

Health Physics Society 51st Midyear Meeting

4-7 February 2018 · Denver, Colorado
The Denver Hilton City Center

FINAL PROGRAM



Welcome to Denver HPS Members

Have an Enjoyable and Productive Midyear Meeting!



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PRM-9000 (Actual Size)

Mazur Instruments develops and manufactures handheld Geiger counters used by consumers, professionals and organizations to detect, measure and monitor nuclear radiation.





51st Midyear Meeting

Health Physics Society

The Denver Hilton City Center · 4-7 February 2018 · Denver, Colorado

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The 2018 Midyear Meeting

is presented by the

Health Physics Society

Thank you to our Sponsor:

Dan Caulk Memorial Fund

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Registration Hours

Central Registration Desk

Sunday 4 February

3:30 PM-5:30 PM

Tuesday 6 February

8:00 AM-3:00 PM

Monday 5 February

7:30 AM-3:00 PM

Wednesday 7 February

8:00 AM-1:00 PM

Exhibit Hours

Colorado Ballroom

Monday

10:00 AM-6:30 PM Exhibits Open
10:00 AM-10:30 AM Coffee Break
Noon-1:15 PM Complimentary Lunch
2:45 PM-3:15 PM Coffee Break
Sponsored by Versant Medical Physics
5:00 PM-6:30 PM Exhibitor Reception/
Poster Reception

Tuesday

9:30 AM-5:00 PM Exhibits Open
10:00 AM-10:45 AM Coffee Break
Noon-1:15 PM Complimentary Lunch
3:00 PM-4:00 PM Coffee Break



MORE THAN MEDICAL PHYSICS EXPERTS

Versant Medical Physics and Radiation Safety is a woman-owned small business at the forefront of the medical physics industry. Our mission is to produce highly accurate, efficient results to improve the quality of both our clients and their patients' lives.

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HPS COMMITTEE MEETINGS

All Committee Meetings are in The Denver Hilton City Center

Saturday 3 February 2018

Executive Committee Meeting and Lunch

12:00 pm – 4:00 pm Mattie Silks

NRRT Board and Panel

9:00 am – 4:00 pm Nat Hill

Finance Committee Meeting

4:00 pm – 6:00 pm Mattie Silks

Speaker Ready Room

Silverton

Sunday 3:00 PM – 5:00 PM

Monday 8:00 AM – 5:00 PM

Tuesday 8:00 AM – 5:00 PM

Wednesday 8:00 AM – 10:00 AM

Sunday 4 February 2018

HPS Board Meeting

8:00 am – 5:00 pm Pomeroy

AAHP Executive Committee

8:00 am – 5:00 pm Spruce

NRRT Board and Panel

9:00 am – 4:00 pm Nat Hill

Program Committee Meeting

10:00 am – 12:00 pm Silverton

Tuesday 6 February 2018

NRRT Board and Panel

9:00 am – 4:00 pm Nat Hill

Wednesday 7 February 2018

HPS/AAPM Collaboration Planning Meeting

12:00 pm – 1:30 pm Mattie Silks

Monday 5 February 2018

Companion Orientation

9:00 am – 10:00 am Gold Coin

NRRT Board and Panel

9:00 am – 4:00 pm Nat Hill

Medical Health Physics Section Board Meeting

12:00 pm – 1:00 pm Matchless

Science and Public Issues Committee Meeting

12:30 pm – 1:30 pm Homestead

ANSI N13.65 Meeting

1:00 pm – 3:00 pm Penrose I

Intersociety Relations Committee

1:30 pm – 2:30 pm Gold Coin

HI-Q ENVIRONMENTAL PRODUCTS COMPANY, INC.

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Media



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Samplers



ANSI
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Testing & System
Design

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SOCIAL EVENTS

All Social Events are in The Denver Hilton City Center

Sunday 4 February 2018

Welcome Reception & Super Bowl Party!

6:00 PM – 7:30 PM Penrose Ballroom
Plan on attending the HPS Welcome Reception. This is an opportunity to meet friends and start your evening in Denver. We will also be watching the Super Bowl! The reception will officially run from 6pm-7:30pm, but the game will be shown in the room starting at 4:30pm until the end of the game. Cash bar and light refreshments will be available during the reception.

Monday 5 February 2018

Complimentary Lunch in Exhibit Hall

Noon – 1:15 PM Colorado Ballroom

Poster Session

5:00 PM – 6:30 PM Colorado Ballroom

Exhibitor Reception

5:00 PM – 6:30 PM Colorado Ballroom
Join the exhibitors for food, a cash bar, and the latest in health physics equipment.

Tuesday 6 February 2018

Complimentary Lunch in Exhibit Hall

Noon – 1:15 PM Colorado Ballroom

Wednesday 7 February 2018

Technical Tour

1:00 PM – 5:00 PM
Facility Tour of the USGS TRIGA reactor
Preregistration Only



Call for Papers

Health Physics Society 63rd Annual Meeting & Exhibition

15-19 July 2018 - Cleveland, OH

The deadline for submitting abstracts for the 2018 Annual Meeting is **9 February 2018**.

Please submit your abstract (including Special Session abstracts!) through the HPS website, <http://hpschapters.org/2018AM/abstracts>

