

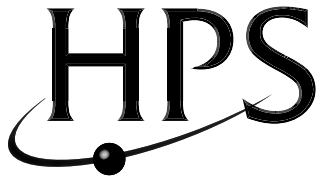


Health Physics Society

Midyear Workshop

23-26 May 2021 • Clemson University, SC

Conference Program



Health Physics Society

MIDYEAR WORKSHOP

23-26 May 2021 • Clemson University, SC

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On Site Locations

Speaker Ready Room

Training Room II

Plenary sessions

Bell South Auditorium

All A sessions

Bell South Auditorium

All B sessions

Ballroom B

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MIRION
TECHNOLOGIES

SOCIAL EVENTS

Sunday, May 23

Welcome Reception

6:00 PM – 8:00 PM

Come mingle outside at Backstreets with old friends and new colleagues! This is just a relaxed social-distance friendly outside welcome reception to kickoff the meeting.

Monday, May 24

Lunch: Mini Career Fair

12:30 PM – 1:30 PM

3MT Competition!

6:00 PM – 7:00 PM

Join us for a 3MT competition where students share their thesis and research topics in 3 minutes! Questions? Email Emily Caffrey (caffrey.emily@gmail.com), 2021 midyear TF chair.

Tuesday, May 25

Lunch: Trivia Fun!

12:30 PM – 1:30 PM

Scavenger Hunt/Bar Crawl

6:00 PM – 8:00 PM

We will break into small groups and take on the downtown Clemson scene with a scavenger hunt + bar crawl! Details to be announced on site.

SCIENTIFIC PROGRAM

If a paper is going to be presented by other than the first author, the presenter's name has an asterisk (*)

MONDAY

9:00 AM – 10:30 AM

MAM-A1

Special Session: Communicating with the Public and the Media

Chair: Andy Karam

Health physicists are frequently called upon to communicate the science – or the risks – associated with radiation and nuclear-related matters to the public and to the media. Unfortunately, our training in science and technology doesn't necessarily make us good at communicating scientific and technical issues to those who lack our particular training and skills. That's why we're here! In this session we will hear from a panel that includes both scientists and science writers. Best-selling science writer and author Mary Roach will talk about what she looks for when she's researching a story, EPA scientist Jonathan Nagata will regale us with tips for more effective risk communication, and Andrew Karam will share some of his observations and experiences working with the media.

9:00 am

Jonathan Nagata, EPA

MAM-A1.1

9:30 am

Andrew Karam, Mirion Technologies

MAM-A1.2

10:00 am

Dave Consiglio, Chemistry and Physics High School Teacher and Community College Professor

MAM-A1.3

10:45 AM – 12:30 PM

MAM-A2

Special Session: Communicating with the Public and the Media

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Health physicists are frequently called upon to communicate the science – or the risks – associated with radiation and nuclear-related matters to the public and to the media. Unfortunately, our training in science and technology doesn't necessarily make us good at communicating scientific and technical issues to those who lack our particular training and skills. That's why we're here! In this session we will hear from a panel that includes both scientists and science writers. Best-selling science writer and author Mary Roach will talk about what she looks for when she's researching a story, EPA scientist Jonathan Nagata will regale us with tips for more effective risk communication, and Andrew Karam will share some of his observations and experiences working with the media.

10:45 am

Emily Caffrey, HPS Ask The Experts

MAM-A2.1

11:00 am

Hiroko Yoshida, IRPA

MAM-A2.2

11:15 am

Q&A with Mary Roach

MAM-A2.3

12:00 pm

Panel Discussion

MAM-A2.4

MONDAY

1:30 PM – 2:30 PM

MPM-A1 Radiation Dosimetry

Chairs: Nicole Martinez, Nolan Hertel

1:30 pm

MPM-A1.1

Age and Dose Effects on the Detection Limits of Plastic Scintillators

Leveille CR, Pudelko RM, Hanson SC, Hayes RB

North Carolina State University

1:45 pm

MPM-A1.2

Low Dose Uncertainty and Effects Analysis for the Landauer nanodot OSLDs

Aras E, Hayes RB

North Carolina State University

2:00 pm

MPM-A1.3

Uncertainty Analysis on Organ Activities and Intakes from Occupational Exposure to Plutonium

