

# HPS Health Physics News

## Radiation Safety in Today's World

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### Scientists for Accurate Radiation Information (SARI)

*Ludwig E. Feinendegen, PhD, and Mohan Doss, PhD*

#### Background

Though the health effects of low-dose radiation (LDR) have been studied for many decades, there is still considerable disagreement in the scientific community about whether LDR exposure is harmful or beneficial. The prevailing view, supported universally by international advisory bodies since the 1950s, is that LDR is harmful and can be represented by the linear no-threshold (LNT) model for radiation-induced cancers. This model has been the basis of radiation protection regulations and practices worldwide since the 1950s.

In the authors' opinion, research over the past few decades has shown that the LNT model is not valid conceptually. In addition, experimental and epidemiological investigations have demonstrated its invalidity while the opposite view of radiation hormesis has proved to be conceptually valid and is supported by experimental and epidemiological observations. In view of this situation, many scientists have objected to the continued use of the LNT model. However, these objections have been overruled by advisory bodies and regulatory agencies.

The main evidence usually quoted in support of the LNT model or carcinogenicity of LDR is the atomic bomb survivor data. Whereas these data early on did not contradict the LNT model, the new data show there was a major qualitative change in the nature of the data following the report by [K. Ozasa and colleagues in 2012](#). These new data contradict the LNT model because of the significant curvature in the dose-response relationship due to the lower-than-expected cancer mortality rates in the 0.3–0.7 Gy region. Radiation hormesis, however, would be able to explain the curvature in these data. The advisory bodies and regulatory agencies have so far refused to recognize this change in the atomic bomb survivor data and continue to support the LNT model. They have also ignored much additional evidence in support of radiation hormesis.

Another issue with the use of the LNT model is the calamities that result from its use, disproving the claim that it is a conservative approach to radiation safety. A case in point is the socioeconomic trauma following the nuclear reactor accidents in Fukushima in 2011. The accidents provoked fast and prolonged evacuation of the surrounding areas, causing considerable suffering and casualties, destroying the local economy, and harming Japanese society, all for no benefit. The advisory bodies have refused to modify their recommendations even after observing the tremendous amount of harm caused by the LNT model. This deplorable scenario of social harm caused by the use of the LNT model has galvanized many professionals into joining forces in an attempt to overcome the use of the LNT model in favor of a hormesis-oriented model to be applied in a public-health-relevant manner.

Continued on page 2

# Happy New Year 2017!

## Formation of SARI

The initiative for the formation of a new group with the mission to prevent harm from misinformation regarding radiation came from Bobby Scott, PhD, of Lovelace Respiratory Research Institute (LRRI). In July 2013, Scott announced the formation of a group of a small number of scientists from LRRI, Sandia National Laboratories (SNL), and the National Nuclear Security Administration (NNSA) that was seeking additional participants. After discussions among those who responded, the name Scientists for Accurate Radiation Information (SARI) was chosen. The group decided that new members would be inducted with the nomination by a sponsoring member and two additional supporting members. Initial meetings of the group were held via telephone conference calls, and discussions took place via email mailing lists. By December 2013, a Google Group was formed to facilitate group communications and discussions. The [SARI website](#) was set up by Bert Morales (Unitech Services Group), and the website is managed by Bert Morales and Mark Miller (retired from SNL).

## Members of SARI

During the past three years, as professionals have become aware of SARI and its mission, many have asked to become SARI members, and the membership has grown to over 100 professionals from a wide variety of backgrounds from 15 different countries. The group includes professionals representing a broad range of expertise, practices, and technologies involving the use of ionizing radiation. Thus, there are physicists, biologists, radiation biologists, epidemiologists, statisticians, physicians, radiologists, nuclear and other engineers, reporters, columnists, news editors, etc. SARI is a very active group with vigorous discussions/debates on many relevant topics. Individual contributions of SARI members in ongoing discussions vary according to the specific topic, urgency, and general interest. A key characteristic is the spontaneity and interdisciplinary approach to answering questions and resolving issues as they come up. SARI places great importance on adherence to scientific accuracy in its documents, recommendations, and statements. If any errors are pointed out, appropriate changes and corrections follow promptly.

## The Objective of SARI

As stated on [its website](#), SARI's goal is to monitor for and counter nuclear/radiological misinformation that could adversely impact the world's ability to effectively use radiation and respond to nuclear and radiological challenges, with the end point of helping people and saving lives. SARI's mission is to help prevent unnecessary, radiation-phobia-related deaths, morbidity, and injuries associated with distrust of radio-medical diagnostics/therapies and from nuclear/radiological emergencies by countering phobia-promoting misinformation spread by alarmists via public news and other media, including journal publications.

SARI advocates the abandonment of the use of the LNT model and recognizes the validity of radiation hormesis. These positions were not taken lightly; they are based on reviewing a large body of research data and scientific discourses and applying and using them to understand biological system effects and health effects of low-dose and low-dose-rate radiation exposures. When new publications claim that LDR causes harm or is beneficial, they are discussed by SARI members to determine if there is any validity to the claims. Thus, SARI's checks on a large number of assertions for the LNT model, as well as for radiation hormesis, have made it clear that those in support of the LNT model ignored major flaws negating or raising major doubts about their conclusion.

On the other hand, publications that claim LDR-induced damage elimination, adaptive protection, and reduction of cancers have withstood scrutiny. In addition, as mentioned earlier, the atomic bomb survivor data, recognized as the most important data by the scientific community, are no longer consistent with the LNT model but are consistent with radiation hormesis. Therefore, it is the overwhelming conclusion of SARI that the LNT model should be abandoned and radiation hormesis should be recognized in order to improve public health and prevent harm from the use of the LNT model.

## SARI Activities

During the past three years, members of SARI have written to various advisory bodies encouraging them to reexamine the subject, discard the LNT model, and recognize radiation hormesis, providing them with summaries of evidence that support this approach. The advisory bodies have not responded to such communications, have not engaged in scientific discussion of the evidence, have generally ignored such pleas, or have given a formal response repeating their standard positions. The advisory bodies tend not to be diligent in investigating publications' claims that LDR increases cancer risk and have accepted such claims at face value, justifying their continued support for the LNT model. They also tend to refuse to acknowledge or discuss publications that show beneficial effects or reduction of cancers following LDR exposures.

SARI members have also appealed to professional organizations and government agencies, encouraging them to become familiar with the current scientific evidence and providing them with summaries of research data. Whereas none of the valid data support the LNT model and many of the data support radiation hormesis, these organizations and agencies prefer to continue to use the LNT model, justifying the approach by quoting the consensus of advisory bodies and regulatory agencies.

SARI members have also responded to publications that have claimed increased cancer risk from LDR by writing letters to the editors of the journals. Several such letters have been published.

SARI cosponsored the 24 March 2015 [SAMRAI2014 meeting on radiation health effects](#) in Tokyo, Japan, in collaboration with the Society for Radiation Information, a Tokyo-based organization with aims similar to SARI's.

SARI filed a petition with the U.S. Nuclear Regulatory Commission (NRC) in support of a similar petition by Carol Marcus from the University of California, Los Angeles, recommending that NRC discontinue the use of the LNT model but instead use radiation hormesis as the basis for regulations. This petition is presently under consideration by the NRC.

In recognition of the efforts by SARI to overcome the LNT model, the International Dose-Response Society has given SARI the [2016 Outstanding Leadership Award](#). SARI members Carol Marcus and Mark Miller also received the award for their leadership roles in these efforts.

## SARI's Funding

SARI is an independent group and does not receive donations from any individuals or organizations. The small cost of operating the SARI website has been borne by Bert Morales, one of the webmasters, on a voluntary basis. All SARI communications are using email, so there are no additional expenses for the group, and there is no solicitation for any donations.

## The XLNT Foundation

Based on the experience with advisory bodies, professional organizations, regulatory agencies, and individual responses to SARI initiatives, SARI members have recognized that providing accurate information regarding LDR health effects is not sufficient to overcome the use of the LNT model by the scientific community. Some of the additional steps that need to be taken include organizing debates on the subject to facilitate a scientific resolution of the issue, educating the public and professionals about the observed health effects of radiation, challenging LDR fear advocates by engaging them in debates, and launching legal challenges to regulations not based on solid science. These steps are beyond the scope of SARI because of its structure as a discussion group and its lack of financial resources.

An independent nonprofit organization, the [XLNT Foundation](#), was formed in 2015 by several SARI members in collaboration with additional interested individuals. The foundation's goal is to facilitate taking these and other additional steps to overcome the LNT model problem.

## Epilogue

Whereas SARI has made some progress towards its goals by bringing the LNT model up for discussion by NRC, much more work needs to be done. SARI is continuing to work with like-minded individuals and organizations to achieve its goals and welcomes new members who are in agreement with its mission and would like to help.



Ludwig E. Feinendegen, MD, earned his medical degree from the University Medical School Cologne, Germany, in 1952, receiving training in internal medicine in Germany and the United States from 1952 to 1958. He worked as a research associate at Brookhaven National Laboratory (BNL) from 1958 to 1963. Going back to Europe in 1963, Feinendegen served as scientific officer at EURATOM Brussels, Belgium, until 1964 and as a research associate at the Institute du Radium, Paris, France, from 1964 to 1967. From 1967 to 1993, he held positions as full professor and director of the department of nuclear medicine at Heinrich-Heine University (HHU), Duesseldorf, Germany, in association with Research Center Juelich, Germany. Returning to the United States in 1993 to work as a senior scientist at BNL, Feinendegen was assigned as a program manager at the Department of Energy in Washington, DC, until 1998. He was a Fogarty Scholar at the National Institutes of Health in Bethesda, Maryland, from 1998 to 1999. Currently he holds positions as HHU professor emeritus and BNL guest scientist. Feinendegen has produced over 700 publications, including monographs and textbooks, on topics ranging from molecular nuclear medicine and cell biology to low-dose radiobiology. He has been honored with numerous national and international awards, including the Robley D. Evans Commemorative Medal from the Health Physics Society.



