioning site isotopic characterization. The pixelated, 3D, CZT detection system provides GPS location and digital camera color-coding of individual isotopic identification for the radiation protection manager to excel in characterizing the aging plant radiological environment.

The state-of-art advancement of CZT launched by the University of Michigan over the past 20 years under the US Department of Defense sponsored research is now in use at over eighty operating nuclear plants in US and Canada. NATC played a key role in helping to bring the USDOD technology to operating nuclear power RP Departments. The CZT detectors verify the adequacy of temporary shielding, contamination control, PWR Crud Burst isotopic mapping and radwaste shipment RP surveys. The wide adoption of the CZT detectors have led to new applications in homeland security, safeguard on nuclear materials as part of the missions of the IAEA and nuclear emergency response. IAEA organized a gamma-ray imaging workshop and conducted blind tests on gamma-ray systems developed by eight different organizations in the world. The pixelated, 3-D, CZT detectors were selected for deployment at IAEA for international nuclear safeguards inspectors.

The use of the new spectra, pixelated, CZT system at Palisades is discussed including the discovery of significant Ag-110m contamination in the charging pump room. Ag-110m has been found to create dose rates of over 35 mR/hr above the refueling pool at AP-1000 Westinghouse PWR units. The Palisades NATC studies show new methods of measurement and removal of Ag-110m contamination using US specialty resins developed at US National Laboratories. SRM applications for individual isotopic monitoring are currently being studied.

The Point Beach US PWR installed five pixelated CZT spectra detectors for PWR CRUD Burst measurements during a recent refueling outage. Upon restart of the unit, failed fuel was detected by the pixelated CZT detectors. This achievement is the first known use of CZT as a real-time failed fuel monitoring system.

Position-sensitive, 3-dimensional CZT room temperature semiconductor gamma-ray spectrometers and imagers have been designed and are now in medical research laboratories for applications for proton beam therapy dose measurements, PET, and radionuclide patient isotopic imaging. An elaborate pixelated CZT medical imaging system using over 150 CZT detectors has been built and delivered to Johns Hopkins Medical School to continue the new medical imaging technology development.

PEP 1-F

Cognitive Dissonance; Heuristics & Logical Fallacies in Risk Perception: Why It's So Natural For So Many To Believe So Much That Is So Wrong

Jerrold Bushberg

St. Johns 34

Public resistance and fear of radiation is not a new phenomenon. Research on affective influences on public opinion suggests cognitive influences compete with various emotional variables in their influences on public perceptions of risk from technology employing ionizing and non-ionizing radiation. Specifically, people are often influenced by more affective aspects, such as concerns or fears, which are more a function of the potential severe outcomes or the vividness of potential risks rather than of objectively quantifiable probabilities or expectations. Even though cognitions, such as levels of scientific knowledge and education, are related to public support for radiation-related technology, they alone cannot fully explain the variations of public opinion on these issues. A significant body of literature has empirically examined the influences of cognitive dissonance, heuristics, and logical fallacies. This line of research has shown that (1) affective processes often precede cognitive evaluations and (2) people's judgments about science and technology are often based on a general feeling about science and technology rather than analytical judgment. The seminal research of Paul Slovic, Daniel Kahneman, Amos Tversky, and others on intuitive toxicology can be used as a starting point to understand why it's so natural for so many to believe so much that is so wrong. An overview of these topics will be presented along with specific recommendations to increase the effectiveness of communicating the risks of radiation exposure in a public forum.

Sunday, July 7 • 10:30am – 12:30pm

PEP 2-A

So Now You Are the Radiation Safety Officer - Elements of an Effective Radiation Safety Program

Thomas Morgan

St. Johns 22

This presentation will outline and discuss best practices to develop and maintain an effective radiation safety program. It will include what is expected of the RSO, how the RSO can interact with managers, employees and others to be most effective, and discuss a number of problems and incidents that can provide a learning experience for the new RSO. Attendees will be encouraged to participate in these discussions.

PEP 2-B

Emergency Response and Information Communication – Considerations for the Health Physicist

Steve Sugarman

St. Johns 23

It is essential that health physicists are able to seamlessly integrate themselves into the response environment In the event of a radiation incident. The radiological situation needs to be properly, yet rapidly, assessed so that a safe and effective response can be planned. It is not always necessary to incorporate wholesale changes to the way things may usually be done in the absence of radioactive materials. Oftentimes health physicists get caught up in the minutiae and can lose sight of what needs to be done to provide the needed support in the early stages of an incident. When coupled with a good event history and other data, the proper tools and thought processes allow health physicists to have a large positive effect on the safe and effective response to a radiological event. In addition to performing the "normal" health physics duties, assisting with messaging and communication should be looked at as an area where health physicists can be of help. Radiation professionals may be called upon to provide information in a variety of ways during and after a radiation emergency. It is often necessary for someone with radiological expertise to assist those individuals/groups forming public messages create a clear and accurate message. The ability to successfully integrate radiation-related expertise into a response and communication scenario requires someone with an ability to break down complicated concepts into an understandable manner for a broad – if sometimes not overly large – audience. Effective communication is a skill set developed with years of experience and practice along with a willingness to change one's approach based on feedback from target audiences. Successful communications can greatly affect the outcome of a variety of radiation emergency situations, so it is important that trained and capable subject matter experts are available to be integrated into emergency response plans and operations.

PEP 2-C

Fundamental Principles of Medical Internal Radiation Dosimetry

Darrell R. Fisher

St. Johns 24

This course reviews the core principles and scientific formalism for calculating internal doses from medically administered radiopharmaceuticals, including methods, models, assumptions, and computational tools available to radiation safety professionals. In practice, this formalism simplifies the problem of assessing dose for many different radionuclides—each with its unique radiological characteristics and chemical properties as labeled compounds—in the highly diverse biological environment represented by the human body, internal organs, tissues, fluid compartments, and cells. The major challenge in radiation dose assessment is to determine te time-dependent biokinetics of radionuclide uptake, retention, redistribution within, and excretion from the body. In clinical practice, direct patient measurements are obtained using calibrated imaging systems. Detected counts are translated to absolute activity resident in the major organs and tissues through disappearance or complete decay. Time-activity data may suggest mathematical functions that may be fitted to the acquired data points. Integration of the area under the time-activity curve through complete decay yields the time-integrated activity, that is, the total number of radioactive decays in the source organ. The time-integrated activity coefficient is the most important input to dosimetry software.

Internal dose calculations account for all radiation energy imparted to organs and tissues, including both self-organ dose and cross-organ dose contributions. These calculations are applied to human models representing male and female phantoms of many different ages and sizes. Given the many radionuclide choices available, and extensive differences in radiation emission properties, internal dosimetry becomes a computationally intensive effort that lends itself to computerization. Software solutions efficiently and conveniently implement the MIRD schema. Several new computer programs have been developed for use in medical internal dosimetry, both free to the user and commercially available. Some computer programs calculate time-integrated activities but have no dose-calculation functionality. The opposite is true for other software tools, while still others provide a complete suite of capabilities for tools for co-registering multiple clinical image formats at various timepoints to analyze biokinetic measurement data, compute time-integrated activity coefficients, and perform absorbed-dose calculations.

Dosimetry accounts for radionuclide nuclear emission properties, energy absorbed fractions, the geometry and density of body tissues, and cross-organ irradiations. Stylized, voxel, and mesh human anatomical models have been developed and incorporated within software tools to facilitate dose calculations. The virtue of the MIRD approach is that it systematically reduces complex dosimetric analyses to methods that are relatively simple to use, including software tools for experimental and clinical use.

PEP 2-D:

Foundations of Radiation Shielding and External Dosimetry

Lily Ranjbar

St. Johns 25

This course provides an introduction to radiation shielding and external dosimetry for neutrons, photons, and charged particles and how they can be applied in real-world situations. The content of the course focuses on analytical and numerical

solutions to address radiation protection and dosimetry challenges. Participants will learn theoretical concepts and engage in hands-on problem-solving exercises to better understand radiation shielding and dosimetry. By the end of the course, participants will have the knowledge and skills necessary for effective radiation protection in various professional settings.