Submittal and Presentation guidelines can be found at <http://hps.org/meetings>

2018 HPS MIDYEAR MEETING EXHIBITORS

Exhibits are located in The Denver Hilton City Center, Colorado Ballroom

Exhibit Hours

Monday

10:00 AM – 6:30 PM

Exhibits Open

10:00 AM – 10:30 AM

Coffee Break

Noon – 1:15 PM

Complimentary Lunch

2:45 PM – 3:15 PM

Coffee Break

*Sponsored by
Versant Medical Physics*

5:00 PM – 6:30 PM

Exhibitor Reception/
Poster Session

Tuesday

9:30 AM – 5:00 PM

Exhibits Open

10:00 AM – 10:45 AM

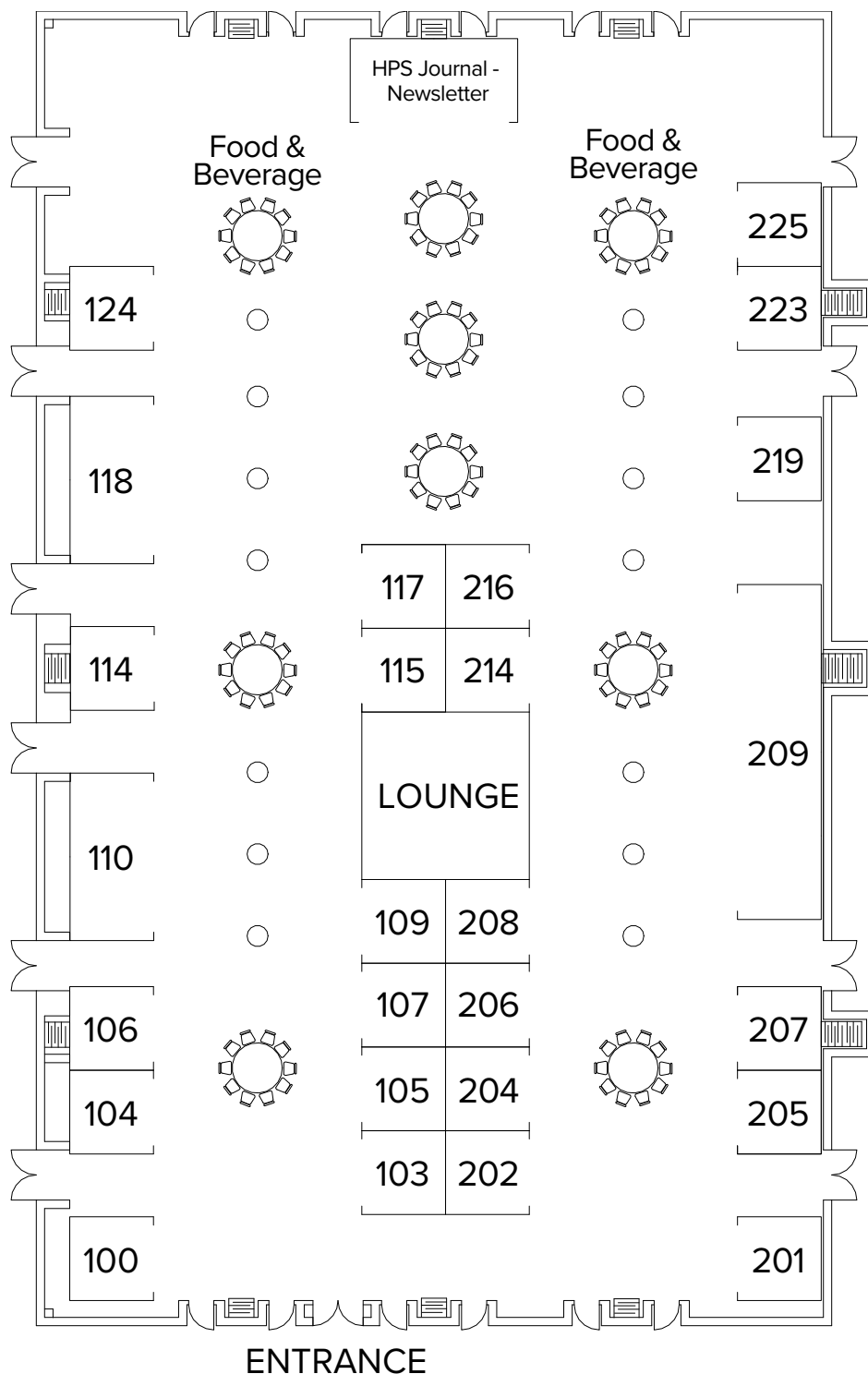
Coffee Break

Noon – 1:15 PM

Complimentary Lunch

3:00 PM – 4:00 PM

Coffee Break



2018 HPS MIDYEAR MEETING EXHIBITORS

Exhibits are located in The Denver Hilton City Center, Colorado Ballroom

2018 Annual Meeting Cleveland, Ohio

www.hps.org/meetings

Join us for the HPS 2018 Annual Meeting in Cleveland, Ohio!

Booth: 201

Bionomics

PO Box 817

Kingston, TN 37763

865-220-8501

www.bionomics-inc.com

Bionomics continues to be the leading service provider to generators of low level and mixed waste across the country. With a commitment to supporting their clients and the use of only the top tier processing and disposal facilities, Bionomics remains the top broker. Bionomics has been the leading voice for small waste generators during the development of regulations and policies surrounding the new burial site in Texas. We are the first company other than WCS to be approved to ship into the Andrews facility and are currently accepting sources for disposal at this facility. In addition to waste disposal services we provide assistance in other related field including surveys and site closures.

Booth: 103

Chase Environmental Group, Inc.

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865-816-8015

www.chaseenv.com

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Booth: 208

Eckert & Ziegler Isotope Products

1380 Seaboard Industrial Blvd.

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404-352-8677

www.ezag.com

Eckert & Ziegler Isotope Products provides high quality, NIST traceable radioactive calibration sources, solutions and gases. We operate three ISO17025: 2005 DAkkS accredited calibration laboratories, two in the USA and one in Germany. Radiochemical performance evaluation samples are provided quarterly for effluent and environmental monitoring programs.

Booth: 110

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LANDAUER joined Fluke Biomedical and RaySafe as a result of the Fortive acquisition in late 2017. By blending products and services, we are better able to deliver critical patient and staff safety solutions to health care providers around the world. LANDAUER's core strength in dosimetry services and medical physics is complementary to Fluke Biomedical and RaySafe's efforts to help customers with biomedical equipment testing and navigating complex regulatory environments around radiation exposure. Visit flukebiomedical.com to learn more.

Booth: 117

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Gamma Products, Inc. has been designing and manufacturing scientific instruments for over 45 years. We specialize in low background α/β automatic & manual proportional counting system, gas free automatic α/β counting system, Ra226/228 & gamma automatic sample changers, lead or steel counting and storage shields.

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Booth: 206

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Booth: 104**Silver Sponsor**

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Hopewell Designs, Inc. provides automated and manual irradiator systems and radiation shielding for government laboratories, nuclear power plants, private industry, medical laboratories and universities in the Americas and throughout the world. We began operations in 1994 by designing and manufacturing the first fully automated calibration laboratory for the Department of Energy at the Savannah River Site. Today we are the primary provider of automated irradiator systems for calibrating radiation survey meters. Our expertise and experience in radiation and shielding design, software development, systems integration, manufacturing, training, and complex project management enables us to deliver quality products and service for hundreds of clients.

Booth: 105

HPS Journal/Web Ops/Newsletter

www.hps.org

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Booth: 107**Bronze Sponsor**

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LabLogic Systems, Inc**Booth: 114**

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Brandon, FL 33511
813-626-6848
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, radiochromatography instruments and software, microplate readers and a variety of radiation safety consumables.

Landauer**Booth: 115**

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708-755-7000
www.landauer.com

LANDAUER joined Fluke Biomedical and RaySafe as a result of the Fortive acquisition in late 2017. By blending products and services, we are better able to deliver critical patient and staff safety solutions to health care providers around the world. LANDAUER's core strength in dosimetry services and medical physics is complementary to Fluke Biomedical and RaySafe's efforts to help customers with biomedical equipment testing and navigating complex regulatory environments around radiation exposure. Visit landauer.com to learn more.

LND, Inc.**Booth: 106**

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For over 50 years LND, INC. has been a leading manufacturer of Nuclear Radiation Detectors. Products include GM Detectors, X-ray Proportional Counters, He3 and Bf3 Neutron Detectors, Ionization Chambers, Fission Counters, and Gas Sampling Detectors. Industries supported include Health Physics, Research, Homeland Security, Materials Analysis and thin foils production.

Ludlum Measurements, Inc**Booth: 118**

501 Oak Street / PO Box 810
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Ludlum Measurements, Inc., designs, develops, and manufactures radiation detection and measurement instrumentation, offering unmatched service and support. After 55 years Ludlum has one of the largest lines of radiation detection devices available from a single company. Ludlum makes the world a safer and secure place for people.