Mohan Doss, PhD, MCCPM, earned his doctorate from Carnegie-Mellon University, Pittsburgh, Pennsylvania, in 1980. From 1980 to 1983, he did postdoctoral research at the University of Washington, Seattle. In 1983, he joined the staff of Lawrence Berkeley National Laboratory in Berkeley, California, as a staff scientist. In 1986, his work took him to Canada, where he held positions as professional research associate at the University of Saskatchewan, Saskatoon, until 1990 and as medical physicist at Regina Health District, Regina, Saskatchewan, from 1990 to 2001. He was certified in nuclear medicine physics as a member of the Canadian College of Physicists in Medicine (MCCPM) in 1994. Returning to the United States in 2001, Doss currently serves as associate professor in diagnostic imaging at Fox Chase Cancer Center. He has produced over 60 publications, including book chapters, that cover nuclear physics, molecular imaging, and health effects of low-dose radiation. In 2014, the International Dose-Response Society honoured him with its Outstanding Leadership Award.

**Editor's Note:** The opinions in this article are those of the authors and are not necessarily endorsed by the editorial staff of *Health Physics News*.

The editors suggest that interested readers review HPS [Position Statement PS-010-3](#), "Radiation Risk in Perspective," which effectively summarizes the following five positions of the HPS:

1. The HPS has concluded that estimates of health risk should be limited to individuals receiving a dose of 50 mSv in one year or a lifetime dose of 100 mSv above that received from natural sources.
2. Estimation of health risk associated with radiation doses that are of similar magnitude as those received from natural sources should be strictly qualitative and encompass a range of hypothetical health outcomes, including the possibility of no adverse health effects at such low levels.
3. The linear no-threshold hypothesis oversimplifies the relationship between exposure and cancer or hereditary effects in the low-dose/low-dose-rate region.
4. Calculation of collective dose (the sum of individual doses in a defined exposed population expressed as person-mSv) for low doses over large populations carries uncertainties too high to make it useful for estimating health effects in the low-dose/low-dose-rate region.
5. For populations in which almost all individuals are estimated to receive a lifetime dose of less than 100 mSv above background, collective dose is highly speculative, and detriment should not be determined for individuals with doses less than 50 mSv.



## From the President

Bob Cherry, CHP, PhD



This month, I am writing about our gorgeous revamped Health Physics Society (HPS) website, also known as [www.hps.org](http://www.hps.org). Because I fear I will get this wrong, I am hereby asking for an editor's note to tell us who created the great design. [Editor's note: The fundamental design work was performed under contract with Digital Eye, LLC, of Wilmington, Delaware. Application of the basic design was implemented by none other than our highly skilled webmaster, Fred Baes.]

So our home page throws out the welcome mat for anyone who sees it. The page banner, along with a search box, displays our new logo and our motto: "Specialists in Radiation Protection." Why not "Specialists in Radiation

Safety," you may ask. Well, our deep-thinking Board of Directors held long discussions on this very matter and brought forth several points of view. We did not flip a coin on it, but I seem to remember that no one felt strongly either way to insist on one or the other.

We then have a menu bar with several drop-down menus that will guide you to what you seek if you have a definite purpose in mind. It is easy find "Radiation Safety Information," including our well-known "Ask the Experts" and "Radiation Answers."

A set of 15 tiles in living color with descriptive captions also is a great help for finding your destination. The tiles/captions are [Publications](#), [Public Information](#), [Media](#), [Students](#), [Teachers](#), [Meetings](#), [Employers](#), [Homeland Security](#), [Health Care Personnel](#), [Legislative Center](#), [FAQs](#), [News & Events](#), [The Lighter Side](#), [Join or Renew](#), and [Members](#). Try some of these out.

You should read the boxes at the bottom of the public home page every time you visit. One holds links to the latest news and HPS information and the other lists meetings of interest to our members with links to more information. The "News" box alone is enough reason to check the home page a few times each week.

Now, let us look at the [Members](#) home page. You will need your user name and your password to get to it. If you are missing one or the other or both, help is available on the login page. And you must show off your arithmetic skills to get by the gatekeeper.

Once in, you will see the same excellent design but with a different menu bar and set of tiles. These tiles take you to places that only members can access and are an important benefit of HPS membership. The tiles are [Directory](#), [Operations](#), [Publications](#), [Jobs & Résumés](#), [Benefits](#), [Students](#), [Meeting Papers](#), [HP Toolbox](#), [Forum](#), [Legislative Center](#), [Meeting Videos](#), and [News and Activities](#).



You can also [change your password](#) on the Members home page.

Under [Directory](#), you can find out when your membership will expire, update your directory listing, find a member, and [download a complete directory file](#).

[Operations](#) has many links that take you behind the curtain of the HPS. The information here is valuable but too voluminous for me to list here. Please [look](#).

[Publications](#) takes you to links to our journal, our newsletter, American National Standards Institute standards, and member discounts on National Council on Radiation Protection and Measurements and International Commission on Radiological Protection publications.

On [Jobs & Résumés](#), you can look for a job, post your résumé, place an ad for employment, and check out salary surveys.

It puzzles me when former or never-have-been HPS members say the HPS has no benefits useful to them. They should check out our [Benefits](#) page for a complete list of membership benefits.

Our student members can find links to the HPS mentoring program and opportunities to volunteer on their own [Students](#) web page.

You can find a searchable database of [Meeting Papers](#) from all annual and midyear meetings since 2013 on our website.

You should explore the [HP Toolbox](#) for yourself. All sorts of information useful to health physicists is here. I do not know who maintains this page, but he or she is doing a great job. Could this be an opportunity for another Editor's Note? [Editor's note: The primary contributor to the toolbox was Clayton French. Maintenance of the website is largely performed by Society Operations Editor Marcia Harman.]

We are not using our [Forum](#) as much as we should. Some very interesting discussions occur here.

Our [Legislative Center](#) can help you communicate with your senators and representatives and has links to other useful legislative websites.

We have good intentions for placing [Meeting Videos](#) on our website, but so far, we have only two.

Time for me to move on to other things. I hope you found this column useful. I can always use ideas for these monthly columns. [Tell me](#) what you might like me to write about.



[The Lighter Side of Health Physics](#)

## HPS Meetings

### 2017 HPS Annual Meeting 9–13 July 2017, Raleigh, North Carolina

*Jason Davis, CHP, PhD, 2017 Annual Meeting Program Committee Task Force Chair*

Plans are underway for an exciting technical and social program at the 2017 Health Physics Society (HPS) Annual Meeting, 9–13 July, in Raleigh, North Carolina. This scenic city is known as the “City of Oaks” for its many oak trees found lining the streets in the heart of the city. Raleigh is home to North Carolina State University and is part of the Research Triangle area, together with Durham (home of Duke University) and Chapel Hill (home of the University of North Carolina at Chapel Hill). The “Triangle” nickname originated after the 1959 creation of the Research Triangle Park, located in Durham and Wake Counties, situated between the three cities and their universities.

Raleigh is served by the second largest airport in North Carolina, Raleigh Durham International Airport (airport code RDU). Raleigh is a beautiful city with a rich history, fantastic outdoor recreational activities, great restaurants, and a huge collection of cultural resources. The capitol building, North Carolina Museum of History, and North Carolina Museum of Natural Sciences are all a short 10-minute walk from the convention center. There is something to do for everyone, including the African American Cultural Complex, Haywood Hall House and Gardens, Marbles Kids Museum, North Carolina Museum of Art, North Carolina Sports Hall of Fame, J.C. Raulston Arboretum, and Mordecai Plantation.

In the coming weeks and months, you’ll be hearing more about recreational activities in the Raleigh area. Remember, those dates in your planner are closer than they appear, and you don’t want to miss out. You can [make your hotel reservations](#) for Raleigh now.

Special technical sessions are already planned, covering the topics of nuclear safety, computation methods for nonproliferation, source replacement, and radiation detectors. We expect many more to develop as abstracts begin to roll in. I’m looking forward to a meeting that is both technically and culturally enriching, and all of us on the Program Committee look forward to seeing you in July!



### **2017 Health Physics Society Midyear Meeting** **22–25 January 2017, Bethesda, Maryland**

**Register now!**

**HPS Room Block at the Bethesda North Marriott**

### **Donate your books for the 2017 Web Operations Book Drawing!**

**Have you had a health physics book published recently?**

**Are you the author or editor of a book that has been  
a classic in the field of radiation protection?**

**Promote your book and benefit students and other  
health physicists by donating new copies for the ever-popular  
book drawing that will be held in the exhibit hall at the  
2017 Health Physics Society Annual Meeting in Raleigh.**

**Please contact News Editor Mary Walchuk at [editormw@hps.org](mailto:editormw@hps.org).**



## Joint Conference on Dose-Response Relationship Models

Darrell Fisher, PhD



The Health Physics Society will cosponsor the interesting and compelling scientific conference “Applicability of Radiation Response Models to Low-Dose Protection Standards” with the American Nuclear Society 23–26 September 2018 in the Tri-Cities of eastern Washington.

This meeting will address a controversial, unresolved conundrum among radiation scientists: applicability of the linear no-threshold dose-response relationship as a model for safety regulations, nuclear facility design, remediation, and cleanup of former nuclear sites. It may not represent the best model for regulatory purposes, but what else is there? Are we completely unable to move forward with a more practical approach?

And perhaps even more importantly: Is the 1 mSv dose limit for members of the public really necessary, and does the benefit of regulating exposure at fractions of natural background levels outweigh the massive costs of compliance?

Among the anticipated topics for discussion will be:

- Scientific foundations for radiation protection standards and emergency-action guidelines.
- Molecular basis of radiation response at low dose.
- Applicability of alternative dose-response models.
- Public perceptions of radiation risk.
- Opportunities for beneficial changes to radiation protection regulations.

Take note and mark your calendars to attend and participate. Although September 2018 seems far off in the future, it's not too soon to start preparing. A call-for-papers announcement will follow soon. Contact [Darrell Fisher](#) for more information.



## ORAU Professional Training Programs

*The Source for Professional Radiological Sciences Training*



### Upcoming Training Courses:

Site Characterization in Support of Decommissioning • January 23–27, 2017  
MARSSIM • January 30–February 3, 2017  
Applied Health Physics • February 27–March 31, 2017  
Health Physics Statistics • April 3–7, 2017  
Air Sampling for Radioactive Materials • April 10–April 14, 2017

865-576-3576 • [www.ornl.gov/ptp](http://www.ornl.gov/ptp) • [registrar@ornl.gov](mailto:registrar@ornl.gov)



## Society News

### Newly Elected Officers and Board Members

Congratulations to the officers and Board of Directors members who will take office at the 2017 Health Physics Society (HPS) Annual Meeting in Raleigh, North Carolina, in July:

President-elect Nolan Hertel, Treasurer-elect Steven King, and Directors Mike Mahathy, Thomas Morgan, and Jeffrey Whicker.