Šefl M, Zhou JY, Avtandilashvili M, McComish SL, Strom DJ, Tabatadze G, Tolmachev SY

US Transuranium and Uranium Registries, Washington State University, US Department of Energy

2:15 pm

MPM-A1.5

MgAl₂O₄ Spinel for Optically Stimulated Luminescence (OSL) Dosimetry

Pan L, Sholom S, Jacobsohn LG

Clemson University, Oklahoma State University

3:15 PM – 5:00 PM

MPM-A2 Radiation Dosimetry

Chairs: Nicole Martinez, Nolan Hertel

3:15 pm

MPM-A2.1

EPR Dosimetry of Tooth Enamel For Low Dose Epidemiological Studies

Abdelrahman F, Hayes RB

North Carolina State University

3:30 pm

MPM-A2.2

Measurement and analysis technique for low level EPR dosimetry

Abdelrahman F, Hayes RB

North Carolina State University

3:45 pm

MPM-A2.3

In-situ sample specific exposure dose response calibration for EPR dosimetry

Abdelrahman F, Hayes RB

North Carolina State University

4:00 pm

MPM-A2.4

The Million Person Study of Low-Level and Low-Dose-Rate Health Effects

Dauer LT, Boice JD

Memorial Sloan Kettering Cancer Center, NCRP, Vanderbilt University Medical Center

4:15 pm

MPM-A2.5

An Overview of the Dosimetry Approaches for the Million Person Study

Bellamy MB, Leggett RW, Samuels CE, Eckerman KF, Boice JD, Dauer LT

Memorial Sloan Kettering Cancer Center, Oak Ridge National Laboratory, Vanderbilt University

4:30 pm

MPM-A2.6

Radium Dial Painters: An Overview

Martinez NE, Jokisch DW, Leggett RW, Eckerman KF, Tolmachev S, Mumma M, Dauer LT, Boice JD

Clemson University, Oak Ridge National Laboratory, Francis Marion University, Easterly Scientific, Washington State University, Vanderbilt University, Memorial Sloan Kettering Cancer Center, National Council on Radiation Protection and Measurements

4:45 pm

MPM-A2.7

Dosimetry for a Radium Dial Painter Cohort - Past Approaches and Improvements

Jokisch DW, Martinez NE, Leggett RW, Eckerman KF, Dauer LT, Tolmachev Y, Mumma MT, Boice JD

Francis Marion University, Clemson University, Oak Ridge National Laboratory, Easterly Scientific, Memorial Sloan Kettering Cancer Center, Washington State University, Vanderbilt University

1:30 PM – 4:15 PM

MPM-B1

**Special Session: Working with
Emergency Responders**

Chair: Andy Karam

Health physicists are more likely than many professionals to find themselves working with emergency responders. This can be in the form of preparing for radiological or nuclear emergencies or attacks, conducting exercises, responding to emergencies, and so forth. As health physicists we have the luxury of focusing on radiation; responders, on the other hand, have much more on their minds and radiation is only one of many things they have to consider. On top of that, police and firefighters have a culture that can be very different from that in which most health physicists are familiar. In this session we will have the chance to hear from cops, firefighters, and health physicists about their various priorities during a radiological or nuclear response as well as learning more about the emergency responders and their culture. The session will include short presentations by each panelist as well as an extended panel discussion afterwards.