PEP 2-E

Environmental Health Physics – Concepts and Applications for Environmental Radiological Assessment and Dose Calculation

Amber Harshman

St. Johns 26

This comprehensive course offers an in-depth overview of radiological assessment in the environment, focusing on the presence and impact of radionuclides. Participants will gain an understanding of various exposure routes and sources of radionuclide contamination, recognizing the crucial role of assessment and its implications for safeguarding human populations, biodiversity, and the overall environment. The course goes into both the theoretical knowledge and pragmatic aspects of evaluating internal and external doses caused by radionuclides in the environment. By incorporating real-world applications, including analyses of routine assessments and the aftermaths of significant incidents such as Fukushima and Chernobyl, the course aims to enhance practical knowledge of participants. This strategic integration of practical examples enables participants to obtain insights from historical cases, reinforcing their ability to address radiological challenges in varied scenarios and better understand exposure pathways for humans and wildlife. This course is designed to equip participants with the knowledge and practical skills needed to assess and calculate radiological doses in various environmental scenarios, ensuring compliance with safety standards and effective protection of both human and environmental health.

PEP 2-F

Ethical Decision Making Tools for Enhancing Organizational Radiological Safety Culture

Janet Gutierrez

St. Johns 34

The practice of radiation safety is actually the convergence of a variety of professional disciplines, thus changes and developments that affect the field can emerge from various sources. This presentation is designed to address a contemporary issue confronting radiation safety program operation. This topic covers ethical decision-making and the link to safety culture. Previous investigations of several tragic events have repeatedly identified the absence of a culture of safety as a common contributing factor. An organization's safety culture is a collective reflection of individual decisions made by its workforce, each carrying with them ethical implications. Safety culture, good or bad, is the sum product of many individual ethical decisions, yet the notion of ethical safety decision-making is not often discussed. Safety professionals can encounter ethical dilemmas, and the decisions that are made can impact an organization's overall safety culture. A set of ethical decision-making tools will be presented. Ethics codes from select professional organizations will also be summarized.

Sunday, July 7• 1:00pm – 3:00pm

PEP 3-A: Standard Test Methods for Remotely Operated Ground Robots, Aerial Drones, and Submersibles

Edward Walker

St. Johns 22

The public safety community must thoroughly understand the robot's capabilities before deploying on a mission. Often the missions are in complex, obstructed and hazardous environments. These missions often require various combinations of elemental robot capabilities. A single capability can be represented as a test method with associated apparatus to provide tangible challenges for various mission requirements and performance metrics to communicate the results. These test methods can then be combined into a sequence to evaluate essential robot capabilities. The same test methods can also be used to evaluate remote operators to ensure they have the necessary skills to successfully complete the mission.

The ASTM committee for Homeland Security Applications supports the development of standards associated with security and emergency response, including testing of response robots. The Department of Homeland Security has funded NIST to develop multiple test methods suites for measuring the capabilities of the robot and operator proficiency. The NIST robotics team has developed and refined testing apparatuses for multiple capabilities that are simple to assemble, are scalable for various sizes and shapes of the various robots. To date, this approach has produced 20 standards for ground-based robots with an additional 11 in the ballot process and 8 additional test methods in development.

In addition, four draft standards are being developed for aerial robots (drones). One draft standard test method for testing the drones' endurance (battery life) has been balloted. Three draft standard test methods to test maneuverability and payload capability in three different test bed configurations will be balloted in the upcoming months. Test methods for aquatics (ROV's) are currently under development.

The presentation will describe the construction of standard testing apparatus that are scalable and simple to construct. It will then describe the various robot (ground and aerial) capabilities and operator proficiency that can be performed using these testing apparatus.

PEP 3-B

Incorporating science-based guidance into the nuclear power plant radiological emergency response and recovery planning paradigm.

William Irwin

St. Johns 23

Since the early commercial reactors started generating electricity in the 1960s, nuclear power plants (NPPs) and off-site response agencies have applied health physics practices for emergency response that are in many circumstances more appropriate to routine occupational radiological controls. Science has provided guidance that places some long-held elements of this paradigm in question. For example:

- Can we run community reception centers for tens of thousands of people or more when the number of trained and available people to run them is small and perhaps needed elsewhere?
- Should we evacuate or relocate hundreds of thousands of people for one to five rem radiation doses, when the biological effects may be immeasurable but the psychosocial, economic and health risks of evacuation and relocation as seen with Fukushima can be immense?
- Are we going to wait until responders have an individual dosimeter and survey meter, as well as a respirator and anti-contamination clothing before they are allowed to enter the hot zone (>10 R/hour) to do work that saves lives or protects critical infrastructure?
- Are the dozens of people who have the opportunity to occasionally practice radiological emergency response adequately prepared for the depth and breadth of complex problems a nuclear power plant accident may cause?
- If a small modular reactor only releases radioactive materials sufficient to cause public doses that are one-half to three-quarters the EPA Protective Action Guideline of 100 millirem will that prevent calls for offsite environmental monitoring of food, water, farmland, and communities?

Over the last decade, a review of the application of health physics science in context of risk during a radiological incident has been critical to the development of updated NCRP and FEMA guidance that could result in more effective radiological emergency plans and procedures. Concurrently, technology is evolving to make training more efficient. Finally, there exists a critical need to de-exaggerate the risks of exposure to radiation and radioactive contamination, particularly at the lower dose levels. In this PEP, we will discuss the new guidance based on science, demonstrate new simulation capabilities to improve training and response planning, and discuss how health physicists can alleviate much of the inordinate fear of radiation so responders are as confident and effective in radiological incidents as they are in other complex and risky emergency scenarios.

We will also present the observations from two eight-hour workshops that reflect responder and response authority perspectives on how a new paradigm of emergency response guidance could assist them in effective response. These observations are a collection of ideas from a broad range of emergency response participants at the National Radiological Emergency Preparedness (NREP) and Conference of Radiation Control Program Directors (CRCPD) meetings in April and May this year. Incorporating this feedback with current health physics initiatives in emergency response guidance will contribute to important next steps that might be taken so NPP emergency response and recovery plans are more firmly grounded in updated science and balance the risk from all aspects of a radiological incident.

PEP 3-C

Design, Installation, And Commissioning Considerations Of A Self-Shielded Cyclotron For Healthcare: A Health Physicist's Guide

Elizabeth Gillenwalters

St. Johns 24

The abundant global growth in molecular imaging and use of radiopharmaceuticals for diagnostic and theragnostic applications requires a steady supply of radionuclides. Given the short half lives of many medical use radionuclides and daily demands to meet patient needs, it is critical this supply is readily available. Onsite manufacturing and distribution of radiopharmaceuticals is desirable and typically accomplished by installation of a cyclotron. This PEP will discuss the radiation safety considerations for installation of a self-shielded cyclotron, including design of the cyclotron room and delivery lines, design and requirements for an effluent monitoring system, radioactive material licensing considerations, and eventual commissioning.

The calculations utilized in this presentation for determination of cyclotron room shielding and delivery line shielding will be based on guidance in National Council on Radiation Protection and Measurements (NCRP) report NCRP Report No. 144: Radiation Protection for Particle Accelerator Facilities, and AAPM Task Group 108: PET and PET/CT Shielding Requirements, respectively.

PEP 3-D

Essential Elements of Nuclear Security for Radiation Protection

Jason Harris

St. Johns 25

Radiation protection is an essential function in most facilities that use radioactive materials or radiation generating devices and the primary responsibility is a safety function. Over the last several years, nuclear security has become increasingly important, and the radiation protection professional may become tasked with

understanding or even implementing security measures. Also, international organizations like the International Atomic Energy Agency (IAEA) have called for better integration of safety and security. Still, the role of radiation protection in nuclear security matters is not clearly defined even though a fundamental understanding of radiological hazards is required for understanding the total risk to the facility and/or material. Radiation protection professionals are multi-capable scientists, engineers and systems integrators that can contribute greatly at multiple levels for effective and efficient nuclear security. The purpose of this course is to introduce the basic elements of nuclear security, with specific emphasis on prevention, detection, delay, and response. The course will also cover two key components necessary for health physics integration with safety and security: culture and insider threat mitigation. The course format will include lecturing, case-study analysis with discussion, and a small simulation. Current events of importance will be highlighted. At the end of this course the participant should have a high-level overview of nuclear security and be able to formulate ways radiation protection can be integrated more effectively.