Mazur Instruments**Booth: 214****Gold Sponsor**

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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.

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NRRPT

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

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

Booth: 207

**Nuvia Dynamics Inc.
(formerly Pico Envirotec Inc.)**

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Booth: 205

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The Off-Site Source Recovery Program (OSRP) has an NNSA sponsored mission to remove excess, unwanted, abandoned, or orphan radioactive sealed sources that pose a potential risk to national security, health, and safety.

Booth: 204

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RSCS offers expertise in all aspects of radiation safety and measurement applications. We specialize in operational and decommissioning services for nuclear, industrial, medical, and government radiological facilities. Our services include health physics consulting, technical staffing, training, instrumentation (sales, installation, calibration, and repair), emergency planning, and specialized radiological characterizations and measurements.

Booth: 202

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Texas Tech University**Booth: 225**

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806-742-4105
www.depts.ttu.edu/vpr/commercialization

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and Radiation Safety****Booth: 219****Gold Sponsor**

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Health Physics Society **63rd Annual Meeting & Exhibition**

15-19 July 2018 · Cleveland, OH

Join us in Cleveland for five days of education, networking, and professional development



FINAL TECHNICAL PROGRAM

If a paper is going to be presented by other than the first author, the presenter's name has an asterisk (*)
All Sessions will take place in The Denver Hilton City Center

MONDAY

7:15 AM – 8:15 AM

Mattie Silks

CEL-1

A Radiation Grassroots Response Group—Your Responsibility and How To

White JC

VA North Texas Health Care System

8:30 AM – 12:00 PM

Denver Ballroom 1-3

MAM-A Plenary Session

8:30 AM

Welcome/Introduction

Abelquist, E, President, HPS

ORAU/HPS

8:40 AM

Radiation Protection Research Needs—HPS Task Force Takes the Reins

Abelquist, E, President, HPS

ORAU/HPS

9:00 AM

House Science Committee Staff re: Funding Low Dose research

O'Brien H

House Subcommittee on Energy

9:30 AM

Meeting the U.S. EPA's Need for Radiation Professionals

Boyd M

U.S. Environmental Protection Agency

10:00 AM

COFFEE BREAK
Colorado Ballroom

10:30 AM

Discussion on LLRW/Int'l/Fukushima

Uchida M

Nuclear Regulation Authority - Japan

11:00 AM

An Update on Current Issues Facing Low-Level Waste

Slosky L

Rocky Mountain Low-Level Radioactive Waste Board

11:30 AM

Innovative Solutions To Better Risk-Inform the Disposition of Low-Level Radioactive Waste

Kirk S

BWXT TSG

12:00 PM

COMPLIMENTARY LUNCH
Colorado Ballroom

1:35 PM – 5:00 PM

Denver Ballroom 1-3

MPM-A NCRP Workshop

Co-chairs: William E. Kennedy Jr., Don Cool

1:35 PM

Contamination Mitigation in the WIPP Repository

Gadbury DC

DOE-Carlsbad Field Office

2:00 PM

High Level Waste Tank Closure at Savannah River Site

Rosenberger KH

Savannah River Remediation

2:25 PM

NRC 10 CFR 61 Update on LLW Management

Suber GF, Dembek S, Yadav P

US NRC

2:45 PM

COFFEE BREAK
Sponsored by Versant Medical Physics
Colorado Ballroom

3:15 PM

Nuclear Industry Perspectives on Low Level Waste Management

Schlueter J

NEI

MONDAY

3:40 PM

Present & Future Low-Level Radioactive Waste issues, an Industrial Perspective

Shaw C

Waste Control Specialists LLC

MPM-A.5

4:05 PM

Waste Management Approaches for Handling Technologically Enhanced Naturally Occurring Radioactive Material

Kennedy Jr WE

WE Kennedy Consulting

MPM-A.6

4:30 PM

Panel Discussion

MPM-A.7

5:00 pm - 6:30 pm

Colorado Ballroom

Exhibitor Reception

Join the exhibitors for food, a cash bar, and the latest in health physics equipment.

5:00 PM – 6:30 PM

Colorado Ballroom

Poster Session

P.1 Radioactive safety assessment in soil and some selected grains from Bukuru mining site of Plateau and Mubi non-Mining site of Adamawa State, Nigeria

Ishidi J, Saleh BT, Ganniyu IB

POLAC, Kano, KUST, Wudil, ABU Zaira

P.2 Particle Track Tagging in the Visual Editor

Schwarz R, Schwarz A

Visual Editor Consultants

P.3 The Overlooked Radiation Dose to Downwinders from the Trinity Blast

McNabb IM, Whicker JJ, Ruedig E, McNaughton M

Colorado State University, Los Alamos National Laboratory

P.4 ESR (EPR) Dosimetry with Human Deciduous, Rat, and Cattle Teeth

Murahashi M, Toyoda S, Hoshi M, Ohtaki M, Fujimoto N,

Miyazawa C, Yamada Y, Natsuhori M

Okayama University of Science, Hiroshima University, Ohu University, Kitasato University

P.5 Significant Advancements in Geospatial Analysis

Gray JL, Ottman J, Marcial M, Danson RW

Amec Foster Wheeler

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GOLD



SILVER



BRONZE



TUESDAY

7:15 AM – 8:15 AM

Denver Ballroom 4-6

CEL-2

Radiation Safety and Hurricane Harvey in Texas

Gutierrez J

University of Texas Health Science Center at Houston

8:30 AM – 11:50 AM

Denver Ballroom 1-3

TAM-A

NCRP Workshop

Co-chairs: SY Chen, Bill Irwin

8:30 AM

Issues and Framework for Managing Radioactive Waste Resulting from Wide-Area Contamination

Chen S

Illinois Institute of Technology

TAM-A.1

9:00 AM

Waste Management Challenges Facing Fukushima's Long-Term Recovery

Lee SD, Lemieux P, Boe T, Mikelonis A

US EPA

TAM-A.2

9:30 AM

Tradeoffs Between Decontamination Methods and Waste Management During Response to a Wide-Area Radiological Incident

Lemieux PM, Lee SD

US EPA

TAM-A.3

10:00 AM

COFFEE BREAK

Colorado Ballroom

10:20 AM

Waste Management and Decontamination of UK Po-210 Incident in 2006

Cardarelli II JJ

Environmental Protection Agency

TAM-A.4

10:50 AM

Managing Waste from Radiological Incidents: Considerations for Decision-Making

Schultheisz DJ

US Environmental Protection Agency

TAM-A.5

11:20 AM

Panel Discussion

TAM-A.6

12:00 PM

COMPLIMENTARY LUNCH

Colorado Ballroom

8:30 AM – 10:15 AM

Denver Ballroom 4-6

TAM-B1

Colorado State University Special Session

Co-chairs: Shin Toyoda, Amber Harshman

8:30 AM

A New Standard For EPR (ESR) Retrospective Radiation Dosimetry With Tooth Enamel: Standardization Of The Method