**1:30 pm
Panel Discussion and Q&A**

Panelists

- Steve Musolino, PhD, CHP
- Bob Ingram, Fire Chief
- Kevin Grogan, Police Officer
- Bobby Baker, Firefighter
- Andrew Karam, Mirion Technologies

MPM-B1.1

3:15 PM – 5:00 PM

MPM-B2

**Special Session: Working with
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**3:15 pm
Panel Discussion and Q&A**

Panelists

- Steve Musolino, PhD, CHP
- Bob Ingram, Fire Chief
- Kevin Grogan, Police Officer
- Bobby Baker, Firefighter
- Andrew Karam, Mirion Technologies

MPM-B2.2

TUESDAY

9:00 AM – 10:15 AM

TAM-A1

Environmental Health Physics

Chair: Jillian Newmyer

9:00 am

Carbon 14 and Freshwater Stream Modeling

Newmyer JL, Higley KA
Oregon State University

TAM-A1.1

9:15 am

Determining the Cesium-137 Background Levels in Wildlife at the Savannah River Site

Stagich B, Jannik T, Looney B, Mayer J, Morrison C
Savannah River National Laboratory

TAM-A1.2

9:30 am

Electron Paramagnetic Resonance Spectroscopy for Dosimetry of Dreissenid Mussels from the Great Lakes

Tzivaki Ma, Waller EJ
Ontario Tech University

TAM-A1.3

9:45 am

Examining the effects of multiple stressors on marine sentinel species: work in progress

Donaher SE, Powell BA, van den Hurk P, Martinez NE
Clemson University

TAM-A1.4

10:00 am

Differentiating 3H and 55Fe content of bacteria samples analyzed via liquid scintillation counting

Diaz A, Manglass L, Martinez N
Francis Marion University

TAM-A1.5

10:45 AM – 12:15 PM

TAM-A2

Environmental Health Physics

Chair: Jillian Newmyer

10:45 am

A Terrain-Following Unmanned Aerial Vehicle for Topographic and Radiation Mapping at Abandoned Uranium Mines

Orechwa A

TAM-A2.1

11:00 am

Assessment of Wetland Uranium Inventory using Gamma Mapping, Soil Cores, and Stream Sampling

Parker CJ, Kaplan DI, Seaman JC, Powell BA
Clemson University, Savannah River National Laboratory, Savannah River Ecology Laboratory

TAM-A2.2

11:15 am

Uranium Mine Proposed Site Experimental Design for Natural Background Gross Gamma Exposure Rates, Post Remediation Final Status Survey Sampling Density, and Radiological Water Quality Modeling for a Worst-Case Catastrophic Failure, Coles Hill, Virginia

Weyant DB, Yoon J
Old Dominion University

TAM-A2.3

11:30 am

Radiation Measurements From a High-Altitude Balloon

Fulmer PC, Myers JM, Terry GD*, Stork JD, Dees RW, Laugh TR
Francis Marion University

TAM-A2.4

11:45 am

External Beta Dose to New Mexico Residents from the Trinity Nuclear Accident

Shonka JJ
SRA

TAM-A2.5

12:00 pm

Ten-Year Retrospective: EPA After Actions from the Fukushima Incident

DeCair SD
US Environmental Protection Agency

TAM-A2.7

TUESDAY

9:00 AM – 11:30 AM

TAM-B1

Special Session: Computational Dosimetry I

Chairs: Nicole Martinez, Nolan Hertel

9:00 am

Introduction

Hertel NE

Georgia Institute of Technology

TAM-B1.1

9:15 am

Introduction to biokinetic models for radiation protection

Martinez NE, Jokisch DW, Samuels CE, Eckerman KF, Leggett RW

Clemson University, Oak Ridge National Laboratory, Francis Marion University, Easterly Scientific

TAM-B1.2

9:45 am

ICRP Reference Persons and Computational Human Phantoms – How Are They Created And Are They The Same Thing?

Bolch W

University of Florida

TAM-B1.3

10:30 am

Numerical Dosimetry: Radiation Transport Basics

Hertel NE

Georgia Institute of Technology

TAM-B1.4

11:00 am

Computation of Specific Absorbed Fractions (SAFs)

Griffin KT

National Cancer Institute

TAM-B1.5

1:30 PM – 3:15 PM

TPM-A1

Applied Health Physics

Chair: Lisa Manglass

1:30 pm

Why You Should Hire Naval Nuclear Shipyard HP/Techs at Your Life Science Facility

Roberson MP

NIH

TPM-A1.1

1:45 pm

Developing ethics-driven health physics curriculum to support diversity and inclusion