PEP 3-E

Advancements in Retrospective and Accident Physical Dosimetry: Techniques for Acute and Chronic Dose Assessment

Lekhnath Ghimire

St. Johns 26

In the field of radiological protection and public health, assessing radiation exposure retrospectively and in the aftermath of accidents is indispensable. This comprehensive course delves into crucial techniques for determining historical radiation exposure in various contexts, including workplaces, residences near nuclear facilities, nuclear or radiological incidents, and potential overexposure in diagnostic and therapeutic medical applications.

The course offers advanced methods for measuring doses, placing a particular emphasis on the application of physical biodosimetry techniques. Participants will gain expertise or knowledge in utilizing electron paramagnetic resonance dosimetry (EPRD) with biological samples such as mini biopsies of dental enamel, bones, nails (claws), horns, and shells. Additionally, the course covers thermoluminescence dosimetry (TLD) and optically stimulated luminescence dosimetry (OSLD), using environmental and other samples like quartz and feldspar, dust, brick, porcelain or ceramic, and touchscreen glasses from mobile phones.

The primary objective of this course is to provide participants with in-depth knowledge and practical skills essential for the comprehensive estimation of chronic and acute radiation doses using different types of samples. Participants will be familiar with these dose estimation techniques and be able to contribute significantly to advancements in radiation protection and public health practices.

PEP 3-F

Alpha Spectroscopy for the Health Physicist

Michael Clemmer

St. Johns 34

This course offers a fast-paced review of the basic principles of alpha spectroscopic analysis for the health physicist. The course includes a review of the nature and origins of alpha-particle emitting radioactivity, basic physics of alpha-particle interaction with matter, considerations and consequences of sample preparation for alpha spectroscopy, alpha spectroscopy system components and calibrations, and a primer on interpretation of alpha spectroscopy data.

Sunday, July 7 • 3:30pm – 5:30pm

PEP 4-A

Dose and Effect: Lessons Learned from Birds, Bees, Dogs and Plants in Chornobyl, Fukushima & the International Space Station

Timothy Mousseau

St. Johns 22

The radioactive fallout from the Chernobyl accident, and to a lesser degree the accident at Fukushima, resulted in significant injuries to the flora and fauna in the surrounding regions. These injuries include effects on the genome, physiology, development, disease expression, and reproduction. For many species, long term consequences included reduced population abundances and subsequent impacts on biodiversity. However, not all species are affected to the same degree with tremendous variation in vulnerability related to specific endpoint, life history of the organism, sex and stage of development, and evolutionary history. Professor Mousseau will summarize key findings of the past three decades and will point to future directions that employ whole genome sequencing technologies for assessing genetic effects of chronic, multigenerational exposures to environmental contaminants. Special attention will be given to recent findings related to genomic effects on the dogs, nematodes, birds, and humans exposed to contaminants in the Chernobyl region. Additional topics to be covered will include key findings from naturally radioactive areas around the world (NORM), cosmic radiation in space environments, and atomic bomb test sites. A brief summary of the biological effects of tritium exposure will also be reviewed.

PEP 4-B

Studies on Dispersion of Am-241 and Associated Risk

Charles Potter

St. Johns 23

In 2000, the International Atomic Energy Agency released a document, IAEA-TECDOC-1191, Characterization of Radioactive Sources which, among other topics, addressed radioactivity of types of sources and dividing them into categories. This was the first attempt at addressing the possibility of dispersion of sources when they have been retired but not properly disposed. Sources addressed included both neutron/alpha/gamma-emitting 241Am/Be and alpha/gamma emitting 241Am, placing the former of activities 1–800 GBq into category 2 and the latter of activities 1–100 GBq into category 3. While groundshine tends to provide most of the dose to an individual exposed to dispersed beta/gamma emitting radionuclides, the majority of dose from alpha/gamma emitters is from internal dose from resuspended material. Prior to 2011, resuspension was estimated using a power function promulgated in NCRP Report No. 129. A new model created by Maxwell and Anspaugh in 2011 was adopted by the U.S. multi-agency Federal Radiological Monitoring Assessment Center as being more representative; however, this model greatly increased estimated effective dose from dispersed radioactivity. The ramifications of this change in resuspension model led to five studies of different aspects of 241Am and 241AmBe conducted by Sandia National Laboratories with university and national laboratory partners. This continuing education lecture will describe each study in detail and provide insights into the uncertain science of resuspension and its effect on prospective dose calculation.

PEP 4-C

Radiation Safety and Risk Mitigation in a Multidisciplinary Y-90 Microsphere Program

William Gibbons

St. Johns 24

Transarterial Radioembolization with Yttrium-90 (Y-90) microspheres is widely performed for radioembolization of primary or metastatic tumors within the liver. Intravascular administration of glass or resin microspheres containing radioactive isotopes is performed in interventional radiology and typically involves a multidisciplinary team composed of authorized users, medical physicists, radiation safety officer, and nuclear medicine technologists. While two current products are commercially available, clinical trials are underway to bring additional products to market.

The frequency of Y-90 administrations performed may vary between institutions. Between institutions and between individuals in the same institution, the techniques employed may vary as well. Y-90 microsphere medical events continue to occur and while a medical event may not necessarily equate to harm to the patient, it is in our best interest to ensure the procedure goes in accordance with the written directive. In addition to discussing actual reported medical events, good catches and lessons learned will be shared. This discussion will engage the audience and provide a series of best practices, and techniques to minimize the risk of a misadministration.

Treatment planning systems and the application and workflow of implementing Y-90 dosimetry programs will be explored and discussed along with the difficulties one may encounter while acceptance testing the software.

This PEP will cover the fundaments of implementing a multidisciplinary Y-90 microsphere program and mitigating associated safety risks. This session will benefit not only those who are looking to support a new or upcoming Y-90 program but will also offer those more experienced an opportunity to review the fundamentals of such procedures and share personal insights related to the safe and effective use of Y-90 for radioembolization.

PEP 4-D

Application of Attila for Dose Rate Calculations in Large Rooms with Thick Shielding

Jenelle Mann

St. Johns 25

Two of the most difficult cases to solve for in radiation protection are thick shields and large geometries, especially coupled into one problem. Accurate solutions to these problems take computer power and time; often, the solutions or problems are simplified or limited to balance computing power and time. Attila (trademark of Silver Fir Software) is a commercially available, deterministic radiation transport solver that solves the Linear Boltzmann Transport Equation at nodal points on a tetrahedral mesh. Different mesh sizes can be used for different elements; allowing for larger elements in lower scattering regions, such as air and smaller elements through higher scattering regions, such as a shield. The resulting mesh has less elements than a traditional cartesian mesh, minimizing computing time while providing an accurate solution. Additional tallies may be used, such as point tallies and tallies over a surface. Attila also has the ability to interface with MCNP (Attila4MC), allowing the user to create complex geometries that would be difficult to make traditionally though MCNP. This session demonstrates the application of Attila to calculate dose rates during the change out of a filter containing Am-241 and Cs-137. The change out of the filter itself is performed hands-on by a worker in a large room where other radiation workers may be performing work; co-located workers are also located behind a thick shielded wall. Specifically, this session will go through how Attila is set up for the dose calculation, animation of a dose rate map through the room, display of key dose rate isosurfaces (i.e., high radiation area, radiation area), calculation of the dose rate at several key locations, and the dose rate on phantom surfaces. The session will also discuss how Attila can be used to improve the shielding design in place.

PEP 4-E

Radiochemical Measurements of Actinides in Biological Samples: Guide for Research Laboratories for a MARLAP-Based Approach to Uncertainty and Quality Management

Dan Strom

St. Johns 26

The United States Transuranium & Uranium Registries (USTUR) is a U.S. Department of Energy funded research program at the Washington State University that studies deposition, biokinetics, dosimetry, and possible biological effects of actinides such as plutonium, americium, and uranium. Other radionuclides of interest for analysis at the USTUR include thorium, radium, curium, and neptunium. USTUR registrants are former nuclear workers with measurable, documented exposures to TRU elements who voluntarily donated their organs and tissues to science for post-mortem study.

Systemic plutonium and americium concentrate in the liver and skeleton, while uranium primarily concentrates in the skeleton. Inhalation and wound intakes are most common routes of intake. Lungs, thoracic lymph nodes, liver, skeleton, and, for a wound intake, wound site and axillary lymph nodes are collected and analyzed. For "whole body donors," many more tissues and organs are included.