Toyoda S, Ivannikov A, Murahashi M

Okayama University of Science, A. Tsyb Medical Radiological Research Center

TAM-B1.1

8:45 AM

Suitability of Tooth Enamel from Japanese Wild Boar for Use as a Dosimeter with Electron Spin Resonance Dosimetry

Harshman AM, Shin T, Johnson T

Colorado State University, Okayama University of Science

TAM-B1.2

9:00 AM

The Pseudo Pelger-Huet Anomaly as a Bio-dosimeter for Chronic Low Dose Radiation Exposure of Mammalian Species within the Fukushima Daiichi Exclusion Zone

Hayes JM, Pederson S, Hinton T, Okuda K, Bailey S,

Johnson T

Colorado State University, Fukushima University

TAM-B1.3

9:15 AM

A Survey of Dose Rate Assessment at Fukushima Prefecture

Bekelesi W

Hiroshima University

TAM-B1.4

9:30 AM

Low-Level Radiocesium Measurements of Ocean Water off the Coast of Japan

Daum JK, Aoyama M, Sudowe R

University of Nevada Las Vegas, Fukushima University,

Colorado State University

TAM-B1.5

9:45 AM

Spatiotemporal Changes of Radio-Cesium Concentrations released from the Fukushima Dai-ichi Nuclear Power Plant.

Seel PJ, Shozugawa K, Hori M, Sudowe R

Colorado State University, University of Tokyo

TAM-B1.6

TUESDAY

10:00 AM **TAM-B1.7**
Bioavailability of Plutonium and Radiocesium in Soil from the Fukushima Exclusion Zone

*McNabb IM, Sudowe R
 Colorado State University*

10:15 AM COFFEE BREAK
Colorado Ballroom

10:45 AM – 12:00 PM **Denver Ballroom 4-6**

TAM-B2
Colorado State University Special Session
Co-chairs: Daniel Workman, Gerald Braley

10:45 AM **TAM-B2.1**
Radiocesium Soil to Plant Transfers in Fukushima Forests

*Workman D, Johnson T, Yoschenko V
 Colorado State University, Institute of Environmental Radioactivity*

11:00 AM **TAM-B2.2**
Implicit Attitudes of Japanese on Fukushima Agricultural Products

*Tsegmed O
 Hiroshima University*

11:15 AM **TAM-B2.3**
Moving Towards a Net-Risk Model for Evacuation and Reoccupation Decision Making

*Braley GS
 Colorado State University*

11:30 AM **TAM-B2.4**
Transitions in Post-Disaster Recovery and Existing Challenges 6 Years after the Fukushima Nuclear Power Plant Disaster In Odaka Town, Minamisoma City, Fukushima, Japan

*Chowdhury AS, Adriana HM, Bilton K
 Hiroshima University, University of California, Berkeley*

11:45 AM **TAM-B2.5**
Factors that Determined the Level of Trust Among Fukushima Mothers

*Komatsu M, Sakata K, Sugiura H, Ujiie T, Tsutsui Y, Takaya R
 Hiroshima University, Ritsumeikan University, Nagoya University, Fukushima University*

12:00 PM COMPLIMENTARY LUNCH
Colorado Ballroom

2:30 PM – 4:30 PM **Denver Ballroom 1-3**

TPM-A
Medical HP Special Session
Co-chairs: Deirde Elder, Bryan Lemieux

2:30 PM **TPM-A.1**
The History of Y-90 Microsphere Therapy

*Kroger LA
 University of California, Davis Health*

2:45 PM **TPM-A.2**
Clinical Difference Between TheraSphere and SIR-Spheres
*Johnson T
 Colorado State University*

3:00 PM **TPM-A.3**
Nuclear Regulatory Commission Licensing Guidance for Yttrium-90 Microsphere Brachytherapy
*Sheetz MA
 University of Pittsburgh*

3:15 PM **TPM-A.4**
Y-90 Microsphere Therapy Program Organizational Model and Challenges for a Large Academic Medical Center
*Lemieux B, Cheek D, Schlenker G
 UK HealthCare, University of Kentucky*

3:30 PM COFFEE BREAK
Colorado Ballroom

4:00 PM **TPM-A.5**
Medical Events with Y-90 Microsphere Therapies
*Jackson AM, Culver-Schultz C
 Henry Ford Hospital, Beaumont Hospital*

4:15 PM **TPM-A.6**
Radiation Safety for Post Radioembolization Liver Transplant
*Hann PE, Keklak JC, Berry K
 Thomas Jefferson University Hospital, Thomas Jefferson University Hospital, Fox Chase Cancer Center*

TUESDAY

1:30 PM – 3:00 PM

Denver Ballroom 4-6

TPM-B1

Colorado State University Special Session

Co-chairs: Justin Bell, Ashley Sorcic

1:30 PM

TPM-B1.1

Molecular Mechanism of Hypermucoviscosity of *Klebsiella pneumoniae*

*Le MN, Kayama S
Hiroshima University*

1:45 PM

TPM-B1.2

Separation Of Mn-52 From Cr-52 For Use In Positron Emission Tomography

*Boron-Brenner LP, Sudowe R
University of Nevada Las Vegas, Colorado State University*

2:00 PM

TPM-B1.3

Development of a Dynamic Dosimetric Canine Model for Cu-64-ATSM

*Bell JJ, Mann K
CSU*

2:15 PM

TPM-B1.4

A Comparative Study on the Effects of Chelating Agents in Barium Recovery from Strontium Resin

*Sorcic AK, McLain DR
Colorado State University, Argonne National Laboratory*

2:30 PM

TPM-B1.5

Effect of Matrix Constituents on the Separation of Plutonium and Americium from Bone Samples

*Nguyen NT, Sudowe R
Colorado State University*

2:45 PM

TPM-B1.6

Basic Properties and the Flatness Correction of a Thermo Luminescence Dosimeter Sheet

*Suzuki T, Nishio T, Masuda H, Nagata Y
Hiroshima University, Tokyo Woman's Medical University,
Hiroshima University Hospital*

3:00 PM

COFFEE BREAK
Colorado Ballroom

3:30 PM – 5:15 PM

Denver Ballroom 4-6

TPM-B2

Colorado State University Special Session

Co-chairs: Patrick Mattera, Jason Richards

3:30 PM

TPM-B2.1

Application of Markov Methods to Simulate and Evaluate the Fate of Cesium Atoms in the Biota of a Mesotrophic Pond

*Miller V, Johnson T, Pinder III J
Colorado State University*

3:45 PM

TPM-B2.2

An Analytical and Computational Approach to the Dose Conversion Factors for the Reference Deer Model Provided by ICRP 108.

