Health Physics Society Midyear Meeting

Radiation Measurements

2011 Topical Meeting of:
Health Physics Society
(The Forty-Fourth Midyear Topical Meeting of the Health Physics Society)
American Academy of Health Physics

Sunday, February 6 -
Wednesday, February 9, 2011

Preliminary Program

Charleston, South Carolina
Charleston Convention Center

Health Physics Society Committee Meetings

Saturday, February 5, 2011

FINANCE COMMITTEE
8:00 - 10:30 AM

ABHP PART II PANEL WORKSHOP
8:00 AM - 5:00 PM

WEB OPERATIONS COMMITTEE
9:00 AM - Noon

HPS EXECUTIVE COMMITTEE
Noon - 5:00 PM

Sunday, February 6, 2011

AAHP EXECUTIVE COMMITTEE
8:00 AM - 5:00 PM

ABHP PART II PANEL WORKSHOP
8:00 AM - 5:00 PM

HPS BOARD OF DIRECTORS
8:00 AM - 5:00 PM

Monday, February 7, 2011

GOVERNMENT & SOCIETY RELATIONS COMMITTEE
Noon - 1:30 PM

INTERNATIONAL COLLABORATION COMMITTEE
Noon - 1:30 PM

N13.3 DOSIMETRY FOR CRITICALITY ACCIDENTS
1:00 - 5:00 PM

Tuesday, February 8, 2011

SCIENTIFIC AND PUBLIC ISSUES COMMITTEE
9:00 - 11:00 AM

NRRPT BOARD & PANEL MEETING
9:00 AM - 4:00 PM

HISTORY COMMITTEE MEETING
11:30 AM - 1:00 PM

ANSI 32.3
1:00 - 5:00 PM

HOMELAND SECURITY COMMITTEE
4:30 - 6:00 PM

Wednesday, February 9, 2011

ANSI/HPS N42.54
1:00 - 5:00 PM

OOPS!

We cancelled it because we didn't know you wanted it!

Sometimes excellent courses with super instructors are cancelled when too many people wait until the last minute to register. We need a minimum number of participants enrolled before a class can take place in order to cover costs.
This applies to tours as well as classes.
Don't wait - avoid disappointment - register early!

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CHARLESTON, SOUTH CAROLINA

Welcome to Charleston!

There is a saying that at Charleston, the Ashley and the Cooper Rivers join and flow out to form the Atlantic Ocean. This charming old city is the site of the 2011 Mid-year meeting of the Health Physics Society. Charleston was one of the largest cities in America at the time of the Revolution, and still retains its colonial architecture and has many unique attractions, from historical to culinary to offer visitors.

Among these are:

Fort Sumter - This brick fort at the entrance to Charleston's harbor was the site of the opening shots of the American Civil War. Rebels fired upon the vastly outnumbered Union garrison for over 40 hours when they were forced to surrender due to raging fires. Union attacks throughout the war battered the fort, but were never able to force its surrender. Tour boats take visitors out to the fort from either a dock in downtown Charleston or from Patriots Point. Cannonballs can still be seen in the brick walls of the fort.

Fort Moultrie - This brick fort on Sullivan's Island is also preserved by the National Park Service. The fort stands on the site of the palmetto log fort that held off a British attack on the city in June 1776. The logs and sand absorbed the British cannonfire with little effect. This is the origin of the state's nickname of "Palmetto State" and also the Palmetto tree on the state flag. The current fort is the third on the site and was fully operational from 1809 through World War II. It has been restored showing its appearance through various technological stages. The fort was also the duty post of a young Edgar Allen Poe in 1828 and was where he wrote "The Gold Bug" and many other stories.

Carriage Rides - A trip to Charleston is not complete without a carriage ride. Multiple companies offer horse-drawn carriage rides through the city and will keep you entertained with stories of the history of this beautiful city. The carriage rides all start at the Charleston market.

H.L. Hunley - The confederate submarine H.L. Hunley set out from Charleston harbor in 1863 and successfully sank the Union frigate Housatonic on blockade duty. However, the submarine failed to return to port and was lost until rediscovered in 2000. The submarine is being studied at a facility north of Charleston which offers tours of the effort on weekends. Visitors can sit in a replica and get a unique experience imagining what it must have been like for those Confederate sailors.

Charleston Market - The Market was donated to the city under the condition that it remain open 364 days a year (excepting Christmas). The market buildings provide room for vendors of all types and stretch for several blocks. Visitors can find the unique sweetgrass baskets here along with prints, jewelery, woven goods, and a wide selection of hot sauces, among other goods. You can find just about anything in the Charleston market. Surrounding the market are many shops, stores, and restaurants that offer unique gifts and the taste of Charleston.

The Battery - At the southern end of Charleston is the Battery. This was once an artillery battery for defense of the city, but is now a park. It offers expansive views of the harbor and is adjacent to many of the well-preserved, picturesque homes for which Charleston is known.

The Museum Mile – Charleston's Museum Mile stretches along Meeting Street and contains one of the highest concentrations of museums and historical sites to be found anywhere. At the north end is the Charleston Museum, touted as America's first museum, founded in 1773.

Historic House Tours – Tours are available for many of the historic homes in Charleston. The city has a very strict preservation and restoration policy to preserve the unique architecture of the city. Many of these tours include more than one house in their itinerary.

Plantations – Farther afield from the downtown area are preserved plantations from an earlier time. These plantations and their gardens provide a quiet escape from the modern world among the magnolias and oaks.

Aquarium – The South Carolina Aquarium is located in downtown Charleston along the waterfront. The 10-year old aquarium focuses on the different creatures found in South Carolina from the mountains to the ocean.

Included are the marshy swamps unique to the Carolinas and exhibits about Loggerhead turtles. This attraction is a big hit with families.

Shopping – Adjacent to the Convention Center in North Charleston is a Tanger Outlet mall with a wide variety of nationally known brands in over 50 shops. More upscale shopping opportunities are located in downtown Charleston along with the market for those unique low-country gifts.

Patriots Point – This is a military park located across the bridge from downtown Charleston in Mount Pleasant. The central attraction is the retired aircraft carrier USS Yorktown. This WW-II carrier fought in the Pacific and was the recovery carrier for the Apollo 8 mission around the moon. The park also includes a Destroyer and Submarine and an exhibit of a Vietnam Naval Support Base. Tours of the carrier provide visitors a unique view of Charleston.

The Food – There is not enough room here to adequately describe the cornucopia of culinary delights available in the Charleston area. From she crab soup and Lowcountry Boil through fresh seafood and barbeque ribs, the treasures of the Charleston areas could keep you entertained for far longer than the duration of the mid-year meeting.

WEATHER

The average temperatures in Charleston in February range from a low of 40 degrees F to a high of 61 degrees F. It also can be breezy so light to moderate coats are recommended. That is, unless you live "up north" and the Charleston weather will feel rather balmy by comparison.

FOR REGISTERED COMPANIONS

Registered spouses and companions will again enjoy the benefit of a Hospitality Suite during the 2011 Midyear meeting. The Suite will be open at 9:00 am on Monday, February 7, and will also be open on Tuesday and Wednesday. See the final program for exact room and times.