Our measurands (the quantities intended to be measured) are activity and activity concentration in tissues and organs. To illustrate how we estimate these measurands from measurement results, we present the entire radiochemistry program, from sample collection at autopsy to the inference of activity and activity concentration in tissues and organs. Sample preparation by dry ashing, microwave digestion, chemical separation of elements, addition of tracers for estimation of radiochemical recovery, and electrodeposition are shown.

The program is presented in a MARLAP framework of measurement quality objectives (MQOs) and data quality objectives (DQOs) with a focus on uncertainty propagation and data management. To demonstrate compliance with MQOs, we calculate the predicted "activity-on-a-planchet" that would be expected 50 years after an intake of 74 Bq (2 nCi) for lung, liver, and skeleton to demonstrate that our radiochemical methods provide data of usable quality. Uncertainties in activity are calculated as a function of background counts and various other uncertain parameters. Methods used in calculations of counting efficiencies and radiochemical recovery are presented. Data and measurement system performance indicators, such as critical value (SC), p-value, minimum detectable activity (MDA), and minimum quantifiable activity (MQA), are calculated and recorded. Calculations are done with the "N+1" option presented in MARLAP. The overall Quality Assurance program is cast in numerical terms with control levels and tolerance limits.

PEP 4-F

Gamma Spectroscopy for the Health Physicist

Michael Clemmer

St. Johns 34

This course offers a fast-paced review of the basic principles of gamma spectroscopic analysis for the health physicist. The course includes a review of the nature and origins of gamma-emitting radioactivity, basic physics of gamma interaction with matter, consequences of gamma interactions on gamma spectra, gamma spectroscopy system components and calibrations, gamma spectroscopy analysis methods, and interpretation of gamma spectroscopy data.

CONTINUING EDUCATION LECTURES (CELS)

Tuesday, 9 July through Friday, 12 July • Rosen Shingle Creek

AAHP is evaluating the number of Continuing Education Credits awarded for each of the PEP (and CEL) courses based on technical content. Course instructors will be able to provide this information at the time of the presentation. This information will also be made available on the AAHP recertification site after data entry is completed.

Tuesday, July 9 • 7:45am – 8:45am

CEL-1

How to Reduce Radiation Exposure to Fluoroscopy Operators

Jacob Kamen

Gatlin A4

Radiation Safety Officers have to review the exposure level to Fluoroscopy operators and implement ALARA threshold according to the regulations. In most medical centers, almost all of the exposures that exceed these thresholds are from Fluoroscopy operators. In this one hour CEL course, we will teach Radiation Safety Officers, not only how to comply with regulations more effectively, but also how to reduce the radiation exposure to the patients and staff, ultimately leading to a more effective radiation safety program.

Mandatory regulatory requirements for Fluoroscopy operators are reviewed, including minimum lead equivalent for lead aprons, radiation badges to monitor operator exposure, and minimum training needed for the operators. We will also discuss the annual regulatory radiation exposure limits to Fluoroscopy operators. We will review some cases of patient's radiation skin injuries to describe the level of damage correlated to length of Fluoro time. We will also discuss how to train your operators to use Fluoroscopy machines more effectively.

Since the main source of radiation exposure is the scatter from the patient, we will discuss how to reduce the patient skin dose based on recommendations stated in NCRP 168. The primary concern for reducing radiation skin exposures is Fluoroscopy time, which we will put in perspective by reviewing the expected severity of radiation injuries with relation to Fluoro time. We will also discuss the new NCRP efforts to modify operator-training requirements.

Finally, we will discuss how to best minimize fluoroscopy operator's exposure and staying in compliance with regulations without too much burden. There have been publications stating that operators are suffering from back pain from wearing lead aprons all day, which makes them less motivated to wear them. There has also been an economic study supported by ORSIF claiming that the annual economic cost of radiation exposure associated with interventional fluoroscopy was approximately $60M in the US alone. This cost is associated with treatment of cancer and orthopedic injuries. This figure does not factor the precursor to cataracts, cognitive decline and risk to reproductive health. According to Michael Seymour, the director of ORSIF "this economic study draws attention to alarming annual cost resulting from adverse health effects associated with long-term exposure to interventional fluoroscopy in the US". The use of available radiation shielding to minimize lead thickness in aprons to ease the operators' physical pain will be reviewed. Additionally, since there are many products available in the market to reduce the radiation exposure to staff in the Fluoroscopy room, we will review some of these products with their advantages and disadvantages and how to use them to reduce exposure to the staff in the Fluoroscopy room. As a result, there will be fewer ALARA level exposures to investigate by the Radiation Safety Officers and more effective radiation safety programs.

Wednesday, July 10 • 7:45am – 8:45am

CEL-2

Achieving Laser Safety in the University Setting

Ken Barat

Gatlin A4

The most challenging environment to achieve laser safety is in the research setting, especially in the academic setting. Compared to other environments in research we actively manipulate laser beams, and the user population is made up of individuals with a wide range of experience. While the ANSI standard both Z136.1 Safe Use of Lasers and Z136.8 Laser Safety in the Research, Development and Testing Environment call out controls and procedures to follow, compliance is no guarantee of laser safety. The goal of this presentation is to help the Laser Safety Officer or any individual who has laser safety responsibilities by reviewing a number of proven techniques and approaches that work to provide a laser safety culture. In addition a number of control measures and products you might not have thought of will be discussed. Look forward to seeing you.

Wednesday, July 10 • 7:45am – 8:45am

CEL-4

Three Mile Island: Past, Present & Future

David Allard

St Johns 22/23

State and federal Radiation Control agencies implement regulatory radiation protection programs in the functional areas that include: X rays, accelerators, radioactive materials, radon, nuclear power plant (NPP) emergency response (ER), facility decommissioning, site cleanups, environmental surveillance (ES), and radioactive waste. The primary goal of these programs is to protect the environment and prevent unnecessary exposure of the public, patients, and workers to radiation exposure from controllable sources of radiation - while allowing for their beneficial use. In this framework the U.S. Nuclear Regulatory Commission (NRC) regulates the operations of NPPs, Federal Emergency Management Agency (FEMA) oversees ER around the NPPs, and the states perform their respective ER and ES functions. With Three Mile Island Units 1 & 2 as a case study, this presentation will explore: the international and national radiation protection standards that provide the foundation for federal and state radiation protection regulations; the TMI U2 accident response and recovery; offsite public dose and public health impact; radioactive waste generated by operations, cleanup and decommissioning at TMI; the concerns related to spent nuclear fuel storage and transport; radiological environmental surveillance; and other related issues. Given the economics of construction and operation of a NPP versus a natural gas plant for baseload electric power, TMI U1 and several other NPPs in the U.S. have recently ceased operation, while others may shut-down before the end of their NRC-approved licensed or extended operating period. This aspect will no doubt have a significant impact on states' and our nation's ability to meet carbon emission reduction goals, to [ultimately] slow the rate of climate change. These issues will be discussed, and an overview and update for the ongoing and planned decommissioning of TMI U2 will be provided.

Thursday, July 11 • 7:45am – 8:45am

CEL-3

Radiobiological Studies Using X and Gamma Rays

Charles Potter

Gatlin A4

In 2008, the U.S. National Academies of Science released Radiation Source Use and Replacement that identified the risk presented by the use of high-radioactivity radioactive sources. This led to programs in several countries to replace such sources with other technologies including, in many cases, replacement of beta/gamma-emitting sources with X-ray technologies. In support of such efforts, Sandia National Laboratories partnered with Lovelace Biomedical on two studies comparing irradiations of near-identical specimens by 137Cs source and 320 kVp X-ray. The studies resulted in five papers published in open-source journals, providing researchers with examples showing that with the proper consideration of relative biological effectiveness, the lower energy X-ray technology was adequate, and in some cases more effective, at providing the dose needed for medical research. This continuing education lecture will describe the studies and papers documenting this body of work.