Learn more about them in the February issue of *Health Physics News*.

### Seeking Candidates for the 2017 HPS Officer Election

*John P. Hageman, CHP, Nominating Committee Chair*

The Health Physics Society (HPS) ballot for 2016 closed on 14 December. I hope everyone took the time to vote in this and our national and state elections. Every vote is important.

With all of the 2016 elections over, it is now time for the Nominating Committee to start accepting recommendations for the next (2017) election of the Board for the HPS. The five positions that must be filled are:

- President-elect.
- Secretary-elect.
- Three directors.

The Nominating Committee wants candidates from a broad representation of the HPS membership, and we believe that there are many great candidates who have worked in local chapters, within HPS sections, and on HPS committees. These activities are an excellent resource for the best candidates for HPS offices.

Our challenge each year is to identify the most qualified candidates who can lead the HPS through the coming years with dedication, enthusiasm, professionalism, and business acumen. So it has become more important than ever for each member to actively participate in the candidate-identification process.

You know those members who are willing and best able to serve as HPS officers or directors. We encourage you to submit their names for consideration by the Nominating Committee. To identify nominees from the general membership of the Society, please alert your fellow members about this request and directly ask each person to volunteer. Also, please announce that you are seeking candidates at your local chapter meetings and encourage individuals who are willing to serve.

Begin as soon as possible to identify qualified and willing candidates. Especially encourage those persons who have been active and productive in Society—committee, section, and chapter—activities. Active participation in the Society's various activities counts heavily when evaluating candidates, as do letters of recommendation, which you should send to support those whom you identify.

While nominations can be accepted from individuals (and the Nominating Committee encourages this), nominations are even stronger with chapter, section, or committee recommendations. In addition, chapters and sections are welcome to nominate or second the nominations of other chapters and are not limited to their own geographical area.

Thank you and please send me ([jph@swri.org](mailto:jph@swri.org) or [john.hageman@swri.org](mailto:john.hageman@swri.org)) the names of those you know are willing to serve as HPS officers or directors.

Remember, the deadline for submission of candidates' names is in April 2017.

## Call for Candidates for *Health Physics* Editor in Chief Position

Craig A. Little, PhD, EiC Search Task Force Chair, Operational Radiation Safety Editor in Chief

Michael T. Ryan, CHP, PhD, has announced his intention to retire as editor in chief (EiC) of *Health Physics* Journal effective July 2017. By this announcement, we are soliciting nominations and applications for the EiC position.

The intent is to conduct interviews and consider all applications in as much detail as necessary, with the goal of making a decision in time to allow as seamless a transition as possible. The new EiC would take office in summer 2017.

Candidates should hold a PhD degree or be a certified health physicist and must have published in either *Health Physics* or *Operational Radiation Safety*. Experience as an associate editor or familiarity with the publication process would be a plus. Candidates should have extensive experience as an active member and peer reviewer on HPS or other journals. Management experience is also preferred. Candidates must possess excellent communication, organizational, and interpersonal skills, as well as a wide network of professional contacts.

### Job Description

1. Provide a strong editorial vision representative of the goals of the HPS journals.
2. Together with the publisher, identify strategies to develop high-quality content in both print and online formats, as evidenced by metrics such as increased citations, web traffic, and readership scores.
3. Participate in publishing-contract negotiations for HPS journals.
4. Champion the HPS journals at professional meetings, workshops, and other appropriate forums.
5. Select and lead an esteemed Editorial Board whose knowledge base represents the topics covered in the editorial mission of the Journal.
6. Ensure proper manuscript flow to guarantee on-time publication, soliciting content and/or editorials as appropriate.
7. Select and manage high-performing associate editors and reviewers.
8. Make final accept/reject decisions on submitted manuscripts.
9. Follow [HPS Rule 9.1](#).

Interested individuals should send their curriculum vitae along with a statement of vision for the Journal to me at [ORSEd@burkinc.com](mailto:ORSEd@burkinc.com), and those writing to nominate others should send the nomination to me at [ORSEd@burkinc.com](mailto:ORSEd@burkinc.com). Please direct any questions about the position to me at the same address or by phone at 970-260-2810.

**Deadline for receipt of applications and nominations is 15 January 2017.**

## Update on Federal Travel Restrictions

Darrell Fisher, PhD

Good news: the unpopular, even nonsensical, federal restrictions on travel to scientific meetings have finally been rescinded. A new Office of Management and Budget (OMB) memorandum to federal agencies, issued 25 November 2016 (the day after Thanksgiving), cancelled Section 2 of an earlier OMB memorandum that made it difficult for federal employees and government contractors to travel to and participate in scientific meetings and conferences.

The Health Physics Society (HPS), in concert with the Council of Scientific Society Presidents (CSSP) and affiliated organizations, had lobbied extensively to lift the federal travel restrictions. The OMB put the travel policy in place after a heavily criticized Las Vegas meeting of the General Services Administration. Unfortunately, these “punish the innocent” travel restrictions caused attendance to drop precipitously at our annual and midyear meetings.

It took 5½ years for the Administration to rescind the May 2011 travel restrictions. Outgoing Science Advisor to the President John Holdren agreed with HPS and CSSP efforts to remove the burdensome travel policy, but he told us that he was “between a rock and a hard place” on the travel-policy

issue. Congress was equally ineffective in changing the policy, and some members of both political parties even drafted legislation that could have permanently codified the restrictions into law. Fortunately, the onerous restrictions are now past history.

In an ironic twist to this story, the U.S. Internal Revenue Service (IRS, your tax collectors) was found by a [Senate Finance Committee report](#) to be spending excessively on travel expenses for its own employees. The Senate report said that IRS administrators allowed high-end car services and luxury apartment and hotel stays, with insufficient efforts to reduce travel expenses. Further, the Senate committee found that “the IRS does not routinely or actively seek to reduce per diem rates for employees on long-term travel.”

## Awards Season Is Here!

*Nancy Kirner, CHP, Chair*

♪ It's beginning to look a lot like awards time, everywhere I go. ♪

Please start thinking now about the fine jobs that your coworkers and compatriots are doing or have done, and then go to the Health Physics Society (HPS) [Awards page in the Members Only section of the HPS website](#) to get the details for each possible award. The time to nominate individuals for an award is anytime between now and **1 March 2017**, except for the National Student Science Award, for which nominations are due by **30 May 2017**. Society members, chapters, and sections are encouraged to consider potential candidates and submit nominations for the following awards to be presented at the 2017 HPS Annual Meeting in Raleigh, North Carolina. Clicking on each of the following hyperlinks should direct you to our website for a general description of each award:

[Robley D. Evans Commemorative Medal](#)

[Distinguished Scientific Achievement Award](#)

[Elda E. Anderson Award](#)

[Founders Award](#)

[Fellow Award](#)

[Distinguished Public Service Award](#)

[Geoffrey G. Eichholz Outstanding Science Teacher Award](#)

[National Student Science Award](#)

[Health Physics Honor Roll](#)

[G. William Morgan Lectureship Award](#)

[Robert S. Landauer, Sr., Lectureship Award](#)

[Dade Moeller Scholarship Award](#)

[Dade Moeller Lectureship Award](#)

Deceased individuals may be memorialized by presentations of the Distinguished Scientific Achievement Award, Founders Award, and Distinguished Public Service Award in their name.

The specific requirements for each award are contained in the [Rules of the Society](#), which should be consulted when making a nomination. The Awards Committee has been quite persnickety about meeting the requirements, so make sure you have followed the rules on any submittal.

Nominations for an award must include a nomination letter and reference letters to be considered fully by the Awards Committee. The Awards Committee places heavy weight on the assessment of the accomplishments of candidates by individuals familiar with the candidate. The contributions of the nominee and why such contributions are significant to the Society and the profession should be clearly documented by the nominator and references. Letters should be as objective as possible. Letters that attest only to the character of the nominee are usually insufficient.

Nominations for awards at the Raleigh meeting must be submitted by **1 March 2017** (except for the National Student Science Award, which must be submitted by **30 May 2017**) on the HPS website [Awards Nominations page](#). **All submissions must be in electronic format.** Please contact [Awards Committee Chair Nancy Kirner](#) prior to 1 March 2017 to confirm that all expected materials have been received by the Awards Committee and that the awards package is complete.



## Call for Amateur Photographers to Contribute to the HPS Website

Are you a pretty darn good photographer? Want to share your photographs on the Health Physics Society (HPS) website? We are looking for new images for the slide show featured on the [HPS home page](#). To get a feel for the kind of photographs we're seeking, take a few minutes to watch the home page as it cycles through the current inventory of slides.

In addition to attracting viewers by enhancing the visual appeal of our website, the slides are intended to direct viewers to specific content pages of the website.

Here are the content pages we want to highlight and the type of picture that we think would be appropriate for the home-page slide show:

Content page	Type of picture
<i>Health Physics News</i>	People reading newsletter, looking at computer, phone, or tablet
Students	Real students, young people
Ask the Experts	Anyone who looks professional, a teacher, just looking at the camera
Medical exposures	Any medical setting using radiation
Jobs	Two people in interviewing scenario, looking at job posting bulletin board
Meetings	Audience, speakers
Join HPS	General group of people
Homeland security	Fire, police, law enforcement, person taking meter readings
Toolbox for teachers	Teacher, teacher with student
Medical education	Any medical setting using radiation
About us	Any general group picture
Radiation information	Radiation symbol, signs, placards in use
Nonionizing radiation	Nonionizing radiation emitter, person measuring items
Leadership	HPS Executive Committee or Board
Affiliates	Exhibit hall at HPS meeting
Careers	People at work in radiation protection field

These are just rough ideas, so be creative and come up with alternatives if you can! In general, any good candidate photograph should contain the primary subject prominent in the foreground and a vague background that can be overlaid with text without compromising the subject. We would need to be able to manipulate the picture (using Photoshop) so the subject would be located to one side of the photograph rather than being centered.

The setting for photographs can be almost anywhere. While you might capture photos of people you know at HPS meetings or chapter meetings, other appropriate photographs could be taken in work locations. Showing health physicists on the job would be appropriate to direct viewers to content pages like "Careers" and "Nonionizing Radiation."