HEADQUARTERS HOTEL

Embassy Suites North Charleston
5055 International Boulevard
North Charleston, SC 29418
843-747-1882; FAX: 843-747-1895

The Embassy Suites Hotel has been chosen as the headquarters hotel for the Midyear Topical Meeting with a special rate of $161 single/double including a full breakfast and hors d'oeuvres each evening. The block of rooms has been reserved from February 3-February 12, 2011. You can make your reservations by going to http://embassysuites.hilton.com/en/es/groups/personalized/CHSEMES-HPS-20110204/index.jhtml or calling the Embassy Suites directly and mentioning the Health Physics Society. Please note that the rates do not include tax. Reserve early to ensure a room at the group rate; the cutoff date is **January 5, 2011**, however, once the block is sold out, rooms may not be available at the group rate.

SUBSTITUTION/CANCELLATION POLICY

Substitutions of meeting participants may be made at any time without penalty. All conference and tour cancellations must be in writing and must reach the HPS Office by January 5 to receive a refund. All refunds will be issued after the meeting minus a $50 processing fee. Refunds will not be issued to no-shows.

TRANSPORTATION

There will be a complimentary shuttle bus leaving from the convention center to take attendees downtown (and return) to sample the excellent restaurants and to visit the shops. The shuttle will be available from 6-10:20 pm on Sunday through Tuesday evenings.

SHUTTLE SCHEDULE

Sunday, February 6 – Tuesday, February 8, 2011
2- 54 Person Passenger Coaches

Convention Ctr to Downtown	Downtown to Convention Ctr
6:00 PM	6:20 PM
6:45 PM	7:05 PM
7:30 PM	7:50 PM
8:30 PM	8:50 PM
9:15 PM	9:35 PM
10:00 PM	10:20 PM

WELCOME RECEPTION

Sunday, February 6

6:00-7:30 PM Charleston Convention Center

EXHIBITOR RECEPTION

Monday, February 7

5:00-6:00 PM Charleston Convention Center
Exhibit Hall A

TECHNICAL TOURS

Tuesday, February 8

Technical Tour of GEL Laboratories, LLC
5:30-8:30 PM, Includes Dinner
Preregistration $20/Onsite $25

GEL Laboratories, LLC (GEL) is conveniently located less than 5 miles from the North Charleston Convention Center. The tour will start with an overview of our full service mixed waste laboratory. The tour routes along the sample flow process beginning at sample receiving. The tour includes radiobioassay, analytical chemistry, radiochemistry laboratories and waste management facilities. Experts from various sections of the laboratory will be available to answer specific questions during the tour.

This outing will be valuable to Health Physics Members who rely on analytical data for making decisions on human health and the environment. A greater appreciation of the laboratory process will enhance their future interactions with radiological laboratories. There is a 100 person limit for this tour.

Registration Hours

Sunday, February 6 . . . . . 3:30-6:30 PM
Monday, February 7 . . . . . 7:30 AM-3:00 PM
Tuesday, February 8 . . . . . 8:00 AM-3:00 PM
Wednesday, February 9 . . . . . 8:00 AM-Noon

Registration Information

- Preregistration Deadline: January 5, 2011
- Registration fees for members and non-members include the Welcome Reception and Exhibitor Reception
- Purchase orders are not accepted for PEP, AAHP or Tour Registration

Register now to reserve your place!

Register online at www.hps.org

OR:

Register by fax: Fax your completed form with credit card information to (703) 790-2672

OR BY MAIL:

Mail your completed form with payment to:
HPS Headquarters
1313 Dolley Madison Blvd., Suite 402
McLean, VA 22101

Mail completed registration form with check made payable to Health Physics Society, purchase order or credit card information. You are considered registered when full payment or purchase order has been received.

NEW NEW NEW

The Professional Enrichment Program (PEP) handouts for the Midyear Meeting will not be available in hard copy. For those who pre-register, 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.

Exhibit Hours

Monday . . . . . 5:00-6:00 PM Opening Reception
Tuesday . . . . . 9:30 AM-5:00 PM
Tuesday . . . . . Noon Lunch in Exhibit Hall
Wednesday . . . . . 9:30 AM-Noon

2011 Meeting Exhibitors

(as of October 2010)

To request a booth for the Midyear Topical Meeting, contact Lori Strong at HPS Headquarters, (703) 790-1745, email: LStrong@BurkInc.com

Ameriphysics, LLC
Best Medical
Bionomics, Inc.
Bladewerx LLC
Bruker Detection Corporation
Canberra
Chase Environmental Group Inc.
CHP Consultants
Dade Moeller & Associates
Eckert & Ziegler Analytics
F&J Specialty Products, Inc.
Fluke Biomedical
G/O Corporation
Griffin Instruments
Hi-Q Environmental Products Co.
Hopewell Designs, Inc.
ICx Radiation
K & S Associates, Inc.
Lab Impex Systems Ltd.
Landauer, Inc.
Laurus Systems Inc.
Ludlum Measurements Inc.
Mirion Technologies
MJW Technical Services Inc.
ORTEC
Protean Instrument Corporation
Qal-Tek Associates
Radiation Safety & Control Services Inc.
Radiation Safety Associates
Radiation Solutions Inc.
S.E. International Inc.
Saphymo GmbH
Technical Associates/Overhoff Techoloogy Corp.
Thermo Fisher Scientific
Thomas Gray & Associates Inc.
Tidewater Inc.
Unitech Services Group

Preliminary 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 Charleston Convention Center unless otherwise noted

MONDAY

7:00-8:00 am — Ballroom B

CEL 1 Fluoroscopy Occupational Dose Monitoring/EDE Dose Calc Methods
Deidre Elder
University of Colorado Hospital

8:15 am-Noon — Ballroom C

MAM-A Plenary Session

Chair: Ed Maher

8:15 AM
Opening Remarks
Maher E
President, HPS

8:25 AM **MAM-A.1**
Past and Future Developments in Radiation Detectors
Knoll GF
*Professor Emeritus, University of Michigan (**G. William Morgan Lecturer**)*

9:10 AM **MAM-A.2**
Advances in Instrumentation for Homeland Security
Wrobel M
Domestic Nuclear Detection Office, DHS

9:40 AM ***BREAK***

10:10 AM **MAM-A.3**
The Future of the Modern Radioanalytical Laboratory
Bronson F
Areva-Canberra Instruments

10:40 AM **MAM-A.5**
"Get Your Nose Out of My Business!" (The Role of Quality Assurance in Radiation Measurements)
Schwahn S
Oak Ridge National Laboratory

11:10 AM **Roundtable Discussion**

1:00-2:15 pm — Ballroom C

MPM-A Measurement QA/QC

Co-Chairs: Ray Johnson, Jeffrey Lively

1:00 PM **MPM-A.1**
How Good do Measurements Need to Be - What Quality is Defensible?
Johnson R
Dade Moeller Radiation Safety Academy

1:15 PM **MPM-A.2**
The Analysis of a Signal in the Presence of Background for Few Total Counts
Alvarez JL
AlphaBetaGamut

1:30 PM **MPM-A.3**
Modified Time-Interval Analysis via Bayes' Theorem for Environmental Radiation Monitoring
Luo P, Sharp JL, DeVol TA
Clemson University

1:45 PM **MPM-A.4**
Use of Z-Score Methodology in Analyzing Dosimetry Quality Assurance Results
Chase WJ
Ontario Power Generation

2:00 PM **MPM-A.5**
The Power of Data Imaging
Lively J
MACTEC

2:15 PM ***BREAK***

2:45-5:00 pm **Ballroom C**

MPM-B Advances in Instrumentation A

Co-Chairs: Pavel Degtiarenko, Mark Wrobel

2:45 PM **MPM-B.1**

Low-Background Gamma Spectrometry for Environmental Assessment

Haines DK, Semkow TM, Khan AJ, Beach SE, Hoffman TJ, Meyer ST*
NYS Dept Health

3:00 PM **MPM-B.2**

Long-Term Environmental Radiation Measurements at Jefferson Lab

*Degtiarenko P, Dixon G**
Jefferson Lab

3:15 PM **MPM-B.3**

Two Channel Measurement Design of a Multielement TEPC

Waker A, Aslam
UOIT, Canada

3:30 PM **MPM-B.4**

Transformation of Geiger Muller Tube GM2416 to an Energy Compensated Counter

Machrafi R, Noor O, Kovalchuk V, Waston R
University of Ontario Institute of Technology, Bubble Technology Industries, Canberra Co.