AAHP CONTINUING EDUCATION COURSES

Saturday 6 July • Rosen Shingle Creek

Course #1

Essential Radiological Emergency Response Training for First Responders Made Simple: The Department of Energy's MERRTT Train-the-Trainer Program

8:00 am - 5:00 pm
8 hours (16 CECs)

Mark Linsley, Austin Olson

St. Johns 22

The Department of Energy's Transportation Emergency Response Program (DOE TEPP) has developed a suite of free planning, training, and exercise resources designed to help all branches of first response agencies manage a radiological transportation accident. These sessions will summarize those resources and provide attendees the opportunity to complete a condensed Modular Emergency Response Radiological Transportation Training (MERRTT) Train-the-Trainer program. Attendees will need to complete all three sessions (1-F, 2-F, and 3-F) to receive their instructor's certification and flash drive containing all the course material.

The MERRTT program consists of multimedia rich training material that includes Power-Point presentations, videos, practical exercises, student guides, instructor guides, test material, and regionally available training aids. MERRTT takes the complex topic of a radiological transportation accident response and breaks it down into 14 easily understood modules and hands-on practical exercises. Attendees of the program are presented with information that simplifies the topic while developing a comprehensive understanding of radioactive material, radiological survey instruments, decontamination techniques for handling radiologically contaminated victims, and local, state, and federal resources available to responders during an emergency. An important element of the training is detailed information on the types of packages used to transport radioactive material. Upon successful completion of the MERRTT course, students receive a certificate from DOE TEPP that includes up to 9.0 continuing education hours (CEH) for medical response personnel. MERRTT also meets the Waste Isolation Project Plant (WIPP) Land Withdrawal Act training requirements and is listed on the Department of Homeland Security's federally approved courses listing.

Course #2

The Scientific, Clinical, and Regulatory Basis of Theranostics

8:00 am – 12:00 pm
4 hours (8 CECs)

Gregory D. Espenan

St. Johns 23

The field of theranostics has expanded dramatically over the last 30 years and provides a two-pronged approach to diagnosing and treating cancers through the use of radiopharmaceuticals. A diagnostic drug first identifies if the patient is a good candidate for treatment then, if the patient demonstrates good uptake, a therapeutic drug is administered to treat their cancer. These drugs selectively bind to specific cell types in the body to provide targeted therapy and their use has expanded to include the treatment of cancer types which previously had no effective therapies available. This presentation will discuss the process of producing these radiopharmaceuticals and the pathway necessary to achieve regulatory approval. This presentation will cover clinical action and effectiveness, the methods needed to handle radioactive patients, the methods for determining organ burdens and patient dosimetry, and the future of radiopharmaceutical therapy.

- Part 1 Drug Development: Pre-clinical work, testing in cell lines and animals, determining method of action, and initial dosimetry will be discussed. FDA applications for approval to test in humans will be outlined. The phases of clinical trials and what each phase accomplishes, in patient dosimetry, unexpected side effects and radioactive patient management are topics in this section.
- Part 2 Current Drugs: Ga-68 dotatate, Pb-212 dotatate, Ac-225 dotatate, Ga-68-PSMA, Lu-177 PSMA, Zr-89 CAIX, and Lu-177 TLX250 will be discussed. Imaging agents and therapies will be discussed as a number of these drugs are not in wide use.

Course #3

Responding to Radiological Emergencies: Considerations for the Health Physicist

12:30 pm – 2:30 pm
2 hours (4 CECs)

P. Andrew Karam

St. Johns 23

Radiation safety professionals are likely to be involved in any response to a radiological incident. Most radiation safety professionals, however, have little or no experience with emergency

response or working with emergency responders, and they may be unaware of some of the tools developed to assist with radiological emergency response. This means that many of the people with the greatest amount of knowledge are likely to be less effective than we would like. The aim of this talk is to help Health Physicists to have a better understanding of some of the issues they might face and the emergency responders with whom they will be working in the event of a radiological or nuclear emergency.

Course #4

Radiological Protection Standards: What is the Process to Final Publication and How to Become Actively Involved

3:00 pm – 5:00 pm
2 hours (4 CECs)

Jim F. Herrold, J. Matthew Barnett

St. Johns 23

Radiation safety professionals are most likely familiar with performance standards from the American National Standards Institute (ANSI) and the International Organization for Standardization (ISO). Their standards are often adopted by industry, incorporated into regulations, and/or become best practices. Focusing on radiation protection standards committees ISO/TC 85/SC 2 and ANSI/HPS N13, the presenters will tag-team answers to some common questions: Who are ANSI and ISO, and how are they connected? How are national standards incorporated into international standards and how are international standards adopted nationally? What is the process for proposing and writing new standards? How are draft and adopted standards reviewed and edited? Most importantly, how can YOU get involved as a stakeholder, and what are the benefits of active participation in standards? The course will also cover the key differences in processes and style between ANSI and ISO and provide resources for proficiency in writing and editing skills.

Course #5

Ethical Decision-Making Tools for Enhancing Radiation Safety Culture: Should ethics be compulsory refresher training for practicing professionals?

8:00 am – 10:00 am
2 hours (4 CECs)

Robert Emery

St. Johns 24

While the codes of conduct maintained by both the Health Physics Society (HPS) and the American Academy of Health Physics (AAHP) provide valuable ethical guidance, they do not taxonomically catalog the types of ethical dilemmas a radiation safety practitioner might encounter in their daily work. This presentation will describe three very common ethical dilemmas encountered by the profession and provide possible resolutions for consideration. The linkage between safety ethics and safety culture will then be presented and discussed. The session will then transition to an open discussion regarding the consideration of a possible requirement for documented ethics retraining each renewal cycle for Certified Health Physicists, as is becoming common practice for several other professional safety organizations.

Course #6

Wound Counting for Detection, Localization, and Quantification of Radioactive Contamination

10:30 am – 12:30 pm
2 hours (4 CECs)

Jason E Davis

St. Johns 24

This course addresses practical aspects of evaluating the extent, location, and quantity of radioactive material in and around a wound. The course includes an overview of the equipment available for wound counting, and the appropriate use and care of this equipment. Sources of uncertainty in measurements, their impact on dosimetry and medical decision making, and techniques for accounting for these sources of error are also discussed. In-depth approaches to characterizing and minimizing sources of error in wound counts are discussed. Cases involving contaminated injuries involving fission-activation products and transuranic radionuclides are reviewed to emphasize the unique aspects of the care and treatment of contaminated wounds.

Course #7

Y-90 Boot Camp

1:00 pm – 5:00 pm
4 hours (8 CECs)

Andy Miller

St. Johns 24

Y-90 therapy for liver tumors involves a series of activities to select the proper dose for the treatment, receive the doses, assay them, deliver them correctly and handle waste issues. This course will take students through a team-based process involving interventional radiology, nuclear medicine, nursing, and radiation safety to give an example of a highly reliable operation that is currently in use at a busy academic medical center. We will use actual de-identified case data, data from packages and doses, forms and procedures to show how the process works and some of the issues that arise with discussions for solutions. Both resin and glass Y-90 microspheres will be discussed. Radiation dose rate measurements and estimates from activities will also be discussed.

REFRESHER COURSES

Rosen Shingle Creek

Tuesday • 7:45 AM – 8:45 AM

Refresher Course 1
Overview of the Current System of Radiological Protection for Ionizing Radiation

Christopher Clement

Gatlin B

This refresher course introduces the System of Radiological Protection for ionising radiation in use today based on ICRP Publication 103, outlining the broad structure, aims and objectives, and main concepts. The current review of the System is also addressed briefly. The objective is to give attendees a better understanding of the System as a whole.

Refresher Course 2
Overview of recent epidemiological findings in the field of low doses

Dominique Laurier

Gatlin A1

This refresher course presents a summary of the epidemiological results published in recent years on the health effects of exposure to ionising radiation at low doses and dose rates. The results obtained in epidemiology over the last two decades have clearly reinforced our knowledge of the health risks associated with low doses of ionising radiation. The results show an excess risk of cancer at dose levels of around 100 mGy or less, for all types of cancer combined and for certain specific types of cancer. These results also confirm that low doses are associated with low risks. The results obtained for non-cancerous pathologies are also considered. The strengths and limitations of these studies, and the necessary precautions for interpretation, are discussed.

Refresher Course 3
Management of Radon in Workplaces

Jim Hondros

Gatlin A2

Radon isotopes (Rn-222 and Rn-220) and their decay products are present everywhere in the environment, including workplaces. Humans are continually exposed to the natural levels and may also be exposed to elevated levels due to workplace conditions.