You may submit your photographs to [Society Operations Editor Marcia Hartman](#) for review and selection by the Web Operations staff. You must include verification that the image is not copyrighted and provide your permission for us to use your photograph on the website. If your submission is selected, you will be recognized in *Health Physics News* for your generous and creative contribution.

OK, you photographers, the call has been sounded and the gauntlet has been thrown down. Who will rise to the challenge?

***Every radiation safety professional in the United States should  
be a Health Physics Society member.***

## Editorial

### What's Becoming of Our Society?

Howard Dickson, CHP, Web Operations Editor in Chief

Clearly the Health Physics Society (HPS) is going through some traumatic and trying times. We are searching to maintain an identity and be relevant in a changing world. Certainly, we don't want to relinquish the professional credibility and respect that we have enjoyed for many years. However, we seem reluctant to make the changes necessary to turn things around.

I have been hesitant to use my bully pulpit as Web Operations Editor in Chief to communicate one man's view of the world to you. But recently I have felt increasingly empowered by HPS President Bob Cherry as a member of his "shadow cabinet" to express my opinion. Some of you may dismiss the following comments as my annual rant because I have been saying these same things for several years now. Or maybe you missed my previous comments, so let me try again. I sincerely hope I am not living out the definition of insanity—doing the same thing over and over and expecting different results.

Many president emeriti reflected on President Cherry's [recent governance proposals](#) (link to Dec HPN). The responses were predictably nostalgic. In general, they opined that we should continue the governance structure that brought us fame and glory. They mostly thought we should stick with the existing Society bylaws and rules. Who could fault them for being conservative? Didn't the brilliant leaders of the past take into consideration what was best and what worked for the good of the Society? Why make dramatic changes that could be very risky? Why risk alienating the old guard? Why move out of our comfort zone?

### How Did We Get Here?

How do we reconcile the decades-long decline in membership, loss of appeal to the younger generations, vanishing support for academic programs, and disappearing research-and-development jobs? Has the health physics profession fundamentally changed, while we are still trapped in the old paradigm? It must make you wonder.

We are not alone in facing these dilemmas. Many other technical and professional societies have been facing similar issues. However, they have been dealing with the issues in a different manner than HPS has. They have actually initiated significant governance changes and appear to be resolving, or at least mitigating, the issues. I found that it was relatively easy to reach out to those organizations and find out what worked and what pitfalls to avoid.



What brought a ray of hope was the 2011 short book *Race for Relevance* by Harrison Coerver and Mary Byers. Without knowing anything about the HPS, they described our symptoms almost perfectly and laid out what they have found to be effective treatment for organizations experiencing these maladies. Needless to say, I was impressed and encouraged our leadership to pay attention, read the book, and do our own research, which we did.

First we appointed an ad hoc committee under the leadership of John Lanza. The committee did the homework for us and presented a comprehensive report, which was summarized in three *Health Physics News* articles ([March 2013](#), [April 2013](#), [May 2013](#)). The committee proposed major governance changes to help address the observed difficulties that we were facing—and still face.

I think our leadership at the time remained skeptical and wanted more proof—and lots of detail (aren't we all about being prescriptive and regulation driven?). So what did we do? We formed a governance task force under the very capable leadership of Ali Simpkins that fleshed out the Lanza report and provided all the details necessary to begin the governance change process in [its report](#).

## So What Happened?

Why did the changes not take place? In my humble opinion, the changes were too big and scary for the leaders to take ownership. What if the changes did not solve our problems or even made matters worse? Very few wanted to be identified with a (possibly) failed administration. So a default decision was made to try to integrate a few of the recommendations in a piecemeal fashion that left no one to be criticized for failing us.

Looking at the originally proposed governance changes in a piecemeal fashion presents a very distorted view. One has to consider the totality of the proposal. Simply saying let's reduce the size of the Board to some nominal number does not convey at all why that might be a good thing. Having a nimble, efficient, and strategic Board is far more important than setting any arbitrary size. To grasp the new governance paradigm, one really needs to read the whole of the Lanza/Simpkins recommendations to understand what is needed, why it is needed, and how to implement the changes.

Looking in isolation at the individual steps to governance change is foolishness. You might compare governance change to brain surgery that starts with shaving one's head. Why would you want to be bald unnecessarily? That action may seem like a bad move until you understand the totality of the process. Shaving one's head, like reducing the size of the Board, is only one step in a rather detailed process.

## And Where to Now?

Once again, we now find our current leadership grappling with the issues that never did go away. The piecemeal fixes were too trivial to have much effect. We are still lamenting the continuing decline in membership, increase in dues, increase in registration fees, growth of competing organizations, panic in our academic programs, advertising revenue in jeopardy, etc.

If anything, the problems have only gotten more severe and President Cherry finds himself facing these realities. He needs your help and support to perform life-saving triage on the Society. It is probably not helpful to say, "Stay the course, don't change anything!" If you are unwilling to take the time and make a concerted effort to read about society governance, including the studied reports of your colleagues on the subject, then you have no idea what governance changes might be good for the Society or how they might make the Society great again (my apologies to Mr. Trump).

Although I support all three changes that President Cherry proposes (see [December 2016 Health Physics News](#)), the original governance recommendations did not emphasize increasing the president's term of office. However, that change makes sense since it would facilitate implementing changes that require more time and persistence. As an example, I started the governance initiative late in my presidency and continued to promote it as past president. Even though president emeriti Kathy Pryor and Armin Ansari, who followed me, were in favor of governance change, continuity of our efforts was halted by successor administrations that were leery of these changes. It was sort of like going from one party (governance liberals) to the other (status quo conservatives) in our national governance cycle.

The bottom line is that comprehensive governance change is essential to our continued success, maybe even to our continued existence.

***You are invited to join the conversations at  
the Health Physics Society News Cafe.***

***Click [here](#) or on the Facebook logo on the  
[Health Physics Society website](#).***





## Chapter News

### East Tennessee Chapter

Scott Schwahn, CHP, PhD, Past President



**Attendees at the January 2016 James E. Turner Back to School Lecture Series**  
Photo courtesy of Jeff Chapman

On Saturday, 11 February 2017, the East Tennessee Chapter of the Health Physics Society (HPS) will once again be holding the James E. Turner Back to School Lecture Series. This year, it will take place at the Oak Ridge campus of [Roane State Community College](#) (with thanks for its gracious complimentary support), 8:00 a.m.–noon.

**I invite YOU to give a short 15-minute presentation** regarding a topic that interests YOU in the fields of health physics, radiation safety in application (radiation control technicians!), or nuclear engineering. The content should be appropriate for interested members of the public. We are particularly interested in hearing from college students, but we are happy to consider

any presenter. Here are a few guidelines, however, that will help get your presentation get into the lineup:

- No overt commercial product plugs—technology, not sales or marketing.
- No gripe presentations.
- Topics addressing public concerns are a bonus.

Please send your proposed topics to me at [sschwahn@hps.org](mailto:sschwahn@hps.org) for consideration. There will be no second call in *Health Physics News*. We will fill in the approximately 16 presentation slots on a first-come basis (with preference for college students) from acceptable topics.

### South Texas Chapter

Susanne M. Savely, DrPH, President



**Among those speaking at the September 2016 South Texas Chapter meeting were, left to right, Robert Emery, Robert Savely, and Sarah Over**  
Photos courtesy of Stan Bravenec

### First Technical Meeting and Affiliates' Fair

On 22–23 September 2016, the South Texas Chapter of the Health Physics Society held its first 1½-day-long technical meeting and affiliates' fair in Kemah, Texas. Previously, these events have been split into two separate meetings and held on Saturdays. During the last few years, members have asked that the meetings be held during the week so that they may be reimbursed through work for travel expenses/meeting registration and because they have family commitments on Saturdays.

The September meeting, which combined the technical meeting with the affiliates' fair, showcased 19 speakers and was attended by over 65 people. Speakers were selected from Texas high schools,

National Aeronautics and Space Administration Johnson Space Center, University of Texas System components, Texas A&M University, Baylor College of Medicine, the Texas Department of State Health Services, the Veterans Affairs North Texas Health Care System, Gateway to Care, NSSI Sources and Services, Landauer, FLIR, Ludlum, Thermo Fisher Scientific, and the South Texas Project Nuclear Generating Station.

The presentations covered a variety of topics from space radiation/medicine to strip positron emission tomography design and included technology updates in dosimetry from Landauer, tritium recovery from NSSI, and radiation detection from FLIR, Ludlum, and Thermo Fisher Scientific.

## Committee Activities

### Nanotechnology Committee

Mark D. Hoover, CHP, PhD, Chair



As we welcome 2017, the Nanotechnology Committee of the Health Physics Society (HPS) is entering its 10<sup>th</sup> year. As a plus, we continue to be encouraged by the myriad ways that nanotechnology is enabling higher-resolution imaging, smaller sensors, and advances in medical diagnostics and treatment. As a minus, most of us are consumed by the daily challenges of getting the right things done right, with the tools we have. Improving how we couple our needs for improved radiation protection to the technology-based innovations of nanotechnology and advanced materials is an ongoing challenge.

The recently released [Triennial Review of the National Nanotechnology Initiative](#) provides a view by the National Academies of Sciences, Engineering, and Medicine on how nanorelated innovations are being fostered and achieved. In the report, technology-based innovation is defined as the process of converting the results of basic science and engineering research into practical applications for commercial and/or public benefit. It is further described as the outcome of a complex set of interconnected technological activities that (1) involve an ecosystem of participants and institutions from the public and private sectors and (2) require expertise in various areas and disciplines.

We think that the concept of an “ecosystem of participants and institutions” is a view that reflects how the HPS has been engaging and collaborating within our “radiation protection ecosystem.” Our members, chapters, committees, sections, and work organizations interact with many of the federal initiatives. How we are using our ecosystem to apply nanotechnology and advanced materials to radiation protection problems is a topic we want to pursue in the activities of our committee and in our interactions across the HPS.

As always, we would love to hear from you about your experiences, concerns, and challenges for nanotechnology in your areas of health physics, including your willingness to be a presenter at our July 2017 special session in Raleigh. Please contact [Mark Hoover](#) and [Lorraine Day](#).