3:45 PM **MPM-B.5**

Applications of the Spectral-Sensitive High Pressure Ionization Chambers at Jefferson Lab

Degtiarenko P, Popov V
Jefferson Lab

4:00 PM **MPM-B.6**

Relative Response of Plastic Scintillators to Photons and Beta Particles

Kumar A, Sh. Aydarous A, Waker A
UOIT, Canada, Taif University, Kingdom of Saudi Arabia

4:15 PM **MPM-B.7**

Neutron Response and Resolution of the New Tissue Equivalent Proportional Counter System for the International Space Station

Perez-Nunez D, Braby L
Texas A&M University

4:30 PM **MPM-B.8**

Response Of A Proportional Counter Under Moderate Pressures Of Counting Gas In Low Energy Neutron Fields

Aslam, Waker A
UOIT, Canada

4:45 PM **MPM-B.9**

Advances in Electron Paramagnetic Resonance Dosimetry with Fingernails

Reyes R, Melanson MA, Trompier F, Romanyukha A
Uniformed Services University of the Health Sciences, Armed Forces Radiobiology Research Institute, Institut de Radioprotection et de Seacute, Nucleaire, Naval Dosimetry Center

5:00-6:00 pm **Hall A**

Exhibitor Opening Reception

TUESDAY

7:00-8:00 am — Ballroom B

CEL 2 Thermally and Optically Stimulated Luminescence and Their Application in Radiation Dosimetry and Measurement
Stephen McKeever
Oklahoma State University

7:00-8:00 am — Ballroom C

CEL3 ABHP Exam Fundamentals – Tips for Successfully Completing the Certification Process
Patrick LaFrate, Progress Energy

8:45 am-Noon — Ballroom B

TAM-A Instrument Field Use A

Co-Chairs: James Rolph, Tony Mason

8:45 AM **TAM-A.1**
EPA Airborne Detection Capabilities
Cardarelli J, Thomas M, Curry T
Environmental Protection Agency

9:00 AM **TAM-A.3**
Use of a Helicopter Platform Using a Multiple Sodium Iodide Detector System to Conduct Environmental Scoping Surveys
Lyons CL
National Security Technologies

9:15 AM **TAM-A.4**
A Methodology for the Use of Handheld X-Ray Fluorescence (XRF) Technology and (Multi-Agency Radiation Survey - Site Investigation Manual) MARSSIM Guidance to Characterize Non-Radiological Metals Contamination at Radiologically Contaminated Sites
Jadick MG, Viars JA
ORISE

9:30 AM **TAM-A.5**
Development of a Detection Array for Field Work and Instructional Laboratories
Marianno C, Hearn G
Texas A&M University

9:45 AM **TAM-A.6**
Methodology for Indoor Geospatial Data Capture of Radiological Contamination Using a Robotic Total Station (RTS) Integrated with a Rate-Meter and Represented with Geographic Information Systems (GIS)
Viars J, Estes B
Oak Ridge Associated Universities

10:00 AM ***BREAK IN EXHIBIT HALL***

10:30 AM **TAM-A.7**
Final Status Survey Application of Ranked Set Sampling for Hard to Detect Radionuclides
Vitkus T
Oak Ridge Associated Universities

10:45 AM **TAM-A.8**
Revision 2 to Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)
Snead K, Liles D, Powers G, Williams WA, Alberth D, Doremus S, Bhat R*
US Environmental Protection Agency, US Nuclear Regulatory Commission, US Department of Energy, US Army, US Navy, US Air Force

11:00 AM **TAM-A.9**
A MARSAME-Based Release of Hanford Railroad Rails Using Standard Field Radiological Instruments, Computer Data Collection and Analysis, and Release Practices
Rolph JT, Neal JK, Glines WM, Craig JC, Draine AE
Washington Closure Hanford, DOE Richland Operations Office, Eberline Services, Incorporated

11:15 AM **TAM-A.10**
Field Experience with a Portable, Field, Alpha and Photon Spectrometer for the Clearance of Property with Contaminated Surfaces
Millsap WJ, Pappin JL, Balmer DK, Glines WM, Brush DJ
Dade Moeller, Mission Support Alliance, Pacific Northwest National Laboratory, US Department of Energy

11:30 AM **TAM-A.11**
Detection of Pu-239 Beneath a Monolayer of Stainless Steel Supporting Free Release of Equipment From the Z Machine at Sandia National Laboratories.
Beall PS
Sandia National Labratories

11:45 AM **TAM-A.12**
Successful Implementation of Subsurface Soil Derived Concentration Guideline Level Methodology to Achieve Compliance with Unrestricted Release Criteria
Lopez AU, Posner RG, Lively JW
MACTEC Development Corp.

Noon-1:00 pm **Exhibit Hall**

Complimentary Lunch

8:30-9:45 am **Ballroom C**

TAM-B Contemporary Topics A

Co-Chairs: Matthew Barnett, Ken Veinot

8:30 AM **TAM-B.1**

The Psychology of Radiation Measurements

Johnson RH

Dade Moeller Radiation Safety Academy

8:45 AM **TAM-B.2**

Developing an Environmental Monitoring Program for Radiological Operations at a "New" U.S. DOE Site

Snyder SF, Barnett JM, Rhoads K, Poston TM, Fritz BG, Meier KM

Pacific Northwest National Laboratory

9:00 AM **TAM-B.3**

Personal Dose Equivalent Conversion Coefficients for Electrons, Photons, and Positrons

Veinot KG, Hertel NE, Sutton-Ferenci MR

Y-12 National Security Complex, Georgia Institute of Technology, Hershey Medical Center

9:15 AM **TAM-B.4**

Microscope Image Analysis of Immune-Fluorescent Foci as a Biodosimeter for Assessing Neutron-Induced Injury

*Renegar J, Gray D, Wang H, Wang C**

Georgia Tech, Emory University

9:30 AM **TAM-B.5**

New Materials for Individual Emergency Dosimetry using Optically Stimulated Luminescence

Sholom S, DeWitt R, McKeever SWS

Oklahoma State University

9:45 AM ***BREAK IN EXHIBIT HALL***

10:15 am-Noon **Ballroom C**

TAM-C Calibration A

Co-Chairs: Frazier Bronson, Clayton Bradt

10:15 AM **TAM-C.1**

Calibration of Radiation Measurement Instruments with the Help of Primordial Radioisotopes

Iwatschenko M

Thermo Fisher Scientific

10:30 AM **TAM-C.2**

Significant Improvements in Accuracy of Beam Type Calibrators

Port EA, Port NL

RSSI

10:45 AM **TAM-C.3**

Calibration of Germanium Gamma Spectrometry Systems for Radiological Surveillance by Means of Monte Carlo Calculations

Bradt CJ, Semkow TM, Kitto ME

NYS Department of Health

11:00 AM **TAM-C.4**

Determination of the Optimum Container Diameter for the Gamma-Ray Assay of Laboratory Samples

Mueller WF, Bronson F

Canberra Industries, Inc.