Radon and its management are broad and complex areas and require consideration of scientific aspects such as the characteristics of radon isotopes and their decay products, in addition to the more practical and engineering aspects related to control and management.

Whilst there is much guidance on monitoring and management of "radon" provided by a number of international organisations, the area remains complex and a good understanding of the fundamentals is necessary.

This refresher course will aim to provide an overview of the following areas:

- Radon identification, characterisation and controls
- Workplace management of radon
- Consideration of radon for planned and existing exposure situations
- Monitoring methods and dose estimation
- An overview of future directions on radon and thoron studies

The course will focus on practical aspects of radon, from the perspective of workplaces.

Refresher Course 4
A Beginner's Introduction to Quantities and Units in Radiation, Radioactivity, and Radiation Dosimetry

Wesley Bolch

Gatlin A3

The radiation sciences are defined by a very broad array of disciplines with varied sub-areas of expertise, capability, and required base knowledge. Radiation scientists may thus come into the field from a variety of educational and training pathways to include, but not limited to, biology, biostatistics, chemistry, engineering, epidemiology, medicine, and physics. What is important in the field of radiation science is that all individuals across these multidisciplinary fields clearly understand a basic set of quantities and units to include those for radiation fields, radioactivity, and radiation dosimetry. In this IRPA 16 Refresher Course, we will explore and carefully define a variety of quantities and their units taken from pertinent documents of both the International Commission on Radiation Units and Measurements (ICRU) and the International Commission on Radiological Protection (ICRP). The review will include topics of broad use such as absorbed dose and kerma, radioactivity and physical and biological half-life, but will include more complex quantities such as effective dose, detriment-weighted dose, and risk index. For medical applications, we will review concepts such as the biological equivalent dose and the equieffective dose. Practical examples of the use of these quantities and units will be reviewed across several sub-disciplines of the radiation sciences.

Refresher Course 5
Review of the ICNIRP System of Protection

Rodney Croft

Gatlin B

In many respects the International Commission on Non-Ionizing Radiation Protection (ICNIRP) operates as the non-ionizing counterpart to ionizing radiation's International Commission on Radiological Protection (ICRP). However, the ICNIRP system also differs substantially from that of ICRP, not only in terms of radiation frequency range covered, but importantly, also in terms of administrative structures, the principles embedded within the system, the scope of the system, and the methods used to determine limits and provide guidance. To help delegates understand the ICNIRP radiation protection system, including its strengths and weaknesses, this refresher course will present on the above issues, as well as the degree to which they fit together as a coherent non-ionizing radiation protection system. Note that the course will be run as interactively as possible, with plenty of opportunity for clarification and discussion.

Refresher Course 6
Radiation Detriment: Concept and Calculation Methodology

Ludovic Vaillant

Gatlin A1

Radiation detriment is a concept developed by the International Commission on Radiological Protection (ICRP) to quantify the burden of stochastic effects from low-dose and/or low-dose-rate exposures to the human population. It is determined from the lifetime risks of cancer for a set of organs and tissues and the risk of heritable effects, taking into account the severity of the consequences. This refresher course provides an overview of radiation detriment based on ICRP Publication 152 Radiation Detriment Calculation Methodology. It covers the historical development of the concept of detriment, calculation procedure used for the current ICRP Recommendations, and possible improvements for the future.

Refresher Course 7
NORM Management

Rainer Gellermann

Gatlin A2

Naturally occurring radioactive material (NORM) is present everywhere in our daily lives and in industry. When activity concentrations or exposures from a practice exceed prescribed levels, then there is a need to assess the risks and the need for potential control measures.

The naturally occurring radionuclides are from the uranium and thorium decay chains together with Potassium 40 and also contribute to the natural background levels of radioactivity that vary around the world.

The risks from exposure to NORM also vary considerably and many mechanisms in industries that process raw resources act to concentrate NORM radionuclides in product and waste streams, leading to workers and members of the public exposure.

Dealing with exposure to NORM requires a broad understanding of industrial practices and radiation protection. It is also important to separate the naturally occurring background radiation levels from the additional levels that me be produced by a practice. While this might sound easy in theory, it is a challenge in practical radiation protection.

This refresher course will provide an overview of the following key areas:

- NORM identification, characterisation and controls.
- Industries that may have NORM
- Management measures for NORM including the requirements for existing and planned exposure situations.
- Monitoring methods and
- NORM risk communications.

There course will have a particular focus on practical aspects of NORM and its management.

The course will also cover a short discussion on the role and purpose of the IRPA Task Group on NORM and the development of a handbook for practitioners.

The course presenter is Rainer Gellerman who has extensive international experience in NORM management and has numerous publications on the topic.

Refresher Course 8
Overview of Medical Management of Radiological/ Nuclear (R/N) Incidents

Carol Iddins

Gatlin A3

This overview will cover the medical management aspects of radiological / nuclear (R/N) incidents. This will include a brief review of types of R/N incidents, review steps in responding to incidents, and the medical management of patients from these events. The discussion will explain the differences between the various injuries and illnesses seen with R/N incidents. A video will be shown on transporting R/N patients via air and ground ambulance. The participants will receive information on simple tools to assist in this response, as well as, where to find these resources.

Refresher Course 9
When NIR Causes IR Problems

John O'Hagan

Gatlin B

Some sources or applications of non-ionizing radiation can result in ionizing radiation that may need to be assessed to confirm relevant limits are not exceeded. This refresher course will cover electromagnetic and optical sources. Some contain radioactive sources; some generate ionizing radiation due to the way the equipment generates their intended non-ionizing radiation; and in some situations, the non-ionizing radiation may generate ionizing radiation at an interaction site. The radiological protection implications will be discussed. In particular it is important to consider any protection measures implemented by manufacturers and the implications of these being absent or failing.

Refresher Course 10
The Basics of Relative Biological Effectiveness and Its Applications in Radiobiology

Gayle Woloschak

Gatlin A1

Approaches are needed to compare the various qualities of radiation in biological systems. This is the basis of the Relative Biological Effectiveness (RBE) concept and is based on the comparison of the biological efficacy of any radiation quality to X-rays or gamma-rays. RBE is an experimentally determined value and varies with radiation dose, dose-rate, fractionation pattern, biological endpoint, and other parameters. RBE is often used with values set by radiation protection agencies such as Quality Factor (Q) and Radiation Weighting Factor (wR). These will all be discussed in this lecture.

Refresher Course 11
Ethical values in radiological protection and their implementation

Nicole Martinez, Thierry Schneider

Gatlin A2

In October 2013, International Commission on Radiological Protection (ICRP) initiated the effort to develop an ICRP publication presenting the ethical foundations of the system of radiological protection with the aim to consolidate the basis of the Recommendations, to improve the understanding of the system and to provide a basis for communication on radiation risk and its perception.

The outcome of this effort is the publication 138(P138) "Ethical Foundations of the System of Radiological Protection" (2018) which outlines the ethical values foundational to the system of radiological protection. P138 provides the key steps concerning the scientific, ethical, and practical evolutions of the system of radiological protection since the first ICRP publication in 1928. It then describes the four core ethical values underpinning the present system: beneficence/non-maleficence, prudence, justice, and dignity. It also discusses how these core ethical values relate to the principles of radiological protection, namely justification, optimisation, and limitation. P138 finally addresses key procedural values that are required for the practical implementation of the system, focusing on accountability, transparency, and inclusiveness.

The Commission sees P138 as a founding document to be elaborated further in different situations and circumstances. P138 is intended to serve as a resource for the radiological protection community and relevant stakeholders by providing baseline recommendations for addressing ethical issues in practice. For the practical application of the P138, there are two ongoing efforts. They are ICRP Task Group 109 Ethics in Radiological Protection for Medical Diagnosis and Treatment and Task Group 114 Reasonableness and Tolerability in the System of Radiological Protection.