Manglass L

TPM-A1.3

2:00 pm

Radiation Safety and Proportionate Risk Management

Smith G

Clemson University

TPM-A1.4

2:15 pm

Refutation of Pooled Analysis Supporting Linear No-Threshold Model

Sawyers MJ, Hayes RB

North Carolina State University

TPM-A1.6

2:30 pm

Use of a PVT Scintillation Detector to Perform Compton Edge Gamma Spectroscopy in both Micro Reactor and Border Monitoring

Hanson S, Leveille C, Pudelko R, Hayes RB

North Carolina State University

TPM-A2.2

2:45 pm

Can polyvinyl toluene be used as a radiation detector in small modular or micro reactors?

Pudelko R, Hanson S, Hayes R

North Carolina State University

TPM-A2.3

3:00 pm

Development Of Functionalized Ultrafiltration Membranes For The Capturing And Isotopic Screening Of Plutonium In Water

Foster J, Husson S, DeVol T, Powell BA

Clemson University

TPM-A2.4

1:30 PM – 4:00 PM

TPM-B1

Special Session: Computational Dosimetry II

Chairs: Nicole Martinez, Nolan Hertel

1:30 pm

TPM-B1.1

Dose Coefficients for Internal Radionuclides

*Jokisch DW, Leggett RW, Samuels CE, Eckerman KF,
Martinez NE*

*Francis Marion University, Oak Ridge National Laboratory,
Easterly Scientific, Clemson University*

2:15 pm

TPM-B1.2

Cancer Risk Coefficients for Federal Guidance Report 16

Pawel DJ

US Environmental Protection Agency

2:45 pm

TPM-B1.3

**Getting Under Your Skin: Advancements in the
Computation of External Dose Coefficients**

Dewji SA

Texas A&M University

3:15 pm

TPM-B1.4

**History of Computational Phantoms Representative of
the Japanese Atomic Bomb Survivors and the Potential
Updates to Organ Dosimetry using the New J45
Phantom Series.**

Bolch W

University of Florida

WEDNESDAY

9:00 AM – 10:00 AM

WAM-A1

Medical Health Physics

Chair: Kendall Berry

9:00 am

Restructuring the Mayo Clinic Radiation Safety Program to Optimize Medical Health Physics Expertise across the Enterprise

Sturchio GM, Digman LT

Mayo Clinic

WAM-A1.1

9:20 am

Radiation Safety Considerations and Clinical Advantages of Alpha-Emitting Therapy Radionuclides

Serencsits B, Chu BP, Pandit-Taskar N, McDevitt MR, Dauer LT

Memorial Sloan Kettering Cancer Center

WAM-A1.2

9:40 am

Radiation Safety Precautions Associated With The Administration Of I-124 Omburtamab For Pediatric Diffuse Pontine Glioma Treatment

Kelly K, Chu BP, Bellamy M, Souweidane M, Dauer L

Memorial Sloan Kettering Cancer Center

WAM-A1.3

10:15 AM – 12:00 PM

WAM-A2

Health Physics in Medicine Roundtable

Chair: Kendall Berry

If you are wondering what a medical health physicist does, please join us for a roundtable discussion presented by HP's in medicine. We will start with each of us talking about what we do including topics such as medical research, regulations specific to medicine, imaging issues, emergencies, challenges, and why we love our jobs. These brief comments will be followed by an open discussion with workshop participants where we will answer your questions about medical HP.

10:15 am

Health Physics in Medicine Roundtable

WAM-A2.1

Panelists

- Kendall Berry, MSPH, CMLSO, RSO, Fox Chase Cancer Center, Philadelphia, PA
- Neil Whiteside, RSO, Yale-New Haven Hospital, New Haven, CT
- Kurt Bodison, RSO, Associate Director, Temple University Environmental Health and Radiation Safety, Philadelphia, PA
- Chu Wang, PhD, DABMP, CHP, Assistant Director Radiation Safety, Duke University | Duke Health, Durham, NC
- Carmine Plott, PhD, CHP, DABR, MRSO(MRSCTM), RSO and Diagnostic Medical Physicist, Novant Health Forsyth Medical Center, Winston-Salem, NC
- Janet Gutierrez, DrPH, CHP, LMP, Safety Manager, Radiation Safety Program, The University of Texas Health Science Center at Houston, Houston, TX