11:15 AM **TAM-C.5**

The Applicability of Non-Uniform Matrices for Gamma Spectroscopy Calibration of Uniform Matrices with the Same Average Density

Bronson F

Canberra

11:30 AM **TAM-C.6**

Gamma Spectroscopy Sample Geometries that Minimize Sample Preparation, Minimize the Number of Calibrations Necessary, and Minimize Calibration Uncertainty

Bronson F

Canberra

11:45 AM **TAM-C.7**

Gamma Spectroscopy Counting Geometries that Can be Used for a Wide Range of Sample Conditions with the Same Efficiency Calibration

Bronson F

Canberra

Noon-1:00 pm **Exhibit Hall**

Complimentary Lunch

Noon-1:00 pm **Exhibit Hall**

Poster Session

P.1 Developing and Implementing a Joint Health Physics Technician and Managers Program at Orangeburg-Calhoun Technical College and South Carolina State University

Beharry K, Payne J, Lewis K, Murphy R

South Carolina State University, Orangeburg Calhoun Technical College

P.2 Utilization of Two New Executable Computer Codes for Confidence Intervals, Decision Levels and Detection Limits when the Sample is Counted an Integer Times Longer than the Blank
Potter WE, Strzelczyk J
California, Consultant, University of Colorado Hospital Measurement QA/QC

P.4 Optimization of Plastic Scintillator Thicknesses for Online Beta Detection in Mixed Fields
Pourtangestani K, Machrafi R
University of Ontario Institure of Technology, Canada

P.5 Assessment of Annual Effective Dose from, and in Soil and Their Effect on Human Health
Shafiey E, Changizi
Iran

P.6 Middle East Radiation Measurements Cross Calibration Workshops
Miller M, Mohageghi A, Ghanbari F
Sandia National Laboratory

P.7 A Detector for Simultaneous Beta & Gamma Spectroscopy
Caffrey J, Mangini CD, Farsoni AT, Hamby DM
Oregon State University

P.8 Radio Frequency Identification with Radiation Monitoring Ability
Lee JH, Anderson J, Tsai H, Craig B, Liu Y, Shuler J
Argonne National Laboratory, Department of Energy

P.9 Making It Real - Building a Technical College Radiation Protection Technology Program from Scratch with State of the Art Survey and Detection Equipment
Miller W
Aiken Technical College/Savannah River Nuclear Solutions

P.10 Back-Projected Radiation Analyzer and Cell Evaluator (BRACE) for Hot Cell Characterization
Rusty JR, Farfan E, Jannik GT
Savannah River National Laboratory

P.11 Introducing Students to Detection: Aluminum Decay Labs at Oregon State University
Bytwerk D, Reese S, Higley K, Darrough J
Oregon State University

P.12 Use of Helicopter Platform for Large Area Radiation Surveys
Favret D, Lyons CL, Plionis AA
National Security Technologies

P.13 Digital Processing of Multi-Component Signal Pulses
Mangini CD, Caffrey JA, Farsoni AT, Hamby DM
Oregon State University

P.14 Radially Dependant Directional Shield (RDDS) Used for Hot Cell Characterization
Coleman JR, Farfan EB, Jannik GT
Savannah River National Laboratory

P.15 Bayesian Analysis to Produce Usable Measurement Results for Everyone, Even Those with Negative Values
Strom DJ
Pacific Northwest National Laboratory

1:00-4:15 pm Ballroom B

TPM-A Instrument Field Use B

Co-Chairs: James Rolph, Tony Mason

1:00 PM TPM-A.1
Determination of MDA Levels for Radiation Surveys of Potentially Activated PCB Capacitors
Butala S, Munyon W, Micklich B, Vacca J
Argonne

1:15 PM TPM-A.2
Calculating Field Measurement Method Uncertainty
Hay S
Fallcrest, Inc.

1:30 PM TPM-A.3
Communicating Radiation Risks with Instruments and Dosimeters
Brodsky A, Jones S
Georgetown University, Physicians for Civil Defense

1:45 PM TPM-A.4
The Application of Super Heated Drop (Bubble) Detectors for the Characterization of Nano-Second-Pulsed Neutron Fields
Ward D, Cordova L
Sandia National Laboratories

2:00 PM TPM-A.5
Use of Portal Monitors for Evaluation of Internal Contamination after a Radiological Dispersal Device
Palmer R, Hertel N, Ansari A, Burgett E
Georgia Institute of Technology, Centers for Disease Control and Prevention

2:15 PM **TPM-A.6**

Assessing Internal Contamination Levels for Fission Product Inhalation using a Portal Monitor

Freibert E, Hertel N, Ansari A

Georgia Institutue of Technology, Centers for Disease Control and Prevention

2:30 PM ***BREAK IN EXHIBIT HALL***

3:00 PM **TPM-A.7**

A Comparison of Shielding Components and Practices in Interventional Cardiology

*Tannahill G, Fetterly K, Hindal M, Magnuson D, Sturchio G**

Mayo Clinic

3:15 PM **TPM-A.8**

Evaluation of NCRP 147 CT Shielding DLP Method

Broga D

Virginia Commonweath University

3:30 PM **TPM-A.9**

Application of Instruments in Medical Treatment Facilities

Stewart H, Melanson M

Army, Eisenhower Army Medical Center, Armed Forces Radiobiology Research Institute

3:45 PM **TPM-A.10**

Study of TENORM in Samples Gathered from BP Oil Spillage from the Coasts of Mississippi and Louisiana

Aceil S, Billa J

Alcorn State

4:00 PM **TPM-A.11**

The research on low altitude measurement technique for nuclear terrorism emergency: a case study on the detonation of RDD

Liu R, Xiao X, Luo Z

China Institute of Atomic Energy

1:00-2:45 pm **Ballroom C**

TPM-B Calibration B

Co-Chairs: Nolan Hertel, Tom Goff

1:00 PM **TPM-B.1**

Verification of a Conservative TLD Neutron Correction Factor at the WIPP

Goff TE, Hayes RB, Sleeman RE

WIPP

1:15 PM **TPM-B.2**

Determination of a Site-Specific Spectrum Correction Factor in the Vicinity of the Holtec MPC During Drying in the Keuwanee Nuclear Power Station

Hertel NE, Blaylock D, Cahill T, Exline P, Burgett E, Olson C, Adams R, McGreal M

Georgia Institute of Technology, Idaho State University, Dominion Energy Kewaunee

1:30 PM **TPM-B.3**

Effects of Different Moderators on the Neutron Spectra, Fluence and Dose Rates from Californium Source

Radev R, Shingleton K

Lawrence Livermore National Laboratory

1:45 PM **TPM-B.4**

US Army Radiation Standards Laboratory

Howard SV

US Army TMDE Activity

2:00 PM **TPM-B.5**

Construction and Maintenance of Reference Radiological Calibration Fields of Kaeri