### ***Radiation and Risk: Expert Perspectives***

The concern about radiation exposure following the March 2011 tsunami and resulting damage to the Fukushima Daiichi nuclear facility compelled a group of radiation scientists to explain radiation risks to the general public. Some of these experts were convened in a panel sponsored by the Health Physics Society (HPS) at the National Press Club in Washington, DC, on 1 March 2012 in order to better inform the conversation around the one-year anniversary of Fukushima. HPS has published *Radiation and Risk: Expert Perspectives*, a compilation of papers on topics including natural radiation, medical applications of radiation, effects of natural and man-made radiation on the environment, safety controls of nuclear energy production, risk communication, and the regulatory implications of radiation safety. The publication is available on the HPS website at [http://hps.org/documents/radiation\\_and\\_risk.pdf](http://hps.org/documents/radiation_and_risk.pdf).

## Section News

### Medical Health Physics Section

*Cari Borrás, DSc, President*

The Medical Health Physics Section (MHPS) of the Health Physics Society (HPS) invites you to attend the special session it will hold on 24 January 2017, during the 2017 HPS Midyear Meeting in Bethesda, Maryland. "Regulations and Guidelines on Patient Radiation Protection" will include moderators Cari Borrás and Linda Kroger and discussion leader Michael Noska.

- Welcome and Introduction – Cari Borrás, Medical Health Physics Section president, Washington, DC
- Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards – Cari Borrás, Medical Health Physics Section president, Washington, DC
- Why Is Epidemiology an Important Component of Radiation Protection Standards? – Roy E. Shore, Radiation Effects Research Foundation, Hiroshima (retired)
- NRC Patient Safety Culture – Donna-Beth Howe, U.S. Nuclear Regulatory Commission (NRC), Washington, DC
- How Have Federal Agencies Used Federal Guidance Report No. 14 to Enhance Their X-Ray Programs in Medicine and Dentistry – Sam Keith, Agency for Toxic Substances and Disease Registry/Centers for Disease Control, Atlanta, Georgia
- Organ Doses From Diagnostic Medical Radiography—Trends Over Eight Decades (1930 to 2010) – Dunstana Melo, Melohill Technology, Rockville, Maryland
- Tracking and Estimating Organ Doses in Radionuclide Imaging – Jerry Thomas, Via Christi Health, Wichita, Kansas
- FDA Efforts to Improve the Safety of Radiological Devices – Robert Ochs, Center for Devices and Radiological Health, U.S. Food and Drug Administration (FDA), Silver Spring, Maryland
- The Impact of Regulations on Patient Care – Thomas Conley, The University of Kansas Hospital, Kansas City, Kansas
- Establishing Medical Imaging Acquisition Protocols – Mahesh Mahadevappa, John Hopkins University, Baltimore, Maryland
- The Evolving Role of the Physicist in Assuring Radiation Therapy Quality and Safety – Jeffrey Williamson, University of Virginia, Richmond, Virginia
- The Impact of Accreditation Programs on Quality and Safety – Priscilla Butler, Quality and Safety, American College of Radiology, Reston, Virginia
- The Role of the Radiation Safety Officer in a Medical Environment – Linda Kroger, University of California Davis Health System, Sacramento, California
- Discussion – all

Please [register for the meeting](#) if you have not done so already, and check the website for details of the program.

MHPS Past President Tom Mohaupt has started recruiting volunteers for MHPS 2017–2018 officers and board members. He is requesting nominations for the following posts that will become vacant in 2017: president-elect (1-year term), secretary-treasurer (2-year term), and two members of the executive board (3-year term). Contact Tom ([tmoh28@gmail.com](mailto:tmoh28@gmail.com)) if you are interested.

Cari Borrás ([borrasca2008@gmail.com](mailto:borrasca2008@gmail.com)) is soliciting input for an MHPS special session at the 2017 HPS Annual Meeting to be held in Raleigh, North Carolina. One possible subject is "Roles of Medical Physicists and Health Physicists in the Clinical Arena." Suggestions for alternate topics and speakers are welcome; decisions will be made very soon.

The MHPS is vibrant, as attested by its [new website](#). Check it out!



## Student Corner

### Resources for Student Members of the Health Physics Society

Deepesh Poudel, Los Alamos National Laboratory

Happy New Year, students!

As we start a fresh new year, I wanted to give an overview of how the student members of the Health Physics Society (HPS) can use their membership and the available resources to the fullest.

The HPS provides some excellent resources for students, including finding employment, finding scholarships and fellowships worth tens of thousands of dollars, applying for grants for travel to HPS conferences, accessing journal papers, interacting with peers and mentors, etc., most of which are available only to members of the Society. Many of the resources listed below require you to log in to the [Members Only section](#) on the [HPS website](#).

#### Looking for a job or an internship?

While there are dozens of job boards such as Indeed, Careerbuilder, or Monster on the web, such websites may not always be ideal when looking for jobs in a niche field such as health physics. Luckily, the HPS website has a page where [employers post job openings](#) in the field of health physics. If you are looking for a job in health physics, this page is certainly a must-visit at least once a week. You can also [post your résumé](#) online on the [HPS Members Seeking Employment](#) page. If you are a student who is not expecting to graduate within the next year, make sure you check out the [Internships](#) page.

#### Looking for a scholarship, fellowship, or travel grant?

The HPS provides several fellowships and scholarships to support graduate students in health physics or a closely related field. The applications for this year's scholarships and fellowships are not yet open, but I wanted to make sure that you are aware of the opportunities. You can also refer to the HPS website [Fellowships](#) page, [Dade Moeller Scholarship](#) page, and [Environmental/Radon Section Scholarship](#) page for more details on the deadlines and how to apply.

In addition to these, the HPS also provides travel or travel/worker grants, which consist of free meeting registration, complimentary hotel room, and funds to assist in travel to the annual meeting. The applications for travel grants for next year's meeting in Raleigh are not open yet, but watch for the announcements coming soon. More information on grants is located on the [Travel Grant](#) page.

Make sure you also check out other scholarship and fellowship programs posted on the HPS [Scholarships and Grants](#) page. And don't forget that your presentation at an annual HPS meeting might win an award to enhance your résumé—see, for example, the [student awards](#) sponsored by the HPS Accelerator Section.

#### Looking for publications?

HPS membership comes with a subscription to the monthly journal *Health Physics* and quarterly journal *Operational Radiation Safety*. The articles published in Volumes 1 to 75 of *Health Physics* can be accessed in [the Journal section of Members Only](#), while the more recent articles can be accessed through the [LWW website](#).

In addition to the Journal, members can also access copies of the monthly newsletter *Health Physics News* by going to the [Newsletter Archive](#).

Since the HPS is secretariat to two American National Standards Institute Accredited Standards Committees—N13 and N43—[these two sets of standards](#) are available to HPS members for no charge! In addition, HPS members can get a 20% discount on National Council on Radiation Protection and Measurements publications and a 25% discount on International Commission on Radiological Protection publications. For more information on these, visit the HPS [Publications](#) page.

**Looking to publish?**

*Health Physics* and *Operational Radiation Safety* are great peer-reviewed journals for publishing your research findings, as they reach thousands of health physics professionals. Would you like to publish in these journals but are worried about the costs? Worry not! To encourage students to submit papers for publication, the editors of these journals are offering to publish papers written by students free of page charges. See the [July 2016 issue of Health Physics News](#) for more information.

**Looking for a mentor?**

[HP Connect](#), run by the Student Support Committee (SSC) of the HPS, aims to develop student-professional relationships by pairing students or early professionals with mentors. If you are looking for a mentor, [complete the questionnaire](#) and you will be paired with a mentor of similar interest, educational background, or geographical region. Having a mentor may help you gain perspective on the field, get introduced to a bigger network, and even land a job!

**Looking for volunteering opportunities?**

Students interested in volunteering can sign up for [HP Volunteer](#). This platform of the SSC aims to facilitate opportunities for students and professionals to mutually benefit from each other. Some of the available opportunities include promoting the HPS to local organizations and updating the HPS educational material. Volunteering not only boosts your résumé, but it also helps build a network and . . . land a job!

**Looking to get involved?**

There are several ways you can get involved. Several universities with health physics programs have [student branches](#). Look for a [local chapter](#) in your area and contact the chapter representative. You can also get involved with the [Student Support Committee](#) and help maintain a student voice at the HPS leadership table!

**Have questions?**

If you are unable to find the resource you need or if you have questions about the membership benefits, feel free to email [Student Support](#). If you have questions about the SSC and how you can participate, contact [Thuquynh Dinh](#), the current president of the SSC. And if you have any questions about this column in the newsletter and would like to contribute, [contact me](#).

**Renew your membership!**

Now that you know the benefits that come with being a student member of the HPS, I hope you consider renewing your membership or [joining the HPS](#) if you are not a member yet!

**NASA Space Radiation Summer School at BNL**

The National Aeronautics and Space Administration (NASA) Space Radiation Summer School (NSRSS) at the U.S. Department of Energy's Brookhaven National Laboratory will be held 5–23 June 2017, with student arrival on 31 May.

NSRRS is designed to provide a “pipeline” of researchers to tackle the challenges of radiation exposure to humans who will travel on space exploration missions. The course is intended for graduate students and postdoctoral fellows with an interest in the radiation sciences, including physics, biology, and engineering. More than 50 lectures cover detailed topics in radiation biophysics, cancer biology, normal tissue radiobiology, charged particle physics, and dosimetry, as well as the characterization of space radiation environments. In-depth laboratory exercises support the lectures. Applications are open to both U.S. nationals and foreign nationals.

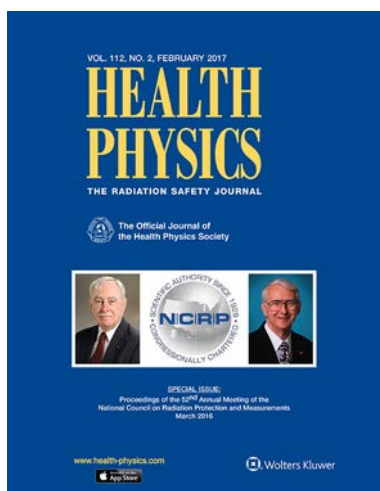
The scientific director for NSRSS 2017 is Amy Kronenberg, ScD, biophysicist staff scientist at the Lawrence Berkeley National Laboratory.

Detailed information about the application process for the 2017 NSRSS is available through the following link: <https://spaceradiation.jsc.nasa.gov/nsrss/2017/>. You may also contact the course administrator, Katy Buckaloo, at [katy.buckaloo@gmail.com](mailto:katy.buckaloo@gmail.com) or 832-978-9542.