Recently, the Commission has decided to publish the outcome of the efforts made by the TG109 as the publication 157 (P157) "Ethics in Radiological Protection for Patients in Diagnosis and Treatment" (in press). The purpose of P157 is to propose a practical application of ethical values for the medical radiological protection professions. Because medicine has a long history and strong culture of ethics, P157 starts by identifying the shared values and defines a common language between biomedical ethics and radiological protection. In order to emphasise the coherence between the values involved in biomedical ethics and those involved in radiological protection, P157 proposes to combine them: dignity/ autonomy; beneficence/ non-maleficence; prudence/ precaution; justice/ solidarity; transparency/ accountability/ honesty; and inclusiveness/ empathy. This allows a structured review of practical situations from an ethical perspective. For the sake of both example and education, P157 proposes twenty-one realistic scenarios (11 in imaging procedures and 10 in radiation therapies), which are all presented and analysed in a one-page format. The ultimate goal is to be able to use ethical values in clinical imaging and therapy situations. Required education and training in ethics is essential for medical radiological workers throughout their career span

Refresher Course 12
Internal dosimetry of Uranium Workers. An update.
Maria Antonia Lopez
Gatlin A3

An update of the biokinetic models and dosimetric data associated to internal exposures of workers has been published by the International Commission on Radiological Protection (ICRP) in the OIR (Occupational Intakes of Radionuclides) report series. This course present methods for individual monitoring and dose assessment in case of intakes of uranium compounds at the workplace, focusing on the application of the new uranium model published in ICRP Publication 137, which is relevant for the interpretation of measurements of activity in the body and in excreta, and the calculation of committed effective dose. The impact of new OIR biokinetic retention/excretion models and dose coefficients is discussed here for uranium materials. New tools for dose assessment have been developed using OIR models. A case study is presented of occupational exposure of uranium oxides by inhalation of low enriched uranium, showing an important reduction of internal doses when applying the new OIR model.

Friday • 7:45 AM – 8:45 AM

Refresher Course 13
Biodosimetry and Biomarkers of Individual Sensitivity
Andrzej Wojcik
Panzacola F-1

Biological dosimetry is a method of retrospective, individual dose assessment based on measuring radiation-induced changes in peripheral blood lymphocytes (PBL) and estimating the dose from a calibration curve. The oldest and best validated biological dosimeter is based on scoring dicentric chromosomes in PBL collected after a radiation exposure. Other assays are used such as translocations, micronuclei, gene expression and gamma-H2AX foci. Electron paramagnetic resonance (EPR) and optically stimulated luminescence (OSL) can also be used in tissues rich in hydroxyapatite like tooth enamel, bones and finger nails as well as fortuitous dosimeters like elements of cellular phones. Each assay has its advantages and drawbacks with respect to precision of dose estimate and speed of performance. Thus, some assays are better suited for small scale accidents, where the precision of dose estimate is of primary importance, while other are better for large-scale accidents, where victims must be triaged in a timely manner based on a crude dose assessment. Inter-individual variability in response to radiation is often noted and it is believed that it reflects differences in intrinsic radiosensitivity.

The various biodosimetric assays will be explained and their advantages and drawbacks discussed. Examples of radiation accidents will be given where the assays could be applied with good and less good success. The possibility of using the assays as biomarkers of individual radiosensitivity will be discussed.

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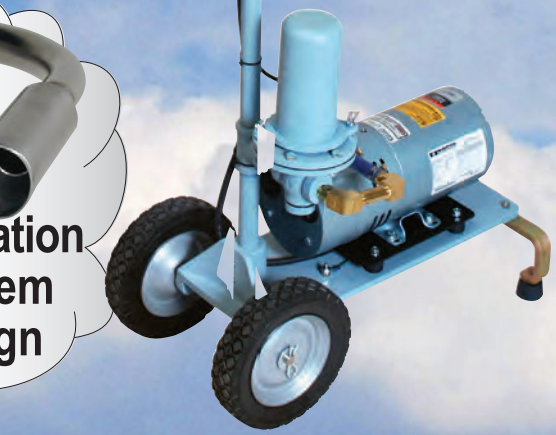

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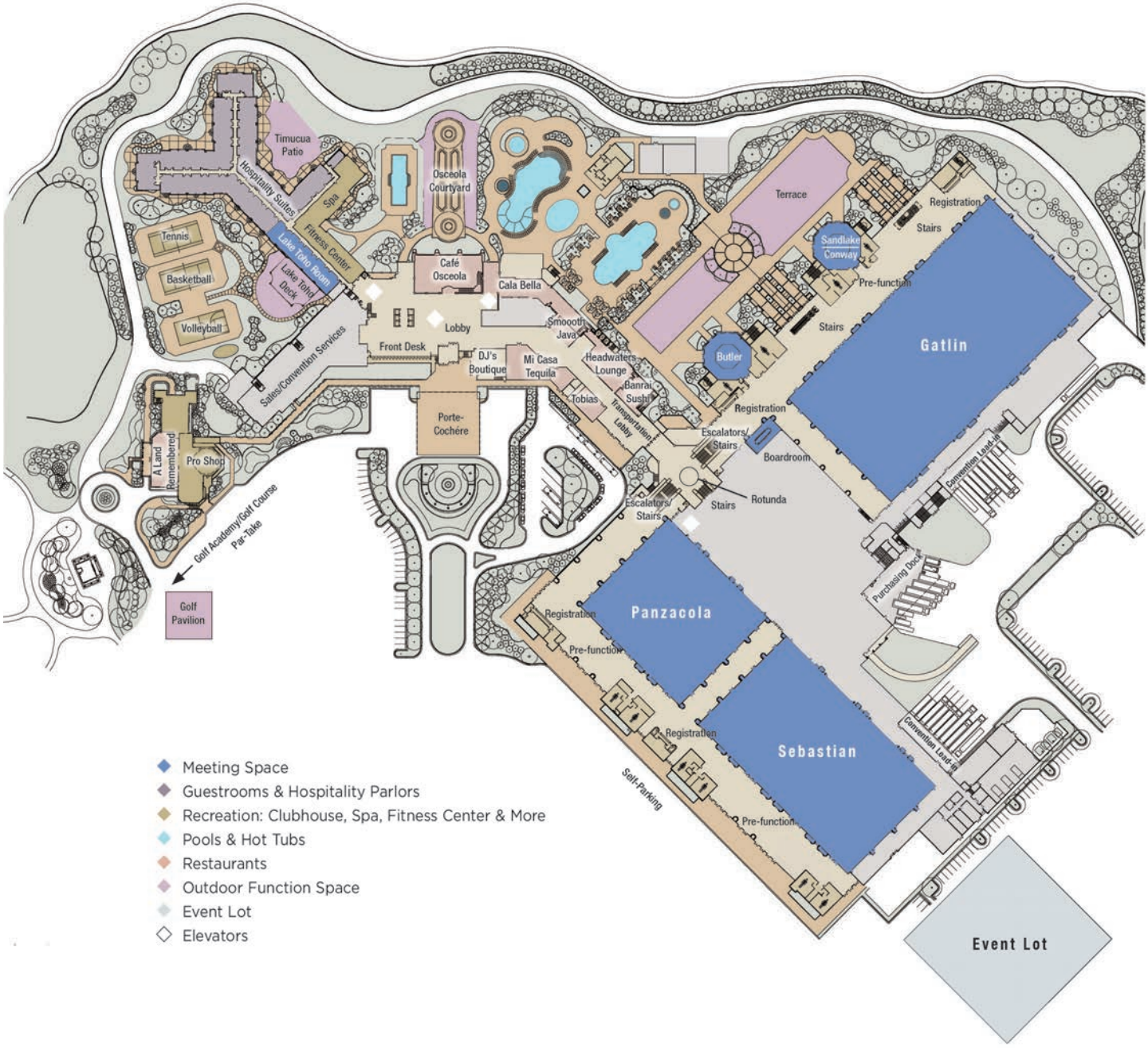
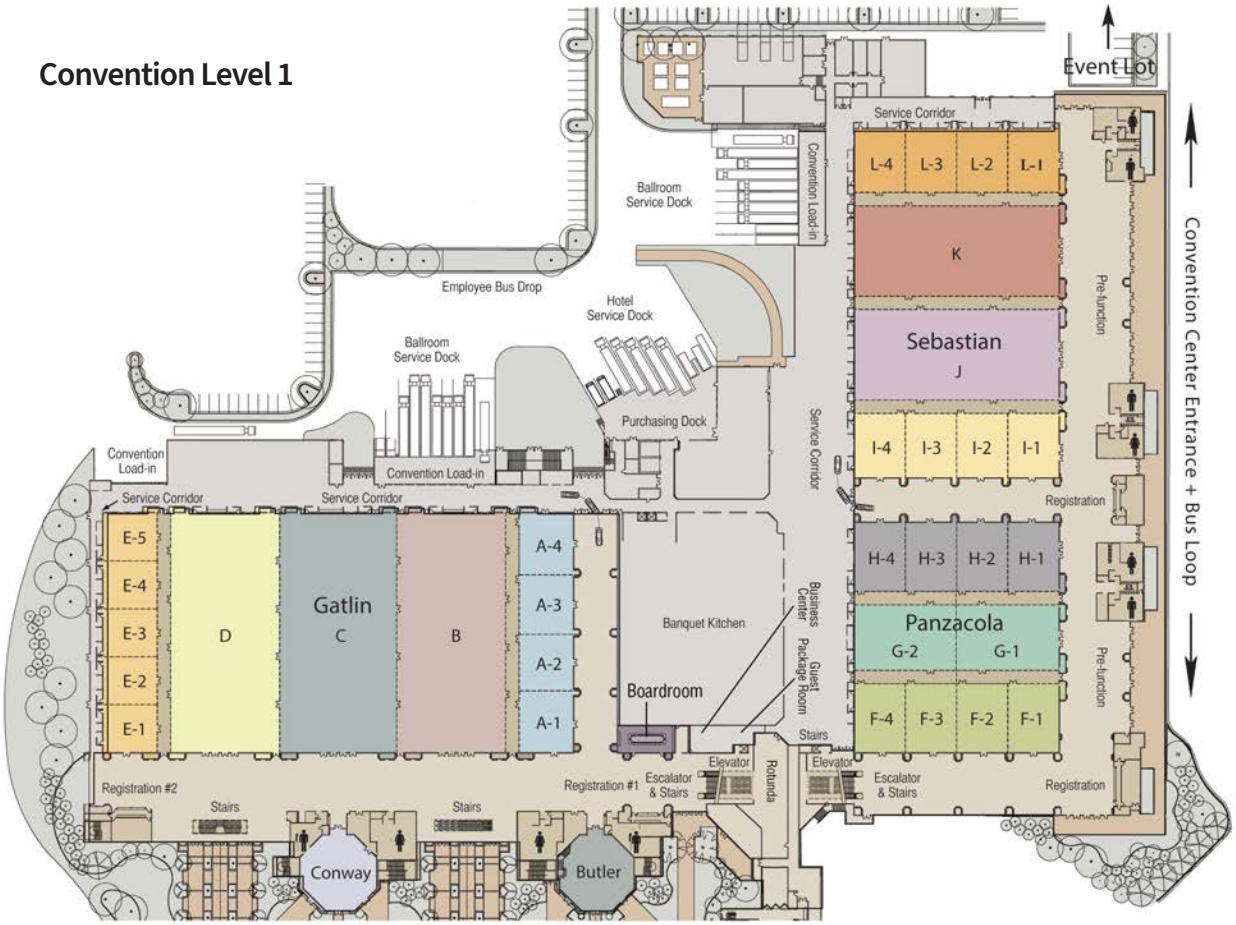
(703) 790-1745; FAX: (703) 790-2672
Email: meetings@hps.org; Website: www.hps.org