Kim BH, Han SJ, Kim JL, Kim JS, Lee JI, Kim SI, Chang IS

Korea Atomic Energy Research Institute, Korea Insitute of Nuclear Safety

2:15 PM **TPM-B.6**

Production of Fast Neutron Calibration Fields Using a Proton Accelerator of Kirams

Kim BH, Cho KW, Kim SI, Kim JL

Korea Atomic Energy Research Institute, Korea Institute of Nuclear Safety

2:30 PM **TPM-B.7**

Development of Automatic Clearance Measurement System Using Shape Measurement and Monte Carlo Calculation

Hattori T, Sasaki M

Central Research Institute of Electric Power Industry

2:45 PM ***BREAK IN EXHIBIT HALL***

3:15-4:45 pm **Ballroom C**

TPM-C Contemporary Topics B

Chair: Wayne Gaul

3:15 PM **TPM-C.1**

Monte Carlo Simulation of Entrance to Exit Air Kerma Ratio in Interventional Radiology

He W, Mah E, Huda W, Yao H

Clemson University, Medical University of South Carolina

3:30 PM **TPM-C.2**

Radiation Dose Measurement - Analysis for a 320 Slice CT Scanner

Nickoloff E, Lu Z, Dutta A, So J
Columbia University

3:45 PM **TPM-C.3**

Determination of Air Crew Exposure in Domestic Flights of Aseman Airline in Iran. On Board Measurements and Calculations with CARI 6 Code

Mehdizadeh S, Faghihi R, Sina S, Zehtabian M
Shiraz University, Iran

4:00 PM **TPM-C.4**

Lead-210 and Polonium-210 in Iron and Steel Industries

Khater A, Bakr W
King Saud University, Egyptian Atomic Energy Authority

4:15 PM **TPM-C.5**

Making the Most of Uncertain Low-Level Measurements

Strom DJ, Joyce KE, MacLellan JA, Watson DJ, Lynch TP, Antonio CA, Birchall A, Zharov PA
Pacific Northwest National Laboratory, UK Health Protection Agency, Mayak Production Association

4:30 PM **TPM-C.6**

On the Detection Efficiency of the RaDeCC System for Ra-224 and Ra-223 Measurements

Chang Z, Moore W, Tan S, Bett B
South Carolina State University, University of South Carolina

WEDNESDAY

7:00-8:00 am — Ballroom B

CEL 4 Remodel the Facility and Remodel the Technology: A Practical Application
Jack Horne

8:20-10:00 AM — Ballroom B

WAM-A Radon/Environmental Section Presentations

Co-Chairs: James Menge, A. George

8:20 AM — Special Presentation
Special Presentation to Peter Lyons, Distinguished Public Service Award

8:30 AM — WAM-A.1
Radon Rejection in Next Generation Contamination Monitor
Menge JP
ThermoFisher

8:45 AM — WAM-A.2
TRU Measurement and Screening Assay of Air Filters with Radon Progeny Interference
Hayes RB, Pena AM
WIPP

9:00 AM — WAM-A.3
Current State of the Art in Measuring Radon
George AC, Bredhoff N
Radon Testing Corp of America, Inc.

9:15 AM — WAM-A.4
Correction to Counting Statistics for Measurements of Radon in Air Using Continuous Monitors and Alpha-track Devices
Jenkins PH
Bowser-Morner, Inc.

9:30 AM — WAM-A.5
Radon Reference Chambers in the U.S. and Radon Measurement Performance Testing
Jenkins PH, Burkhart JF, Palmer JM
Bowser-Morner, Inc., University of Colorado - Colorado Springs, US Environmental Protection Agency

9:45 AM — WAM-A.6
Development and Intercomparison of Radon-in-Water Standards
Kitto M, Bari A, Menia T, Haines D, Fielman E
New York State Department of Health

10:00 AM — BREAK

10:30 am-Noon — Ballroom B

WAM-B Instrument Laboratory Use A

Co-Chairs: C. Li, TM Senkow

10:30 AM — WAM-B.1
Some Bioassay Methods for High-risk Radionuclides
Li C, Sadi B, Ko R, Kramer G
Health Canada

10:45 AM — WAM-B.2
Alpha Spectrometry of Thick Samples for Environmental Monitoring
Semkow TM, Khan AJ, Haines DK, Bari A
New York State Department of Health

11:00 AM — WAM-B.3
Inductively Coupled Plasma Mass Spectrometry Measurement of Technetium-99 Including Uncertainty and Detection Limit Determinations
Timm R, Strock J, Schoneman J, MacLellan J, Chambers J
GEL Laboratories LLC, Pacific Northwest National Laboratories, Bechtel Jacobs Company LLC

11:15 AM — WAM-B.4
Deconvolution of Mixed Gamma Emitters Using Peak Parameters
Gadd MS, Garcia F, Vigil MM
Los Alamos National Laboratory

11:30 AM — WAM-B.5
Determination of Energy Spectra and Absorbed Dose Rate of a Ni-63 Based Low-Energy Beta Source
*Gibb R, Renegar J, Wang C**
Georgia Tech

11:45 AM — WAM-B.6
Intercomparison of Direct Radiobioassay and Radiochemical Analysis of Tissue Specimens from a Plutonium and Am-241 Contaminated Wound
Carbaugh E, Lynch T
Pacific Northwest National Laboratory

8:30 am-Noon **Ballroom C**

WAM-C Coordination and Planning for Field and Laboratory Measurements Following a Radiological or Nuclear Accident

Co-Chairs: Carl Gogolak, Robert Shannon

8:30 AM **WAM-C.1**

Uses of Field and Laboratory Measurements during a Radiological or Nuclear Incident

Shannon R, Gogolak C, McCurdy D, Litman R, Griggs J, Burns D, Berne A

Environmental Management Support, Inc., US Environmental Protection Agency, National Air and Radiation Laboratory (NAREL)

9:00 AM **WAM-C.2**

Essential Metrology for Field and Laboratory Measurements during a Radiological or Nuclear Incident

Gogolak CV, Shannon R, McCurdy DE, Litman R, Griggs J, Burns D, Berne A

Environmental Management Support, Inc., US Environmental Protection Agency, National Air and Radiation Laboratory (NAREL)

9:30 AM **WAM-C.3**

Emergency Response-Field vs. Lab Measurement

Walker E

Consultant, Tennessee

10:00 AM ***BREAK***

10:30 AM **WAM-C.4**

FRMAC Interactions During a Radiological or Nuclear Event

Wong CT

Lawrence Livermore National Laboratory

11:00 AM **Open Panel Discussion**

1:00-3:30 pm **Ballroom B**

WPM-A Accelerator Session

Co-Chairs: Samuel Baker, Roger Moroney

1:00 PM **WPM-A.1**

Commissioning of the Fission Fragment Ion Source

Baker SI, Pardo RC, Savard G, Davids CN, Greene JP, Levand AF, Scott RH, Sun T, Vondrasek RC, Zabransky BJ

Argonne National Lab

1:15 PM **WPM-A.2**

Quantification of Induced Radioactivity for a Compact 11 MeV Self-Shielded Cyclotron for Decommissioning Funding Purposes

Moroney WR, Krueger DJ, Elam CL, Plastini FL, Chance AC

Siemens MI

1:30 PM **WPM-A.3**

Comparison of Two Techniques for Measuring Gamma Dose near Berkeley Lab Accelerators

Wahl LE

Lawrence Berkeley National Laboratory

1:45 PM **WPM-A.4**

Count Rate Limitations in Pulsed Accelerator Fields

Justus A

Los Alamos National Laboratory

2:00 PM **WPM-A.5**

Neutron Operational and Protection Quantity Conversion Coefficients Under ICRP-26, ICRP-60, and ICRP-103

Veinot KG, Hertel NE, Sutton-Ferenci MR

Y-12 National Security Complex, Georgia Institute of Technology, Penn State Hershey Medical Center

2:15 PM ***BREAK***

2:45 PM **WPM-A.6**

Large-scale Production of Mo-99 Using a 100-kW Proton Beam

Nolen JA, Gomes IC

Argonne National Laboratory, I.C. Gomes Consulting and Investment, Inc.