9:00 AM – 11:00 AM

WAM-B1**Workshop: New ICRU Operational Quantities***Chair: Nolan Hertel*

A new set of recommendations for operational quantities has been issued by the International Commission on Radiation Units and Measurements (ICRU) to supercede those recommended in ICRU Reports 39/51. The new report is titled, "ICRU Report 95 Operational Quantities for External Exposure". Changes in the protection quantities by the ICRP as well as their applications have motivated this re-examination of operational quantities. This report recommends an approach to the definition of operational quantities using the same phantoms as used to define the protection quantities. As a direct consequence of using the same phantoms the recommended operational quantities are good estimators of protection quantities. The workshop will review the reasons behind the ICRU creating a new set of recommendations, introduce the new definitions, discuss the computation of the dose coefficients for the new quantities, present the dose coefficients generated for a wide range of particles and energies, compare them to the ICRU 49/51 quantities, and provide a short discussion on the design and calibration of instruments with respect to the recommendations.

9:00 am**Workshop: New ICRU Operational Quantities***Hertel NE**Georgia Institute of Technology***WAM-B1.1**

PROFESSIONAL ENRICHMENT PROGRAM (PEP)

Sunday, May 23 • ALL PEP PROGRAMS WILL BE VIRTUAL

10:30 AM – 12:30 PM

PEP 1-A Using Existing Instrumentation to Guide First Responder Actions

Doug Van Cleef, ORNL

In almost every form of event involving risk to the general public, first responder organizations are involved almost immediately. In recent years, many first response organizations have equipped their personnel with some form of radiation detection instrumentation. This course will review some of the instrumentation in common use by first responders and how specific information from that instrumentation can be utilized in early phase decision making. The course will include ample time for Q&A and discussion to address example circumstances.

1:00 PM – 3:00 PM

PEP 2-A Radiation Safety Program Logic Model and Measures and Metrics that Matter

Janet Gutierrez, University of Texas Health Science Center

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 a variety of sources. This PEP is designed to address two contemporary issues confronting radiation safety program operations:

1. A radiation protection program logic model: considering inputs, outcomes and benchmarking opportunities
2. Radiation protection measures and metrics that matter (and how to display them)

Detailed descriptions are listed below. Ample time will be allotted for participant questions and discussion. The particular topics included have been recently identified as extraordinarily useful to participants in the highly successful week-long "University of Texas EH&S Academy".

PEP 2-B Calculating Environmental Doses to Wildlife

Yuiko Chino, Colorado State University; Josh Hayes, IAEA; Tom Johnson, Colorado State University

The ICRP has issued multiple documents and software to calculate radiation dose to animals in the environment. This PEP provides an overview of the main ICRP documents (ICRP 108, 136) used to calculate doses to wildlife. Examples of how to calculate both internal and external doses to terrestrial animals and fish are provided. A brief review of the use of MIRD and the fundamentals of dose calculation are also covered.

3:30 PM – 5:30 PM

PEP 3-A Developing and Implementing a Medical Laser Safety Program

Deirdre Elder, University of Colorado Hospital

Medical laser systems come in many wavelengths from infrared to ultraviolet, and are used in many clinical settings, including ophthalmology and dermatology clinics, interventional radiology and cardiology, and the operating room. Health Physicists and Medical Physicists may need to develop and implement laser safety programs that comply with the American National Standard for Safe Use of Lasers in Health Care (ANSI Z136.3) and the Recommended Practices for Laser Safety in Perioperative Practice Settings developed by the Association of Perioperative Registered Nurses. This program will address the uses of lasers in medicine, basic laser safety concepts and calculations and lessons learned from implanting laser safety programs in clinics, community hospitals and an academic medical center, including the changes that have been made in response to the latest ANSI Z136.3.

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