## Journal Notes

### Up and Coming in *Health Physics*

Look for these and many more articles in the February 2017 issue of [Health Physics](#).



**Special Issue:** 51<sup>st</sup> Annual Meeting of the National Council on Radiation Protection and Measurements

March 2016

**13<sup>th</sup> Annual Warren K. Sinclair Keynote Address:** “Where Are the Radiation Professionals (WARP)?”

Richard E. Toohey

**40<sup>th</sup> Lauriston S. Taylor Lecture:** “Radiation Protection and Regulatory Science”

John W. Poston, Sr.

**“Radiation Brain Drain? The Impact of Demographic Change on U.S. Radiation Protection”**

Hedvig Hricak and Lawrence T. Dauer

**“Membership Trends in the Health Physics Society: How Did We Get Here and Where Are We Going?”**

Kathryn H. Pryor

**If you are interesting in submitting a paper to *Health Physics*, find submission guidelines and forms on the [Health Physics Journal website](#).**

## The ATE Experts Say . . .

*Kelly Classic, CMHP, ATE Associate Editor, and Genevieve Roessler, PhD, ATE Editor*



U.S. Navy Petty Officer 2<sup>nd</sup> Class Fitzroy Hall uses an autorefractor machine during an eye examination at a medical civic assistance program at the Prince Ngu Hospital in Neiafu, Vava'u, Tonga. Photo courtesy of U.S. Department of Defense/Petty Officer 1<sup>st</sup> Class Eli J. Medellin, U.S. Navy.

answer when you are on the Health Physics Society [Ask the Experts \(ATE\)](#) site; we may use it in this column in a future issue of *Health Physics News*.

### Question #11378: Optometrists' Use of Infrared Radiation

The following question was submitted to Ask the Experts:

*Optometrists now commonly use a device called an autorefractor to get a patient's prescription for glasses. This device uses infrared radiation. Could this machine cause damage to the eye since it uses radiation? Would it be safer to opt for only an old-fashioned eye exam without the machine?*

To see the answer by Ninni Jacob, CHP, PhD, go to <http://hps.org/publicinformation/ate/q11378.html>.

Let us know ([media@hps.org](mailto:media@hps.org) or [ateed@hps.org](mailto:ateed@hps.org)) if you find a particularly interesting question and

## Agency News

### DOE News

#### A Graduate Certificate in Nuclear Packaging

*James M. Shuler, NRRPT, DPA*

**University of Nevada, Reno, Graduate Certificate in Nuclear Packaging:** The U.S. Department of Energy's Packaging Certification Program (EM-4.24) and the University of Nevada, Reno (UNR), Mechanical Engineering Department have developed an accredited, graduate-level, nuclear-packaging program. The [Graduate Certificate in Nuclear Packaging](#) (GCNP) provides a curriculum in packaging for nuclear and other radioactive materials. The admission requirements are an earned baccalaureate degree in mechanical, materials, nuclear, or a closely related engineering field or a baccalaureate degree and background in project management related to packaging of nuclear and other radioactive materials.

The purposes of developing the certificate are to (1) encourage students to complete a curriculum in packaging safety and security of nuclear and other radioactive materials that has both depth and breadth and (2) provide a graduate-level curriculum designed to give students an advantage when seeking employment or advancement in the area of packaging of nuclear and other radioactive materials or related fields.

The following six courses were developed and offered on a regular basis for EM-4.24 by the Argonne (ANL), Lawrence Livermore (LLNL), and Savannah River (SRNL) National Laboratories and have recently been given UNR Mechanical Engineering (ME) course numbers:

- ME 691 - ASME Pressure Vessel Code for Nuclear Transport and Storage, 1 credit (offered only at ANL)
- ME 692 – Quality Assurance for Radioactive Material Packaging, 1 credit (offered only at ANL)
- ME 694 - Nuclear and Other Radioactive Materials Transport Security, 2 credits (offered only at ANL)
- ME 695 - Safety Analysis Report for Packaging (SARP) Review and Confirmatory Analysis, 2 credits (offered only at LLNL)
- ME 696 - Management of SARP Preparation, 1 credit (offered only at SRNL)
- ME 697 - Radioactive Material Package Operations and Leak Testing, 1 credit (offered only at SRNL)

All courses are either one- or two-week courses at the labs. Students who enroll in these EM-4.24 classes will receive UNR graduate credit if they: (1) gain special graduate admission to UNR, (2) enroll in the UNR course and pay tuition, and (3) pass the course. These credits may be applied toward graduate degrees at UNR or any other university that accepts that credit.

If a student receives a B grade or better in a class, then the student will be able to use the credits toward UNR's 9-credit GCNP. To earn the certificate, students must complete ME 691, ME 692, and ME 695, which are required. They must take five additional elective credits from the above list (while this list currently contains only four electives, new courses are being developed and planned to be available within the next year). Three additional courses have been developed by Oak Ridge (ORNL) and Sandia (SNL) National Laboratories and are being submitted for UNR approval:

- SARP Generalist (offered only at ORNL)
- SARP Analyst (offered only at ORNL)
- Thermal Modeling and Testing of Radioactive Materials (RAM) Packages (offered only at SNL)

For more information regarding admission and application to the UNR program, please refer to the link <https://www.unr.edu/degrees/nuclear-packaging/certificate> or contact Program Officer Dawn Snyder at [dawnas@unr.edu](mailto:dawnas@unr.edu) or by telephone at 800-233-8928 and visit <https://rampac.energy.gov/home/education/packaging-university> for the schedules.



## Inside the Beltway

### Mr. Abelquist Goes to Washington

David Connolly, Congressional Liaison, The Connolly Group



Photo courtesy of [Pixabay](#)

On the morning of the Health Physics Society (HPS) leadership team's recent visit to Capitol Hill, my wife asked me if I was "nervous." Now you may recall that a few months ago I related how I always get a bit of "stage fright" right before the leadership visits, fretting that something could go wrong. "Not this time," I replied. "We have an excellent set of meetings set up throughout the day that should be enlightening and will provide a good introduction to the world of Capitol Hill for HPS President-elect Eric Abelquist; even the previous day's heavy rain has given way to sunshine!" This feeling of serenity continued on the drive to the subway station and as I assumed my seat on a surprisingly uncrowded train car. Towards the end of the trip, I casually glanced at my emails and immediately felt a lump in my throat. Our second appointment of the day, with one of the more interesting staffers on Capitol Hill, was cancelled due to her not feeling well and staying home for the day. As bad as I felt then, it was even worse two hours later when I received another email that informed me that our last appointment of the day had to be cancelled because the staffer had been called to a meeting with the chairman of the House Science Committee! Notwithstanding these two setbacks, however, the meetings that we had turned out to be very successful.

Like Jimmy Stewart in the old movie "Mr. Smith Goes to Washington," Abelquist came to the rescue when he introduced us to the lobbyist for his employer, Oak Ridge Associated Universities, who upon hearing of our cancellations volunteered to help us get a last-minute substitute. The impromptu meeting with a staff person for the Energy and Water Subcommittee of the Senate Appropriations Committee proved to be instructive and fruitful. In part due to the lateness of the congressional session when there was no relevant business being transacted that required his presence, the staffer was able to spend more time than usual telling us about his family (which brought up the topic of the Society's support for middle school science teachers through the local chapters) and, more importantly, having a discussion with us about low-dose radiation studies. Still, we were disappointed to learn from him that the \$1 million allotted to the Million Person Study would not be funded because of the agreement by House and Senate leadership to fund the government for fiscal year 2017 at 2016 levels until 28 April. However, there seemed to be a clear understanding on his part of the importance of this project and a desire to see it included in future appropriation bills.

On the topic of low-dose research, he also had confidence that some legislation may pass the Congress after members return in January. In our first meeting of the day, we had been informed that the low-dose bill that had passed the House would not be part of the energy-bill agreement that the Senate and House were trying to pass before adjourning for the year. Alas, that too failed to happen, so the process of an energy bill will also start all over again next year. One of the more intriguing points raised in this meeting by this Senate staffer was the question of whether or not HPS ever considered having a study done to see if there would be any savings in the regulatory arena if use of the linear no-threshold model was discontinued.

Our next meeting with the Senate Energy Committee continued the thoughtful conversation on the need for low-dose research and some discussion about the changes in government that will happen in January when the Trump Administration assumes office. In a way, I had good reason not to be nervous because the meetings went well, but you can be assured that my stage fright has returned for the spring leadership meetings!

**Call for Candidates for Health Physics Editor in Chief Position**

**[See page 10](#)**

## The Boice Report #54



*John D. Boice, Jr., NCRP President  
ICRP Main Commissioner  
UNSCEAR U.S. Alternate Representative  
Vanderbilt Professor of Medicine*



### Chernobyl at 30 and the Beebe Symposium at 12

I'm still on pain medications after extensive back surgery (including three permanent rods that will forever set off airport metal detectors), but I wanted to write about the legacy of Gilbert W. Beebe and the [November 2016 National Academy of Sciences 12<sup>th</sup> Beebe Symposium](#) on Chernobyl at 30.

Gil Beebe and I both joined the National Cancer Institute (NCI) in 1978 and became good friends. Gil was 65 years old with [an illustrious career behind him](#) and mine was nascent. He encouraged me to continue studies of radiation-induced breast cancer. [An inspiration and mentor to so many](#), Gil was active and in the office the weekend before he died just short of his 91<sup>st</sup> birthday in 2003. I believe his most lasting legacy will be in strengthening the [Atomic Bomb Casualty Commission](#) that morphed into the Radiation Effects Research Foundation and the Lifespan Study that continues to be so valuable today.

Gil published extensively on the [psychological effects](#) and mental disturbances associated with war and related traumatic experiences. At NCI we worked together on studies of [high background radiation in China](#), [radon in China](#), [radar exposure among Korean War veterans](#), and summarizing knowledge of [radiation-induced thyroid cancer](#). His second lasting legacy was motivating and mentoring the "best/most informative" Chernobyl studies of thyroid cancer following childhood exposure to radioactive iodine. His first study in [Belarus](#) provided convincing evidence that childhood exposure to radioactive iodines caused thyroid cancer and the increase could not be entirely linked to screening biases, endemic goiter, or other potentially confounding factors. This is not saying that the risk coefficients were not without uncertainty, but they did provide evidence for an effect. Subsequently, he continued with the [Ukraine-American study of childhood exposures](#), which I consider to be the very best and most informative study. It is thus appropriate that the 12<sup>th</sup> Beebe Symposium was held in November 2016 on [Chernobyl at 30 years](#) with an emphasis on Gil's contribution.