3:00 PM **WPM-A.7**

Validation and Verification of MCNP6 as a New Simulation Tool Useful for Medical Applications

Mashnik S

Los Alamos National Laboratory

3:15 PM **WPM-A.8**

A New Method to Measure Potential Accelerator Hot-Spots

Marceau-Day ML

CAMD/LSU

1:00-3:00 pm **Ballroom C**

WPM-B Instrument Laboratory Use B

Co-Chairs: MS Gadd, Ed Tupin

1:00 PM **WPM-B.1**

Corrections to Historical Measurements of Plutonium in Soil at Los Alamos

Shonka J
SRA

1:15 PM **WPM-B.2**

A Comparison of InLight Reader and MicroStar Reader Performance

Cunningham Beckfield F, Kirr M, Passmore C
Landauer, Inc.

1:30 PM **WPM-B.3**

Development of an On-line Radiation and Detection Measurements Lab Course

Kopp DG, DeVol TA
Clemson University

1:45 PM **WPM-B.4**

Comparing LS System Detection for Liquid, Cherenkov, and Nitrogen Scintillations

*Rosson R, Lahr J, Kahn B**
Georgia Institute of Technology

2:00 PM **WPM-B.5**

Radioanalytical Criteria for Emergency Response

Tupin EA, Griggs J, Gogolak CV
US Environmental Protection Agency, Environmental Management Support

2:15 PM **WPM-B.6**

Occurrence of Natural Radionuclides in the Drinking Water Supplies of Shiraz and Spring Waters of Fars Province

Mehdizadeh S, Faghihi R
Shiraz University, Iran

2:30 PM **WPM-B.7**

Natural and Artificial Radioactivity Distribution in Soil of Fars Province, Iran

Mehdizadeh S, Faghihi R
Shiraz University, Iran

2:45 PM **WPM-B.8**

Uranium in Phosphate Fertilizer using Different Analytical Techniques

Khater A
King Saud University

3:00 PM ***BREAK***

3:30-4:45 pm **Ballroom C**

WPM-C Advances in Instrumentation B

Co-Chairs: James Menge, Ben Edwards

3:30 PM **WPM-C.1**

Advanced Radiological Scanning Technologies Produce Superior Survey Results

Lopez AU, McDonald MP
MACTEC Development Corp.

3:45 PM **WPM-C.2**

Advances in Detection Technology for Homeland Security

Wrobel M
DHS/Domestic Nuclear Detection Office

4:00 PM **WPM-C.3**

Computer Program Simulation of a Moving Alpha or Beta Particle Detector Across a Contaminated Surface

Farrar DR, Alecksen TJ, Schierman MJ, Baker KR
Environmental Restoration Group, Inc.

4:15 PM **WPM-C.4**

Verification of Dose Correction Factors of MOSFET Dosimeters for Use in Anthropomorphic Phantom to Measure Equivalent Doses and Effective Dose

Cho S, Cho KW, Kim CH, Yi CY, Jeong JH*
Hanyang University, Korea Institute of Nuclear Safety, Korea Research Institute of Standards Science

4:30 PM **WPM-C.5**

Recent Progressive Developments of Radioactivity Measurement Techniques - A European Perspective

Maushart R, Wilhelm CH
Editor-in-Chief StrahlenschutzPRAXIS, Karlsruhe Institute of Technology

Saturday, February 5, 2011 - 8:00 am-5:00 pm, Charleston Convention Center

AAHP 1 Operational Health Physics & Radiological Engine Fundamentals of Industrial Radiation Safety

Ken Krieger

Though Industrial Radiation Safety Officers (IRSOs) play a significant safety role on industrial plant sites, they are underrepresented in radiation safety societies. Unlike most RSOs, the IRSO's main responsibilities include site safety concerns other than radiation safety. Most IRSOs spend approximately 7% -10% of their time performing radiation safety responsibilities; and most do not attend radiation safety meetings. They are more concerned with the practical applications of radiation safety regulatory requirements, program implementation, and compliance issues, than the theory behind why a survey meter works.

The IRSO course includes the same materials as a normal RSO course; however, IRSO candidates require specific information not applicable to other RSOs. Regulations covering commissioning and decommissioning, (a different process than that which most people think about when they hear these terms), leak testing and Increased Controls are some of the specific concerns an IRSO must address. A "hands-on" exercise utilizing sources and survey meters is included.

The course duration is usually 40 hours, and includes basic radiation theory, bioeffects, and instrumentation, in addition to topics specific to radiation protection programs on an industrial site. Industrial gauge design, installations, required records, leak testing requirements, license application and program requirements will be discussed, covering the basics an IRSO will learn in a 40-hour course.

AAHP 2 Uncertainties in Occupational Internal Dosimetry

Tom LaBone; MJW Corporation

Radiobioassay laboratories report measurement uncertainties along with analytical results (or they really should be doing so). One has to wonder what we internal dosimetrists are supposed to be doing with these uncertainties because for a long time we seemed to get along just fine without them. In the spirit of the topic of this mid-year meeting, in this course we will address that very question: how should we be using the measurement uncertainties provided to us by the bioassay laboratories? The discussion may become somewhat technical in spots, but I will always try to come back to answer the practical question "so what?" Major topics discussed are:

- What are measurement uncertainties and how are they calculated?
- Decision levels, detection levels, error bars, and censored data.
- What do the reported uncertainties tell me about the lab?
- Uncertainties in bioassay data that are not analytical uncertainties: what are they and can we estimate them?
- Going from bioassay data to intakes: biokinetic models, intake retention functions, and intake calculations.
- Using measurement uncertainties in intake calculations.
- Uncertainty in an intake: How do we calculate it and what do we do with it once we have it?

NEW NEW NEW

The Professional Enrichment Program (PEP) handouts for the Midyear Meeting will not be available in hard copy. For those who pre-register, 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.

Sunday, 8:00 - 10:00 am

PEP 1A Fundamentals of Gamma Spectroscopy I

Doug Van Cleef

ORTEC/Advanced Measurement Technology, Inc.

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. The course is two hours in duration and the American Academy of Health Physics will grant 4 Continuing Education Credits for completion.

Objective: Upon completion of this course, students will have a working knowledge of radioactive decay schemes, radiation emissions, gamma radiation detection, and the principles of the laboratory gamma spectroscopy process.