*Mattera P, Brandl A
Colorado State University*

4:00 PM

TPM-B2.3

Rapid Separation of Americium from Curium Utilizing Sodium Bismuthate Chromatography

*Richards JM, Sudowe R
University of Nevada Las Vegas, Colorado State University*

4:15 PM

TPM-B2.4

The Ability of Common Health Physics Detectors to Detect Cosmic Radiation

*Fabian RM, Johnson TE
Colorado State University*

4:30 PM

TPM-B2.5

Tritium Diffusion In Plastic Liquid Scintillator Vials

*Wang J
Colorado State University*

4:45 PM

TPM-B2.7

Detection of a Weak Radiological Source in Ambient Background using Spectral Analysis

*Meengs M, Fischer J, Brogan J, Brandl A
Colorado State University*

5:00 PM

TPM-B2.8

Microbial Precipitation of Cesium and Other Nuclides by Cultures of Manganese Oxidizing Bacteria

*Cao LTT, Ohashi A
Hiroshima University*

WEDNESDAY

8:30 AM – 11:50 AM

Denver Ballroom 1-3

WAM-A

Power Reactor Session

Co-chairs: Tom Voss, Fraizer Bronson

8:30 AM

WAM-A.1

Elections to Replace Outgoing PRS Officers Discussion of Present PRS by Laws and Any Needed Modifications

Voss JT

Voss Associates

9:00 AM

WAM-A.2

Delivering the Nuclear Promise

Harris W

Exelon Corp

9:20 AM

WAM-A.3

Status of New NPP Construction

Goldstein B

US Nuclear Corporation

9:40 AM

WAM-A.4

A Review of the Methods Used by Major Organizations to Increase Efficiency while Decreasing the Costs of Operations

Voss JT

Voss Associates

10:00 AM

COFFEE BREAK

Denver Ballroom Foyer

10:30 AM

WAM-A.5

The Role of Aerial Radiation Surveys in Nuclear Power

Proctor A

nucsafes.com

10:50 AM

WAM-A.6

Evaluation of Current and Future Portable Radiation Instrument Types

Goldstein B

US Nuclear Corporation

11:10 AM

WAM-A.7

Primary Coolant On-Line Continuous Gamma Spectroscopy at 2 Nuclear Power Plants

Bronson FL

Mirion Technologies - Canberra

11:30 AM

WAM-A.8

A Portable Quantitative High-Resolution Gamma System for Waste, D&D, and Emergency Measurements

Bronson FL, Chard P

Mirion Technologies - Canberra

9:15 AM – 10:00 AM

Denver Ballroom 4-6

WAM-B

Environmental

Chair: Nasser Ali Shubayr

9:15 AM

WAM-B.1

Methodological Consistency between the U.S. Environmental Protection Agency and the U.K. Environment Agency in Chemical and Radiation Risk Assessment Models for Contaminated Sites

Shubayr N

US Environmental Protection Agency

9:30 AM

WAM-B.2

Disposal of Arc Chutes: Low-Level Radioactive Waste or Exempt NORM?

Dibblee MG, Stewart-Smith DA

3S Consulting, LLC

9:45 AM

WAM-B.4

Applications of Gamma Spectroscopy with Spectral Stripping Algorithms in Environmental Field Conditions

Posner RG

Amec Foster Wheeler

10:00 AM

COFFEE BREAK

Denver Ballroom Foyer

11:00 AM – 12:00 PM

Denver Ballroom 4-6

WAM-C

Medical Related/Dosimetry

Co-chairs: Tammy S, Chris Passmore

11:00 AM

WAM-C.1

Occupational Dose Trends in Dental Industry

Passmore CN, Kirr M

Landauer

11:15 AM

WAM-C.2

Responding to Unusually High Personnel Dosimeter Results

Stemen TJ

Yale University

11:30 AM

WAM-C.3

Radiation Safety for Administration of Iomab-B (Iodine-131 [I-131] conjugated murine monoclonal antibody to CD45)

Konerth S, Fisher D, Durack L

Versant Physics

WEDNESDAY

11:45 AM

Dosimetric Characteristics of a Novel Lens of the Eye Dosimeter

*Kirr M, Passmore C
Landauer*

WAM-C.4

3:00 PM – 4:15 PM

Denver Ballroom 1-3

WPM-B

Operational HP

Co-chairs: Maryla Wasiolek, Spencer Mickum

1:15 PM – 2:30 PM

Denver Ballroom 1-3

WPM-A

Homeland Security

Co-chairs: Patricia Milligan, Carolyn MacKenzie

1:15 PM

The Texas Preventive Radiological and Nuclear Detection Program

*Hageman JP
Southwest Research Institute*

WPM-A.1

1:30 PM

Back to the Future ... How Past EP Experience Informs Future Planning

*Milligan P
US NRC*

WPM-A.2

1:45 PM

Working with Journalists for Better Reporting on Radiation Incidents

*MacKenzie CJ, Rickwood P, Terrill D
University of California, Berkeley, Atomic Reporters, Stanley Foundation*

WPM-A.3

2:00 PM

Using Alternative Technology to Replace Cesium Irradiators to Remove the Risks of Malicious Use of Radioactive Material

*Kamen J
Mount Sinai Medical Center*

WPM-A.4

2:15 PM

See Something, Say Something — Lessons Learned from Uranium Mining during the Cold War

*Egidi PV
U.S. Environmental Protection Agency*

WPM-A.5

2:30 PM

COFFEE BREAK
Denver Ballroom Foyer

3:00 PM

Nuclear Science User Facilities – Sandia Participation and Research Funding Opportunities

*Wasiolek MA, Hattar KM
Sandia National Laboratories*

WPM-B.1

3:15 PM

Creation of a Materials Library for Radiation Transport Modeling

*Schwarz AR, Omberg R, Schwarz R
Visual Editor Consultants, PNNL*

WPM-B.2

3:30 PM

Field Operation Perspectives in Improving Identification of Transuranic from Radon/Thoron Interference in Air Samples

*Chiou HC, Flora J
DOE Carlsbad Field Office*

WPM-B.3

3:45 PM

Importance of Uranium Recovery Facility Product Characteristics for Dose Assessment and Assignment

*Brown SH, Chambers DB
SHB Inc, Arcadis Canada*

WPM-B.4

4:00 PM

Evaluation of Dose Uniformity for Self-Contained Irradiators

*Mickum GS, Hope Z, Rushton R
Hopewell Designs*

WPM-B.5

AMERICAN ACADEMY OF HEALTH PHYSICS

Saturday, 3 February 2018 • 8:00 am-5:00 pm • The Denver Hilton City Center

AAHP Course #1

Beyond Regulatory Compliance: Improving Performance Through Occupational Health and Safety Management Systems

Matthew D. Austin, CIH

Quality Management Services, Mayo Clinic

Location: Independence

Occupational health and safety management systems (OHSMS) provide a structured framework to efficiently plan, communicate, and implement safety programs and services and then verify, review, and report on effectiveness. They are characterized by continual improvement and the systematic elimination of underlying root causes of deficiencies. The basic tenet of a safety management system is that integrating safety into business strategy and core work improves overall performance of an organization.

Many well-known OHSMS frameworks exist. Examples include:

- United States Occupational Safety and Health Administration's Voluntary Protection Programs (VPP).
- National Safety Council's Nine Elements of a Successful Safety and Health System.
- American National Standards Institute's Z10-2012 Occupational Health and Safety Management Systems Standard.
- British Standard Occupational Health and Safety Assessment Series 18001:2007.
- ISO Occupational Health and Safety Management System Standard 45001 (pending).