**Ruth and Gilbert Beebe at the 1<sup>st</sup> Beebe Symposium, 2002**  
Photo courtesy of John Boice

The 1<sup>st</sup> Gilbert W. Beebe Symposium was held in 2002 and Gil and his wife Ruth were able to attend. Every few years, a Beebe Symposium is held at the National Academy of Sciences. The [agenda and abstracts](#) of this year's symposium are online as well as the excellent [presentations](#) featuring renowned scientists from all over the world. I recommend to all those interested in radiation accidents, emergency response, late effects, community resilience, psychosocial effects, acute radiation syndrome, and more to glance over the information in the abstracts as well as the presentations.

The chair of the organizing committee, Jonathan Samet, [provided an excellent summary](#) of the research conducted after Chernobyl and what lessons have been and could still be learned. Below I summarize my take on the Chernobyl symposium and future directions (these are my own opinions and not a consensus).

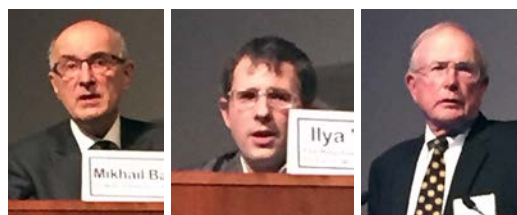
- [Fukushima is not Chernobyl](#), neither in terms of population or worker dose, acute radiation syndrome effects, radiation-related deaths, nor the scientific need for continued [follow-up of the children](#) exposed to radioactive nuclides.
- The World Health Organization's [definition of health](#) is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."
- High doses (several grays) have acute consequences, such as [radiation sickness](#).
- Moderate doses (on the order of 0.1 to 1 Gy) can result in detectable long-term consequences, such as increased [thyroid cancer risk](#) following childhood exposures.

- [Psychological stress](#), such as depression and anxiety, can occur regardless of dose—there is no threshold for fear.
- [Samet](#), with apologies to Donald Rumsfeld, mentioned several reasons for conducting studies:
  - Refining risk estimates (known knowns).
  - Hazard identification (new outcomes) and completing the understanding of dose response (known unknowns).
  - Overturning strong priors, finding surprises (unknown unknowns).
- Studies, however, should not be conducted just for the sake of conducting studies. There are certain criteria that should be satisfied before embarking on or continuing noninformative (or minimally informative) studies. These criteria have been summarized in many of the reports from the [United Nations Scientific Committee on the Effects of Atomic Radiation](#) (pages 19–40). The key scientific question is whether the incremental gain in knowledge is worth the expenditure of limited resources.
- There is a need for caution in interpreting studies where the outcome can be influenced by substantial uncertainties in dose reconstruction and substantial bias in the ascertainment of outcomes (both screening and diagnostic equality) and when the findings are diametrically opposed to scientific literature that goes back nearly 100 years of high-quality studies with good methodology, dose reconstruction, and outcome ascertainment.
- What is my understanding of what we have learned after the past 30 years, i.e., what is new?
  - The only convincing evidence for cancer effects following Chernobyl exposures has been the epidemic of thyroid cancer among the children (but not adults) who drank milk contaminated with radioactive iodines.
  - Cataracts occur at lower doses than previously expected, but the quantification of dose is associated with a high uncertainty.
  - There appear to be lasting neuropsychological consequences associated with radiation exposure, regardless of dose, and this is especially noticeable among mothers.
  - An increase in [chronic lymphocytic leukemia \(CLL\) in some liquidators was reported](#). I am not entirely convinced that this is a causal association since an extensive literature search of studies with good methodologies, excellent dosimetry, and complete and unbiased outcome ascertainment, both mortality and incidence, continue to find no association between CLL and radiation dose, e.g., [U.S. worker studies](#), [U.K. worker studies](#), [international worker studies](#), [international studies of cervical cancer patients](#), and [others](#), as well as some [combined liquidator studies](#) and [Techa River studies](#).
  - There is a need to improve analytical methods dealing with [uncertainty](#), but this is not straightforward.
  - Future research should include [new approaches for dose-response modeling](#), integrating biological features with epidemiologic observations.

### Beebe Symposium November 2016—A Few Attendees



Left to right: Vadim Chumak and Dimitry Bazyka (Academy of Medical Sciences of Ukraine), Geraldine Thomas (Imperial College, London), Mykola Tronko (Ukraine-U.S. Thyroid Project, Kiev), and Viktor Shpak (Academy of Medical Sciences of Ukraine)



Left to right: Mikhail Balonov (Institute of Radiation Hygiene, Russia), Ilya Veyalkin (The Republican Research Centre for Radiation Medicine and Human Ecology, Belarus), and Fred Mettler (University of New Mexico School of Medicine)

Photos courtesy of John Boice

## Radiological Protection Around the Globe

### The End Is Growing!

Ted Lazo, CHP, PhD

I guess it's appropriate that Bob Dylan just won the Nobel Prize for literature, because his songs from the 1950s and 1960s are just as pertinent today as they were then! As a very pertinent example: "The times they are a changin'!" I don't think anyone can contest such a statement today.

The nuclear industry is a classic example of change. And here I am not talking about the "unstable stability" of a 60-year-old, enduring industry that goes from renaissance to shut-down to small modular reactors in the blink of an eye! Rather, what I mean by this is that the focus of the industry has continued to move and to expand. The following very loose characterization of reality illustrates this. The early days in the 1950s and 1960s were focused on experimenting with reactor design—every entity custom built its own reactor. The 1970s and 1980s were focused on reprocessing and new fuel cycles, the 1990s and 2000s were focused on reactor safety and on operational efficiency, and our current period seems to be focusing on life extension and on intrinsically safe designs. But an emerging focus has been growing quietly within all this and, in terms of job security for radiological protection professionals, seems to be a sure thing: DECOMMISSIONING (see Health Physics Society President-elect Eric Abelquist's [piece on decommissioning](#) in the June 2015 issue of *Health Physics News*).

Okay, everyone knows that decommissioning is here to stay, but let's put this into perspective. At the end of 2015 there were approximately 441 units in operation around the world, with another 67 under construction. At the same time, there are approximately 134 units in some phase of decommissioning. Somewhat surprisingly, based on my personal—and probably incomplete—analysis, the 134 reactors:

- Have an average gross capacity of 440 MWe, thus are mostly small reactors you might expect to be the least economical.
- Have an average commercial operation lifetime of 22 years, suggesting that they were shut down far from the end of their engineering lifetime and suggesting an economic aspect to the choice to decommission.
- Have on average been shut down for 21 years, suggesting that cold storage is a prevailing choice of decommissioning strategies.
- Began their construction on average 50 years ago, suggesting that these are among the oldest of reactor units.

These statistics, from [ELECNUC 2016](#), include all types of reactors, including several old gas-cooled reactors, so they are average figures—and we all know that the average situation really does not represent anyone's particular situation. But I was recently told by a radiation protection manager (RPM) with decommissioning experience that he had provided a description of his own experience and things to look out for to another RPM from a plant beginning decommissioning. He was subsequently thanked profusely for the effort in time and radiation dose that his experience had saved.

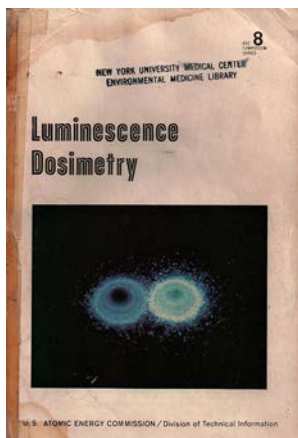
And you ask, how, Ted, are these things related? Well, the statistics, average or not, suggest to me that whatever happens to nuclear power, there are at least 650 plants that will need decommissioning, many of which are or will soon be in active decommissioning phases—so radiological protection work is essential. Then, it seems that the networks of RPM information exchange that work so effectively for plants in operation may well need some focus in terms of getting decommissioning experience exchange mechanisms in place.

So "the end is growing," and we should be prepared to not let it get out of hand, with everyone doing his or her own thing, like during the 1950s and 1960s nuclear expansion when every entity built its own custom reactor.



## Books Old, Obscure, or Out of Date

Mark L. Maiello, PhD



### *Luminescence Dosimetry*

**Proceedings of the International Conference on  
Luminescence Dosimetry  
Stanford University, Stanford, California  
21–23 June 1965**

**U.S. Atomic Energy Commission, April 1967**

Performing environmental radiation measurements with thermoluminescent dosimeters (TLDs) as practiced in the 1980s was a profoundly impactful experience. It was laborious and tedious, requiring endurance, patience, and concentration over eight hours or more of TLD preparation, calibration, and readout. Each of these steps—the field deployment, TLD retrieval (after weeks of exposure), dosimeter read-out, and data analysis—had to be performed with scrupulous attention to detail and without significant error. The TLDs had to be cleaned in methanol, annealed in temperature-controlled ovens for precisely measured time periods, calibrated in gamma-ray beams of known exposure rate accurately timed to deliver the preferred dose, annealed again before readout, and finally analyzed either to determine the nanocoulombs (nC) of charge per unit exposure in the case of calibration or simply the nC obtained from field exposure. Just the readout of hundreds of TLD calibration or field “chips” would keep one in the peace of solitude for a long workday or more.

My TLD experiences reminded me of mountain-secluded astronomers. In both graduate school (New York University) and in my first job (the Department of Energy’s former Environmental Measurements Laboratory [EML] in New York City\*), I found myself alone for hours on readout days, ensconced in small rooms where the TLD readers had been shoehorned. Human contact was rare. So the book *Luminescence Dosimetry* is not merely old, not just obscure and also out of date (but only because TL dosimetry has been supplemented and in some quarters, supplanted), it is a bittersweet reminder of the secluded, unheralded efforts required to properly squeeze light from crystals of lithium fluoride (and other compounds). That said, TL dosimetry really works when performed with care. The procedures described in this book are a testament to the patience and persistence of the contributors and all TL dosimetry practitioners.