PEP 1B Status of ANSI N42 Standards for Health Physics Instrumentation

Morgan Cox

This presentation covers the current status of American National Standards Institute (ANSI) N42 standards for radiation protection instrumentation in two distinct parts:

1) This portion includes the discussion of some seventeen ANSI N42 standards for Radiation Protection Instrumentation (RPI) including those for portable radiation detectors, ANSI N42.17A for normal environmental conditions and ANSI N42.17C for extreme environmental conditions; ANSI N42.323A and B being combined for test and calibration of portable instruments in the normal range and for near background measurements; alarming personnel monitors in ANSI N42.20; airborne radioactivity monitors in ANSI N42.30, ANSI N42.17B, ANSI N42.18, and ANSI N323C; instrument communication protocols in ANSI N42.36; in-plant plutonium monitoring in ANSI N317; reactor emergency monitoring in ANSI N320; carbon fiber personnel dosimeters in ANSI N322; installed radiation detectors in ANSI N323C; ANSI N42.26 for personnel warning devices; radon progeny monitoring in ANSI N42.50; and radon monitoring in ANSI N42.51.

2) This portion includes the discussion of seventeen ANSI N42 standards recently developed or being developed for Homeland Security Instrumentation (HSI) including those for personal radiation detectors in ANSI N42.32; portable radiation detectors in ANSI N42.33; portable detection and identification of radionuclides in ANSI N42.34; portal radiation monitors in ANSI N42.35; for training requirements for homeland security personnel in ANSI N42.37; spectroscopy-based portal monitors in ANSI N42.38; performance criteria for neutron detectors in ANSI N42.39; neutron detectors for detection of contraband in ANSI N42.40; active interrogation systems in ANSI N42.41; data formatting in ANSI N42.42; mobile portal monitors in ANSI N42.43; checkpoint calibration of image-screening systems in ANSI N42.44; criteria for evaluating x-ray computer tomography security screening in ANSI N42.45; performance of imaging x- and gamma ray systems for cargo and vehicles in ANSI N42.46; spectroscopic personal detectors in ANSI N42.48; and personal emergency radiation detectors (PERDs) in ANSI N42.49A for alarming detectors and in ANSI N42.49B for non-alarming detectors.

Audience participation is important to the success of this presentation.

10:30 am - 12:30 pm

PEP 2A Fundamentals of Gamma Spectroscopy II

Doug Van Cleef

ORTEC/Advanced Measurement Technology, Inc.

This course offers a fast-paced review of the basic physics of gamma-ray detection, formulation of spectra, interpretation of spectral data, interferences, and calculations. The course is two hours in duration and the American Academy of Health Physics will grant 4 Continuing Education Credits for completion (2010-00-004). Recent attendance at our Fundamentals of Gamma Spectroscopy I course is recommended but not required.

Objective: Upon completion of this course, student will have a working knowledge of gamma radiation detection, gamma-ray spectra content, spectrum evaluation, and gamma-ray spectroscopy analysis.

PEP 2B Where Did This Come From? Lessons Learned from High-Routine Bioassay Investigations

Eugene H. Carbaugh

Pacific Northwest National Laboratory

This PEP class provides actual case studies of high routing bioassay measurements addressing the investigation process, resolution, and lessons learned from each. High routine bioassay results can come from several sources, including normal statistical fluctuation of the measurement process, interference from non-occupational sources, and previous occupational intakes, as well as new intakes. A good internal dosimetry program will include an investigation process that addresses these alternatives and comes to a reasonable conclusion regarding which is most likely. A subtle nuance to these investigations is the possibility that a newly detected positive measurement might represent an old intake that has only now become detectable. This can result from the worker being placed on a different bioassay measurement protocol, a change in analytical sensitivity, unusual biokinetics associated with highly insoluble inhalations, or lack of a clear work history. As sites close down, the detailed dosimetry records of specific worker exposures are archived, becoming relatively inaccessible, with only summary dose information available. Likewise, the "tribal knowledge" of the site becomes lost or seriously diluted as long-term employees retire or move on. Therefore, it is incumbent upon the site performing a high bioassay result investigation to thoroughly address the possible alternatives or face the consequence of accepting responsibility for a new intake. The presenter has encountered all of the foregoing issues in the course of investigating high routine bioassay measurements at the US Department of Energy Hanford Site. The important lessons learned include, 1) have good measurement verification protocols, 2) confirm intakes by more than one bioassay measurement, 3) conduct interviews with workers concerning their specific circumstances and recollections, 4) have good retrievable site records for work history reviews, 5) exercise good professional judgment in putting the pieces together to form a conclusion, and 6) clearly communicate the conclusions to the worker, the employer, and the regulatory agency.

2:00 – 4:00 pm

PEP 3A What is New in Neutron Detection?

Nolan Hertel

Georgia Institute of Technology

Although the basic nuclear reactions by which to detect neutrons have been known and used for years, efforts directed at neutron detection for homeland security have lead to new detector designs. Many of these designs use new microelectronics and nanoparticle manufacturing techniques. This often results in small detectors that need to be used in large arrays for homeland security applications. The principal reactions by which neutrons are detected will be reviewed. Recent detector developments will be reviewed with an eye towards their applications in both large scale counters and potential uses in neutron dosimetry. Thermal neutron detection devices such as boron pillar detectors and straw detectors will be discussed in addition to newer scintillation materials for thermal and fast neutron detection.

PEP 3B Filtration and Flow-Control Fundamentals/Sampling Airborne Nanoparticles

Mark Hoover

National Institute for Occupational Safety and Health

Sampling by filtration is an important method for collecting and evaluating any type of airborne material, including nanoparticles and other ultrafine aerosols such as radon decay products. Given the considerable current interest in characterizing and controlling risks to worker health from potential exposures to engineered nanoparticles, this course will present fundamentals of inertia (efficient collection for large particles) and diffusion (efficient collection for very small particles) that affect the efficiency and most penetrating particle size (MPPS) of filters; efficiency and MPPS for the various filter types that can be used for collection of nanoparticles; and issues for selection of filters with appropriate collection efficiency, MPPS, durability, pressure drop, and surface characteristics. A series of practical problems will also

be presented on how to avoid common errors in flow calibration and control when rotameters are used to monitor and control the sampling flow rate. Because rotameters are typically located downstream of a filter or other sampling device, the internal rotameter pressure is lower than the ambient atmosphere from which the sample is being drawn. Depending on the pressure drop conditions (perhaps 1 psi for a filter and perhaps several psi for other sampling instruments such as a cascade impactor) the errors can exceed the 5% level recommended for making a correction. It will be emphasized that both the rotameter equation and the ideal gas law must be used to determine the actual flow rate associated with a given scale reading in relation to the calibrated flow rate for that scale reading. Course problems will demonstrate how confusion can be eliminated by defining and using a multiple-frame-of-reference scheme involving the following conditions of temperature and pressure: (1) calibration, (2) operation (inside the rotameter), and (3) ambient (typically the actual conditions where the worker is located and the sample is being taken), as well as two types of reference conditions (4) normal or standard ambient (760 mm Hg and either 20 degrees Celsius or 25 Celsius), and (5) standard (760 mm Hg and either 0 degrees Celsius for chemists or 25 degrees Celsius for ventilation specialists). This system clarifies that the rotameter equation is only to be used for the correction between calibration and the operation, and that the ideal gas law is to be used for corrections among all other combinations of the frames of reference. An Excel spreadsheet with detailed examples and calculations will be demonstrated and provided to course participants.