Virtually all OHSMSs are based on the plan, do, check, act management model and embody the principle of continual improvement. The systems begin with leadership commitment and cycle through system elements, concluding with leadership review of performance on a periodic basis. The selection of—or components of—a system standard to adopt is highly dependent upon the values, culture, and ability to integrate with existing management processes within an organization. The systems are designed to be flexible and applicable to any organization, regardless of size or structure.

This presentation will identify key elements of a safety management system and how they can be leveraged to improve organizational performance, beyond compliance. The challenges and lessons learned when creating and implementing a comprehensive safety management system at a large academic medical center will be described. Recommendations for safety professionals facing the need for improved performance will be offered.

Expected learning outcomes/participants will understand:

1. The essential elements of an OHSMS.
2. Prioritizing improvement opportunities in alignment with an organization's business strategy.
3. Measuring overall performance, not just compliance.
4. Lessons learned when implementing an OHSMS.

AAHP Course #2

So You Want to Be a Medical Radiation Safety Officer?

Jeffrey J. Brunette, CHP, Glenn M. Sturchio, PhD, CHP
Department of Radiology; Mayo Clinic

Location: Homestead

The use of radiation sources in health care is constantly changing with new and exciting radiopharmaceuticals and radiation-producing machines. It is a constant challenge for the radiation safety staff to stay ahead of the curve and provide value-added guidance to practitioners prior to acquisition of the new technology. This course will outline the fundamental differences between medical and nonmedical licensees for those new to medical health physics. However, the primary focus of the course will be examining the radiation safety and regulatory hurdles involved in the different modalities, for example:

- Diagnostic Imaging – PET/MR; $^{68}\text{Ge}/^{68}\text{Ga}$ Generators; new PET radiopharmaceuticals.
- Radiation Therapy – new infusion therapies and patient-release considerations.
- Fluoroscopy Guided Interventions – staff and patient radiation dose minimization.
- Emerging Technologies – ^{90}Y microspheres; ^{125}I seed localization.

Another aspect of a large medical program that will be examined is radiation safety involvement in human use research protocol review. This includes process steps and informed consent form reviews—with examples. Whenever radioactive materials are administered to a patient or research participant, there is an opportunity for something to go wrong, so no discussion of a medical radiation safety officer's role would be complete without a discussion of the medical-event regulations and reporting requirements.

This course will give an overview of medical health physics to health physicists not in health care, while providing an opportunity for medical health physicists to share experiences and gain insights into a variety of elements within a broad-scope medical licensee program.

PROFESSIONAL ENRICHMENT PROGRAM (PEP)

Sunday, 4 February 2018 • The Denver Hilton City Center

Sunday 8:00 AM – 10:00 AM

1-A Contemporary Topics in Health Physics Part 1

Robert Emery

University of Texas Health Science Center at Houston

Location: Mattie Silks

Ethical Decision-Making Tools for Enhancing Organizational Safety Culture

Recent 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. This presentation will describe ethical dilemmas safety professionals may encounter and how the decisions that are made can impact an organization's overall safety culture. A set of ethical decision-making tools will be presented, along with a suggested path forward for actually improving safety culture within an organization.

Radiation Safety's Role in Mitigating the "Insider Threat" Security Risk

While organizations maintain many layers of control to prevent outsiders from gaining unauthorized access to cause loss or harm, persons who have been granted legitimate access can become an "insider threat." Because they are very difficult to detect, these employees cause over \$100 billion in losses annually. Although the typical insider targets assets or data, in some cases their actions can also have significant impacts on workplace and environmental health and safety. Because much of an organization's radiation safety program activities are carried out with the workers in their workplace, this represents a unique opportunity to assist in the possible detection of insider threats. This presentation will discuss the threats represented by insiders and will detail their recognized traits so that radiation safety professionals can enhance their situational awareness and report suspicions to the appropriate authorities.

1-B Fundamentals of Gamma Spectroscopy

Benson Davis

ORTEC

Location: Matchless

This course offers a fast-paced review of the basic principles of gamma spectroscopic analysis. 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.

1-C Health Physics Readiness and Response to Natural Disasters

Doug Van Cleef

Mirion Technologies, Inc.

Location: Independence

The major natural disasters of 2017 in Texas and Florida serve as a reminder that there is always room for improvement in planning for the unexpected. This course will review and summarize recommendations for advanced planning and response activities in the face of natural disasters. Through participation in this course, students will obtain a thorough review of recommendations for preparation and response to natural disasters from a health physics perspective. The course will include ample time for Q&A and discussion to address specific circumstances.

Sunday 10:30 AM – 12:30 PM

2-A Contemporary Topics in Health Physics Part 2

Robert Emery

University of Texas Health Science Center at Houston

Location: Mattie Silks

The Promise and Peril of "Citizen Science"—and Why This Matters to Radiation Safety

The proliferation of personal electronic devices has resulted in an exponential expansion in the ability to rapidly gather and disseminate information—some accurate, some not so accurate, and some downright wrong. With virtually every member

of the workforce and community now equipped with this technology, the notion of “citizen science” has expanded, wherein citizens and employees can collect and instantly transmit data and information about exposures and situations. While this technique holds great promise as a “force multiplier” to address various concerns, the technique is largely unfiltered and can result in the dissemination of misinformation, apprehension, and confusion. This presentation will discuss the evolution of “citizen science” and how it has changed with recent technological developments and then will provide a series of suggested steps for radiation safety programs to take to proactively address the challenge.

Strategies for Keeping Your Radiation Safety Program on Course in a Sea of Constant Change

The University of Texas School of Public Health recently conducted a straw poll of approximately 50 very experienced health and safety professionals and the results were astonishing: 80% had reported to the person they current report to for a period of less than five years, and 25% for a period of less than one year! These striking results underscore the old adage that “change is constant.” But adapting to change is not something that is traditionally addressed in academic health and safety programs. Interestingly, although change is indeed constant, the underlying data that drives radiation safety programs doesn’t change. What does change is the framing of the delivery of this important information to ensure continued program support. This presentation will discuss the dilemma of constant change, provide some tips on the personal management of change, and present options to consider for communicating essential information to the ever-changing environment.

2-B Fundamentals of Alpha Spectroscopy

Benson Davis
ORTEC

Location: Matchless

This course offers a fast-paced review of the basic principles of alpha spectroscopic analysis. 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.

2-C Calibration and Use of Current Portable Radiation Survey Instruments

James (Tom) Voss
Los Alamos National Laboratory

Location: Independence

There is a mix of traditional and up-to-date portable radiation instrument types in use for radiation measurements. Some of the traditional instrument types (models) were in use 50 years ago and continue to meet the survey requirements. There has been a trend towards lighter-weight and “smarter” instruments in the past few decades. This class discusses a wide range of portable radiation instruments and demonstrates calibration techniques for some of the portable radiation instruments. The attendees will participate in hands-on use of portable survey instruments. The attendees will also participate in calibrating portable survey instruments using nonaccountable sources, pulse generators, and DVMs (digital volt meters).

Sunday 2:00 PM – 4:00 PM

3-A Spectroscopy Data Review for Health Physicists

Doug Van Cleef
Mirion Technologies, Inc.