ROSEN SHINGLE CREEK HOTEL MAP



ROSEN SHINGLE CREEK FLOOR PLANS

Convention Level 1



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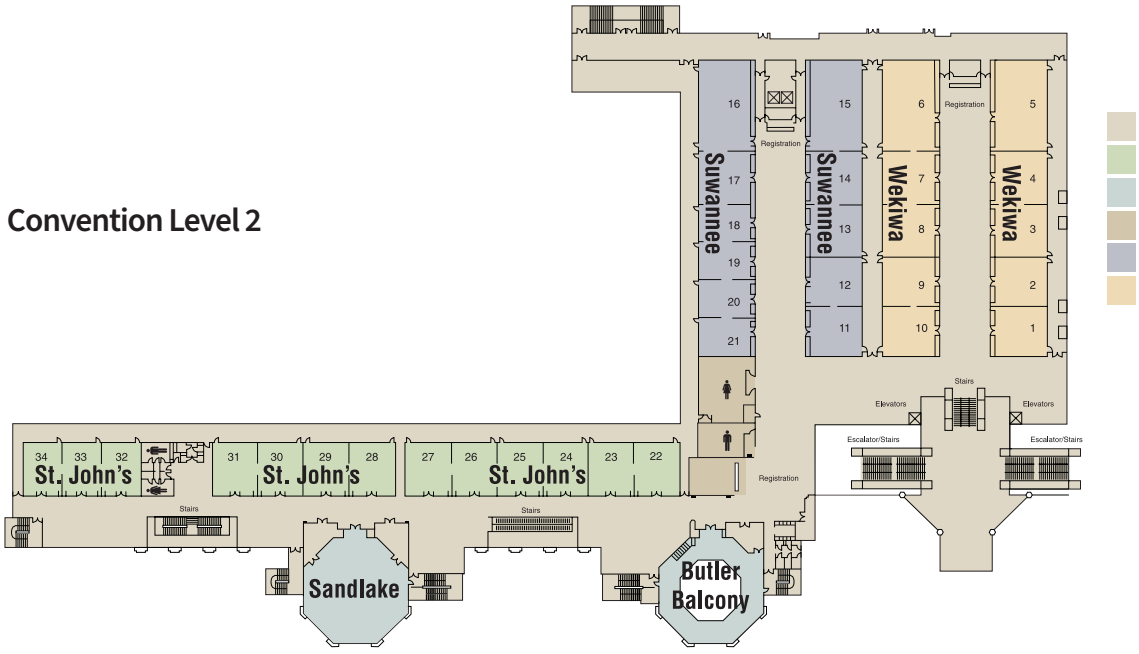

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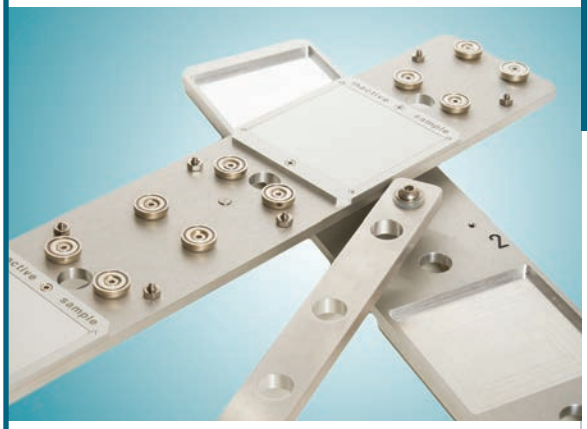

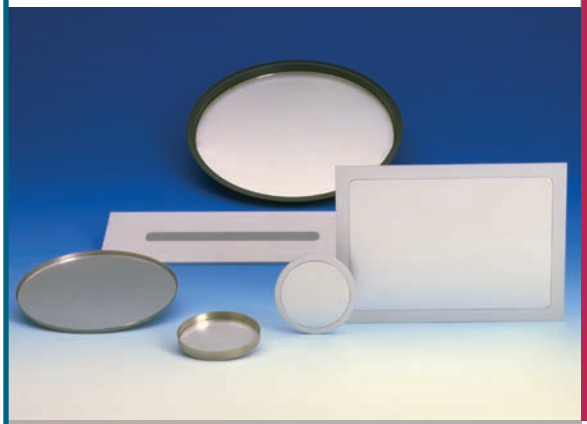

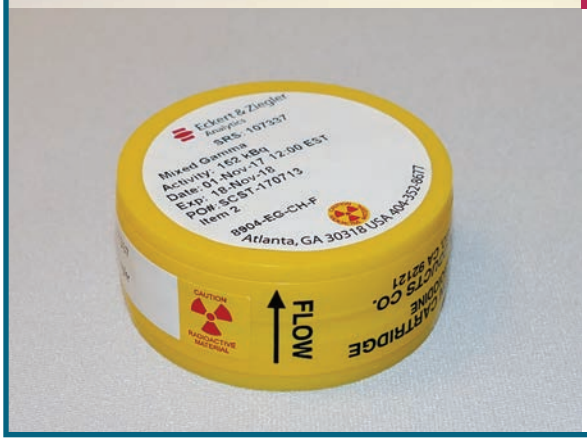

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