CELs take place in the Charleston Convention Center, Ballroom B

Monday, February 7 7:00-8:00 am

CEL 1 Fluoroscopy Occupational Dose Monitoring/EDE Dose Calc Methods

Deidre Elder; University of Colorado Hospital

Medical environments where fluoroscopy is routinely used offer unique challenges for monitoring and reporting of occupational radiation doses. The use of lead aprons and thyroid shields results in a substantially reduced effective dose. However, the non-uniform exposure makes occupational dose monitoring and reporting more difficult. Over the decades, international and national expert bodies expressed varied opinions and made inconsistent recommendations. As a result, radiation regulations vary from state-to-state and a number of approaches involving multiple or single dosimeters are practiced. Regulatory Guide 8.40 was issued in July 2010 to describe methods that the Nuclear Regulatory Commission considers acceptable for determining the effective dose equivalent for external radiation exposures. The National Council on Radiation Protection and the Conference of Radiation Control Program Directors have also published recommended methods of effective dose and effective dose equivalent determination for individuals with non-uniform exposures due to the use of protective garments. The practical considerations of financial and behavioral issues are also considered when determining the method of occupational dose monitoring and dose determination for healthcare workers.

Tuesday, February 8 7:00-8:00 am

CEL 2 Thermally and Optically Stimulated Luminescence and their Application in Radiation Dosimetry and Measurement

Stephen McKeever; Oklahoma State University

Thermally stimulated luminescence (TL) from insulating materials has been used in radiation dosimetry since the early 1950s, although the genesis of the techniques goes back to the early studies of radiation and radioactivity. More recently, optically stimulated luminescence (OSL) has emerged as a powerful dosimetry method.

Both TL and OSL rely on the perturbation of the material from thermodynamic equilibrium via the absorption of energy from a radiation field and the creation of point defects via ionization processes. A thorough understanding of TL and OSL in any given material would require a detailed knowledge of the nature and spatial distribution of the radiation-induced defects, and their subsequent interaction during thermal or optical stimulation. However, basic – and, in many cases, sufficient - understanding can be obtained via phenomenological descriptions of the electronic transitions between energy levels during the irradiation and stimulation processes.

This talk will describe the fundamentals of TL and OSL and discuss some of the processes that give rise to the phenomena in popular TL and OSL dosimetry materials. The talk will then show how this background understanding can assist in the application of these methods in traditional and emerging radiation measurement and dosimetry applications. Modern applications include Personal, Environmental, Retrospective, Neutron, Space, Medical and Emergency radiation dosimetry and measurement and descriptions of applications in these fields will be included in the talk.

CEL3 ABHP Exam Fundamentals – Tips for Successfully Completing the Certification Process

Patrick LaFrate; Progress Energy

This presentation will the advantages of being certified discuss the fundamentals of the ABHP exam process – from submission of the exam application to completion of the Part 2 examination. Topics of discussion will include:

* What are qualifying academic requirements?
* Why require a degree?
* What is meant by "professional level" experience?
* How are the exams (Part 1 and Part 2) prepared?
* How is the passing point determined?
* What are the keys to good performance on the exam?
* What pitfalls exist that detract from good exam performance?

This presentation will help persons interested in certification to prepare an application that will accurately reflect the applicant's education and experience as well as providing tips for preparing to take the exam and answering part 2 questions in a format that promotes awarding partial credit. Persons who are already certified may gain insight into the process and identify ar-

eas where they would be willing to assist in certification process. The material presented consolidates pertinent exam policy/procedure into an easily digestible format, offering real world examples of good and poor performance.

Wednesday, February 9 7:00-8:00 am

CEL 4 Remodel the Facility and Remodel the Technology: A Practical Application

Jack Horne

This CEL addresses challenges encountered when obtaining new instrumentation and getting it implemented in the field while permitting laboratory facilities to continue full operation. During 2010, the RPL facility – a DOE Class 2 nuclear research facility – started a push to upgrade radiation protection instrumentation. The upgrades targeted three aspects of measurement performed at the facility: Hand and foot exit survey instrumentation (PCMs), single-sample LSCs for local tritium counting, and electronic dosimeters. While numerous challenges were encountered during this upgrade effort, a number of advantages (including cost savings) were realized by facility personnel and management that validated the need for the upgrade.

Health Physics Society Midyear Topical Meeting – Registration Form
February 6-9, 2011, Charleston, South Carolina

CHP? ❑ Yes ❑ No
NRRPT? ❑ Yes ❑ No

Name for badge: (Last)_____(First) _____(Nickname) _____
Affiliation (for badge)(limit to 18 characters and spaces): _____
Address : _____HPS Member #: _____
City:_____ State: _____ Zip/Postal Code: _____
Business Phone:_____FAX:_____E-mail: _____
If Registering - Companion Name: _____

Preregistration Deadline: January 5

REGISTRATION FEES: (Mark Appropriate Boxes)	Preregistration	On-Site Fees
❑ HPS Member (Receptions, Exhibitor Lunch, Proceedings)	$430.00	$525.00
❑ Non-Member* (Receptions, Exhibitor Lunch, Proceedings)	$535.00	$635.00
❑ HPS Member (Receptions, Exhibitor Lunch, Proceedings) + Annual Dues	$565.00	$660.00
❑Emeritus Member	$215.00	$215.00
❑One Day ❑Mon ❑Tues ❑Wed	$275.00	$275.00
❑ Student (Receptions and Proceedings)	$ 70.00	$ 70.00
❑ Companion (Receptions, Hospitality Room)	$ 70.00	$ 70.00
❑ Emeritus Companion (Receptions, Hospitality Room)	$ 35.00	$ 35.00
❑ Exhibits Only	$ 40.00	$ 40.00

*Includes HPS Associate Membership for year 2011 - First Time Members Only

TECHNICAL TOURS:
❑ GEL Labs LLC (Tues 5:30-8:30 pm, 2/8) # of Tickets ____ X $20 # of Tickets ____ X $25 _____

AAHP COURSES (Saturday, February 5):
❑ Course 1 – Operational HP & Radiological Engine Fundamentals of Industrial Radiation Safety (K Krieger) $200.00
❑ Course 2 – Uncertainties in Occupational Internal Dosimetry (T LaBone) $200.00

PEP COURSES (Sunday, February 6) - See Page 15 for Handout Policy

8:00–10:00 AM (2 concurrent courses)
1-A Fundamentals of Gamma Spectroscopy I (D Van Cleef)
1-B Status of ANSI N42 Standards for Health Physics Instrumentation (M Cox)

10:30 AM–12:30 PM
2-A Fundamentals of Gamma Spectroscopy II (D Van Cleef)
2-B Where Did This Come From? Lessons Learned from High-Routine Bioassay Invest... (EH Carbaugh)

2:00–4:00 PM
3-A What is New in Neutron Detection? (N Hertel)
3-B Filtration and Flow-Control Fundamentals/Sampling Airborne Nanoparticles (M Hoover)

8:00-10:00 AM ___/___ = $90.00 1st 2nd ❑Yes, stand by
10:30 AM-12:30 PM ___/___ = $90.00 1st 2nd ❑Yes, stand by
2:00-4:00 PM ___/___ = $90.00 1st 2nd ❑Yes, stand by

PAYMENT INFORMATION–Purchase Orders NOT Accepted for AAHP/PEP or Tour Registration
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AAHP & PEP Section Total	$_____
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