Location: Mattie Silks

This course presents a quick, but thorough, review of spectroscopy data interpretation by employing a step-by-step review of common gamma-spectroscopy and alpha-spectroscopy analytical report content. In the course of the review, we will draw on the principles and components of the analytical process necessary to generate the data so that the reviewer can assess the quality and usability of the results. As part of the data-review process, we will touch on considerations for method limitations, sample collection, the sample measurement process, calibrations, statistics, and detection decision criteria. Upon completion of this course, students will have a thorough understanding of the data-review process to enable good decision making based on results from alpha- and gamma-spectroscopy analyses. The course will include ample time for Q&A to allow students to address specific application considerations.

3-B Next Generation of Portable Radiation Survey Instruments

James (Tom) Voss

Los Alamos National Laboratory

Location: Matchless

There has been a trend towards lighter-weight and “smarter” instruments in the past few decades. This class displays examples of current new generation of radiation survey instruments and discusses where the trend may take us in the future. Questions will be asked about what is needed by the people in the field for the BEST portable radiation instrument. The attendees will use the most up-to-date portable instruments, including those for air monitoring. Portable alpha and gamma spectrometers will be used in this class. The attendees will participate in the calibration of these current new-generation radiation survey instruments. The attendees will also use the instruments to measure activities of nonaccountable sources.

3-C Radiation in Flight

Joseph Shonka, PhD

Shonka Research Associates

Location: Independence

In 2014, measurements of an extreme solar flare that missed earth by seven days, along with analysis that showed such an event had a 10% probability of occurrence per decade, led the United States and United Kingdom science and technology advisors to recommend a course of action should such an event occur. Unlike in the United States, carriers in the European Union and United Kingdom are regulated, and the doses that would have been received exceeded allowable limits. There are no radiation dose limits for U.S. aircrew and passengers. This PEP will summarize the conclusions of those meetings and address both routine and extreme events from radiation that occur in flight. The PEP will also address methods that are being considered to control that radiation routinely and during space weather events. Recent efforts by the International Organization for Standardization to develop standards for measurement of radiation in flight will also be summarized.

CONTINUING EDUCATION LECTURES

CELs take place in The Denver Hilton City Center

Monday 7:15 AM – 8:15 AM

CEL-1 A Radiation Grassroots Response Group—Your Responsibility and How To

John C. White

VA North Texas Health Care System

Location: Mattie Silks

In any major event, national and even state resources can take some time to marshal and be effective. During that critical early period, it is essential that local responders have the ability to use equipment and contact subject matter experts already present in the local area. In a major radiological incident of any type, radiation safety professionals will be a critical need. It is essential that the health physicist know the local responders and emergency managers and have a working relationship with those groups. It is also essential that an understanding of local resources is widespread, to be able to bring the maximum capabilities to bear to reduce exposures and manage the response environment. This lecture presents one such solution to this difficult problem. North Texas is the fourth largest metropolitan area in the country, but has 143 municipal authorities in a home rule state. The North Texas Radiation Response Group was formed to gather and disseminate information and provide a common meeting event for responders to become familiar with area capabilities, determine equipment gaps, and advance training and radiological response programs in the metro area. Significant success has been achieved with equipment purchase, training capabilities notification, and face-to-face meetings of those with common purpose.

This lecture will demonstrate the need for your action in your area and provide you the basic building blocks to organize your own local group with a focus on radiological response..

Tuesday 7:15 AM – 8:15 AM

CEL-2 Radiation Safety and Hurricane Harvey in Texas

Janet Gutierrez, DrPH, MPH, CHP

University of Texas Health Science Center at Houston

Location: Denver Ballroom 4-6

UTHealth was one of the many institutions impacted by the Hurricane Harvey and the subsequent storm in August of 2017. Additionally, UTHealth in Houston, Texas, has weathered several storms through the years, including Tropical Storm Allison in June of 2001, which caused over 1 million gross square feet of space to be out of service for at least one month. In the 2001 storm, 10 million gallons of water inundated the medical-school complex, including a cyclotron facility. This CEL will discuss the planning, response, and lessons learned specific to radiological use at UTHealth for Hurricane Harvey. This presentation will also describe conditions, responses, and lessons learned for notable storms UTHealth has experienced in the past, such as Tropical Storm Allison in 2001 and Hurricane Ike in 2008. The presentation will also discuss mutual aid plans in place to facilitate sharing of resources and recovery efforts with a focus on efforts related to radiation safety.

CEL Courses (Included in registration fee)

To download a CEL talk, use this link and type in the corresponding CEL Code:

<http://burkinc.net/HPS2018MYPEP.php>

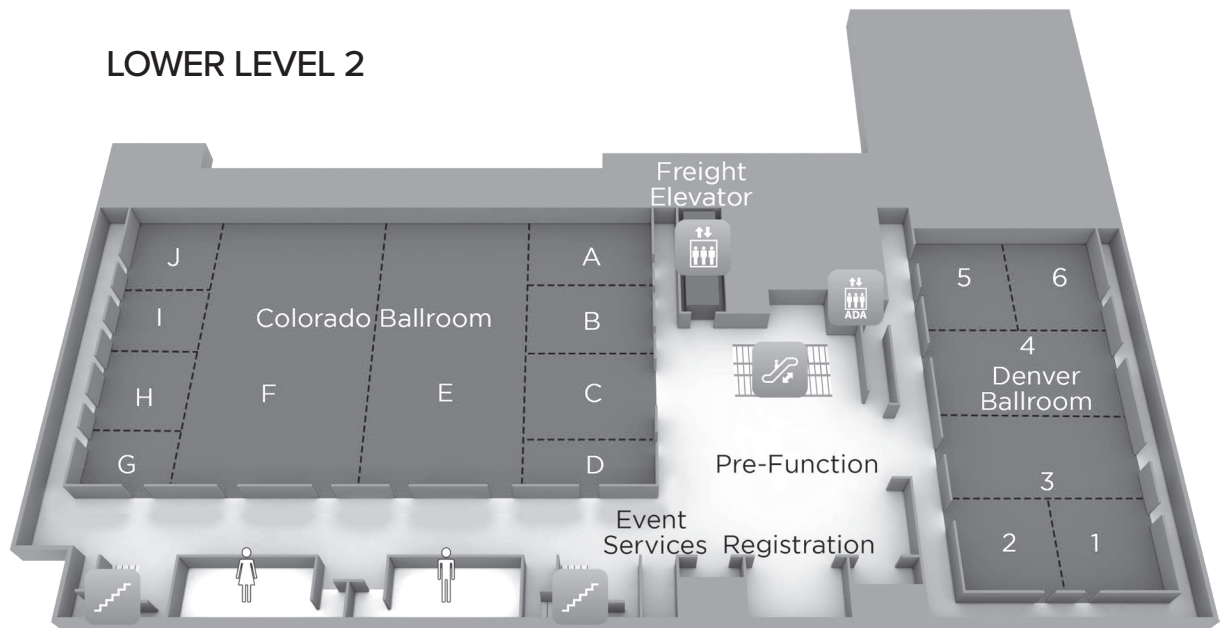
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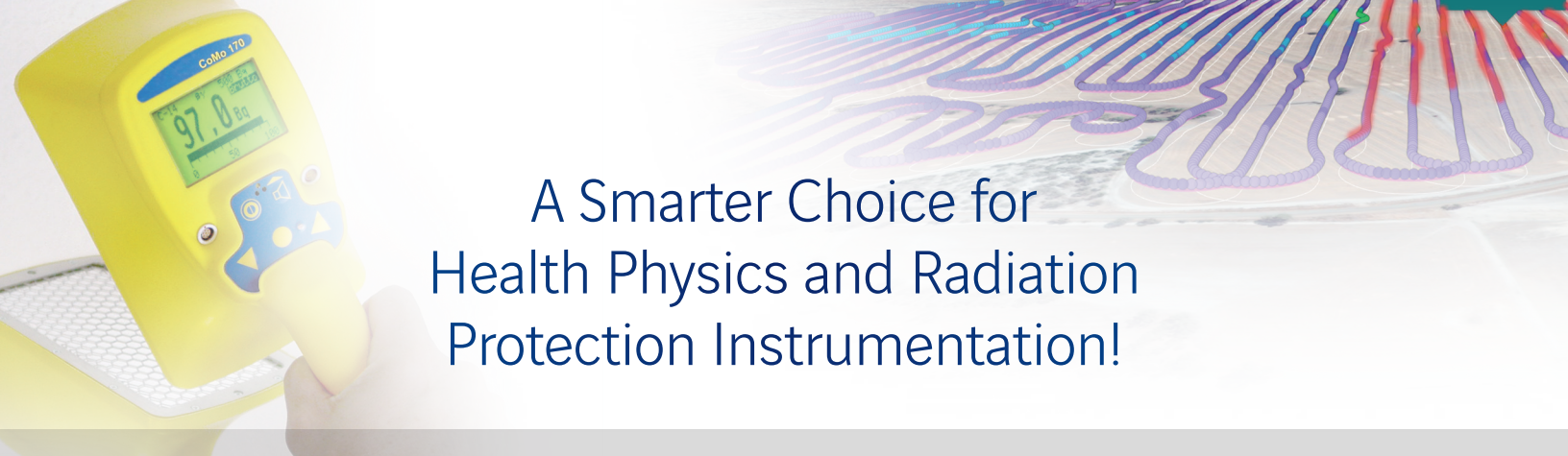
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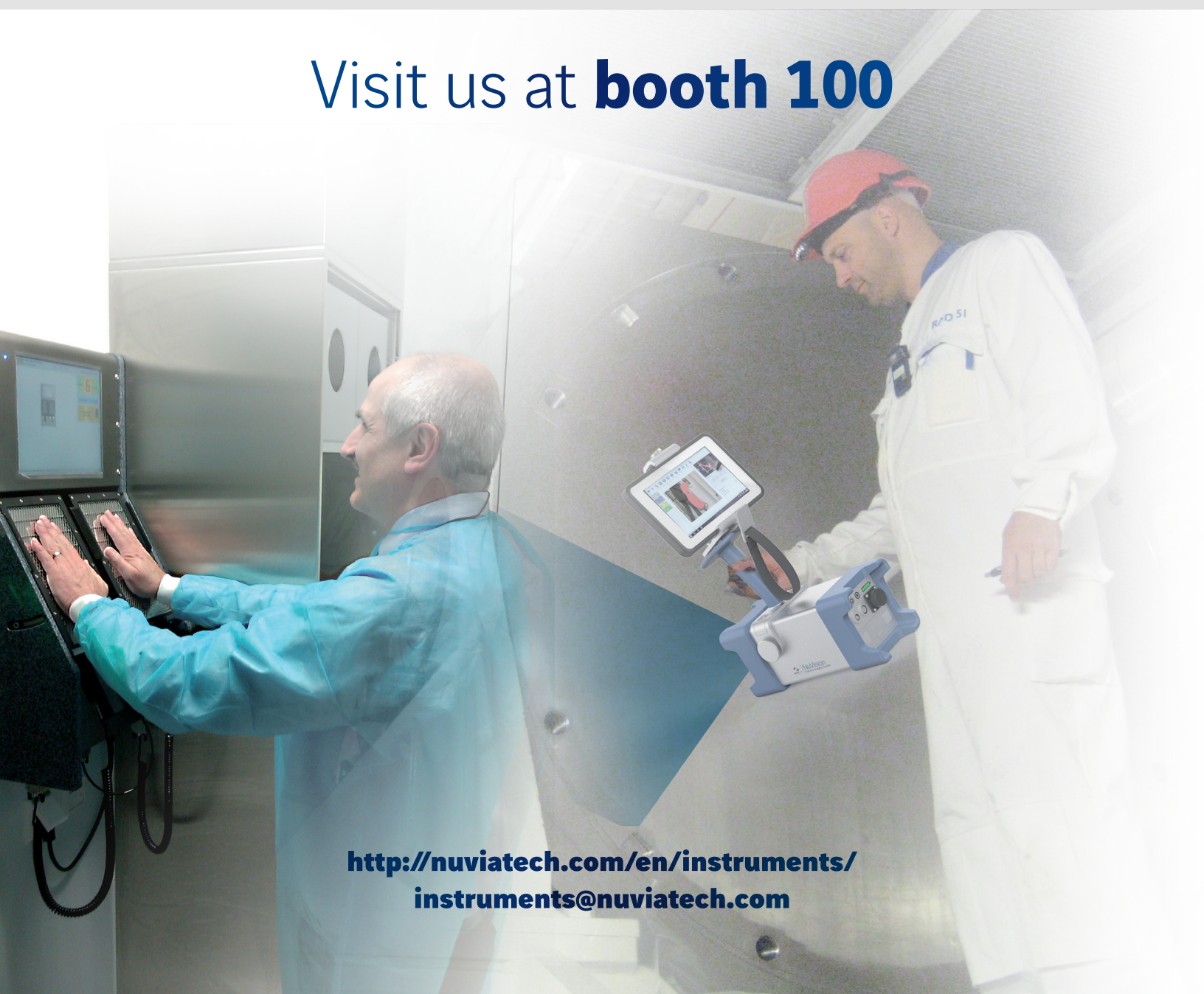


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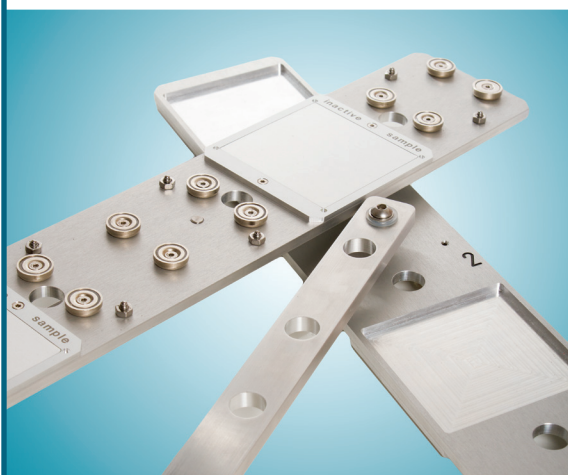
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