#### **Book Ends:**

- *Luminescence Dosimetry* is accessible on the [Hathi Trust Digital Library website](#).
- The editor is Frank Herbert Attix, author of *Introduction to Radiological Physics and Radiation Dosimetry* (Wiley, 1991). He is perhaps more recognizable for his work with William Roesch and Eugene Tochilin, *Radiation Dosimetry*, Volumes I, II, and III (Academic Press, 1968). He is past chairman of the U.S. Naval Research Lab in Washington, DC.
- Another notable contributor is J.R. Cameron, who was instrumental in the development of the Medical Physics Department at the University of Wisconsin. For a historical account of that program see the [University of Wisconsin Medical Physics website](#).
- For an interesting debate about the virtues and pitfalls of TLDs and the more recently developed optically stimulated luminescence (OSL) dosimetry, see the 2003 article [“Topics Under Debate—On the Advantages and Disadvantages of Optically Stimulated Luminescence Dosimetry and Thermoluminescence Dosimetry”](#).

\*EML is now the National Urban Science and Technology Laboratory (NUSTL). EML was located on the 5<sup>th</sup> floor of 201 Varick Street. NUSTL is housed on the 9<sup>th</sup> floor.

## Members' Point of View

Jeffry A. Siegel, Nuclear Physics Enterprises, Marlton, NJ

Michael G. Stabin, Vanderbilt University, Nashville, TN

Carol S. Marcus, David Geffen School of Medicine at UCLA, Los Angeles, CA

The United States Nuclear Regulatory Commission (NRC) has issued for comment a revised [NUREG-1556, Volume 9](#), which was published in the *Federal Register* on 6 December 2016.

The 405-page guidance document contains a number of appendices. Of particular concern to us is Appendix U, dealing with the release of patients who have been administered radioactive materials. We have published over 20 articles and have commented directly to the NRC on numerous occasions regarding the deficiencies of the previous version of this appendix and are dismayed that all our work has been either ignored or dismissed.

The purpose of the revised Appendix U is to provide “acceptable procedures for the release of patients . . .” However, this entire appendix sets back the practice of radiation protection science at least 20 years, as most of the material is scientifically baseless, totally disregarding the plethora of published literature demonstrating the proper methodology.

The entire first part of Appendix U bases release on scientifically demonstrated incorrect parameter values using a totally discredited “point-source-in-air-physical-decay-only” algorithm, essentially retaining the “30-mCi” rule for Na<sup>131</sup>I patient release as an acceptable methodology. The assumed “calculated” dose is fictional, so it is an impossibility to properly instruct patients. This is certainly not a risk-informed, performance-based approach and should be deleted.

Radiation protection science and the published literature demand that patient release be based at the very least on patient-specific dose calculations. If a licensee is not able to perform these types of simple calculations, then the mandated training and experience to attain authorized user or radiation safety officer status is inadequate and should be strengthened. But it is no wonder that many licensees might be unable to perform patient-specific calculations because Appendix U deals almost exclusively with Na<sup>131</sup>I—and does so incorrectly.

Unfortunately, the revised Appendix U retains essentially all of the discredited science from the previous version and the proposed methodologies remain terribly flawed. The regulated community should no longer allow the NRC to simply ignore or dismiss the published peer-reviewed literature. In addition, and importantly, regulatory burden is added, an absolute no-no for a guidance document. Blind adoption of the recommendations in this flawed appendix will therefore result in significant negative impacts in the daily practice for medical licensees administering radionuclide therapy treatments.

We shall provide a lengthy critique and strongly encourage all affected licensees to carefully read the [proposed NUREG](#), particularly Appendix U, and likewise [provide comments to the NRC](#) by the 6 February 2017 deadline.

### Books by Health Physics Society Members

If you have recently had a book related to health physics published and would like it announced in *Health Physics News* and on the [Health Physics Society \(HPS\) website](#), please send the following information to [editormw@hps.org](mailto:editormw@hps.org): author's/editor's name (must be an HPS member), book title, description (up to 200 words), number of pages, year of publication, publisher, and ordering information.

**Check out this month's short course offerings**  
**[Starting on page 34](#)**

## REAC/TS



Steve Sugarman, CHP

While many people are familiar with the Radiation Emergency Assistance Center/Training Site (REAC/TS), the beginning of the new year seems to be a good time to remind those already familiar with REAC/TS who we are and to introduce those not familiar with the organization to what we are about. In addition, the changing year brings about changes to the way the REAC/TS articles in *Health Physics News* will be provided in the foreseeable future.

REAC/TS is the U.S. Department of Energy/National Nuclear Security Administration's (DOE/NNSA) emergency response asset tasked with the medical management of radiation incidents. REAC/TS physicians, health physicists, and nurses stand ready 24/7 to provide advice and consultation should the need arise. REAC/TS is also committed to a four-hour (within the 48 contiguous U.S. states) or six-hour (outside the continental United States) "out-the-door" response time. Supplementing the provision of medical and health physics advice and consultation, REAC/TS operates the country's only fully operational, full-time staffed, Comprehensive Laboratory Improvement Act-certified Cytogenetic Biodosimetry Laboratory (CBL), allowing for dose determination/verification based on biological responses to radiation doses.

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REAC/TS, located in Oak Ridge, Tennessee, is a part of the Oak Ridge Institute for Science and Education (ORISE), which is managed for DOE by Oak Ridge Associated Universities (ORAU).

In addition to the emergency-response requirements, REAC/TS is a leader in the provision of educational opportunities for medical-care providers and health physicists to improve their knowledge of the medical aspects of radiation incidents. REAC/TS staff has not only the academic credentials, but the real-life response experience necessary to provide an overall educational experience. REAC/TS in-house medical courses, as well as select off-site courses, are accredited for category 1 CME credits by the Accreditation Council for Continuing Medical Education (ACCME). The REAC/TS health physics course has been approved for American Academy of Health Physics credits.

REAC/TS also supports DOE/NNSA international outreach through educational courses and other collaborations directly with the host nation, the International Atomic Energy Agency (IAEA), and the World Health Organization (WHO). Currently REAC/TS is the only collaborating center in the United States designated by the WHO Radiation Emergency Medical Planning and Assistance Network (REMPAN). REAC/TS is also an asset that the DOE can bring to bear in response to requests for assistance from the IAEA's Response Assistance Network (RANET).

REAC/TS has undergone some pretty major personnel changes within the past several years. Leadership of the organization is now under only the third director that REAC/TS has had in the last 30-plus years. The CBL is under new leadership and continues to grow in its staff and capabilities. Many people think the REAC/TS staff is bigger than it actually is. Amazingly, REAC/TS full-time staff consists of only 12 very busy people. Following is a list of REAC/TS staff members. REAC/TS can be contacted via phone Monday–Friday (0800–1700 eastern) at 865-576-3131. The 24-hour number is through the DOE Oak Ridge Operations Center (865-576-1005). More information can be found on the [REAC/TS website](#).

- Nicholas Dainiak, MD, FACP, is the REAC/TS medical and technical director. Dainiak comes to REAC/TS via Yale University, where he was the chairman of medicine at Yale New Haven

Health–Bridgeport Hospital and professor of internal medicine and therapeutic radiation. Dai-niak still maintains his academic appointment at Yale University.

- Carol Iddins, MD, is the REAC/TS associate director. Iddins received her medical degree from the University of Tennessee and has worked with REAC/TS since 2009. Iddins is a diplomate of the American Board of Disaster Medicine and a veteran of the U.S. Air Force.
- Mark Jenkins, PhD, CSP, is the REAC/TS business operations manager and staff health physicist. He holds an MS in health physics and a PhD in industrial hygiene from the University of Cincinnati. Jenkins has been with REAC/TS for approximately 11 years.
- Steve Sugarman, MS, CHP, is the REAC/TS health physics project manager. He was board certified by the American Board of Health Physics in 2008 and holds an MS from the University of Tennessee in safety education and service. Sugarman has been with REAC/TS since January 1999.
- Wayne Baxter, RN, EMT-P, CPEN, is a REAC/TS staff nurse/paramedic. With decades of emergency experience, Baxter began work with REAC/TS in August 2014.
- Angie Bowen, BSN, EMT-P, CPEN, is a REAC/TS staff nurse/paramedic. Bowen has years of pediatric and emergency-response experience and has been with REAC/TS since August 2016.
- Adayabalam Balajee, PhD, technical director of the REAC/TS CBL, comes to REAC/TS by way of Columbia University. Balajee's doctorate degree is in molecular cytogenetics from Banaras Hindu University in Varanasi, India. He has been with REAC/TS since April 2015.
- Maria Escalona, MS, MLS (ASCP), is the lead biologist at the REAC/TS CBL. Escalona has been with REAC/TS since September 2014.
- Becky Murdock, AS, is the REAC/TS education coordinator. Murdock has been with ORAU since 1990 and with REAC/TS since 2002.
- Gail Mack-Bramlette, Glenda Gross, and Amanda Hughes constitute the REAC/TS administrative staff.
- Albert Wiley, MD, PhD, FACR (previous director) and Doran Christensen, DO (previous associate director) are still on board as part-time staff physicians and senior medical advisors.
- Ron Goans, PhD, MD, and Dick Toohey, CHP, PhD, augment REAC/TS technical expertise from their positions with MJW Corporation and Chew and Associates, respectively.

Under the leadership of Christensen, the "From the Case Files" series of articles proved to be a popular section of *Health Physics News*. In the future, REAC/TS articles in *Health Physics News* will be published every other month. As opposed to primary reliance on reviews of previous cases, the articles will concentrate on specific subject matter. This is not to say that we will not sometimes use incident scenarios to reinforce a point. The intent is to provide the readership with information necessary to help health physicists better support medical-care providers in the event of a radiation incident. Over the coming months, REAC/TS staff will provide articles about subjects such as medical management of acute whole-body doses, the role of cytogenetics in emergency response, and supporting emergency room/hospital response to a contaminated victim, to name a few. Each of the articles will be written by the staff members with subject-matter expertise in that particular area. The next currently planned article is an overview of the dicentric assay and how it is applied to radiation incident response.

Should you have concerns, comments, or specific requests for future topics, please send an [email to me](#). The staff here at REAC/TS understands that this is YOUR newsletter, and we want to do everything we can to provide information that is helpful to you in your future endeavors.

If you have information you would like to share with your fellow Health Physics Society members, such as a job promotion, award, or participation in a special conference or event, please send a paragraph or two (150–200 words) and a photo to [editormw@hps.org](mailto:editormw@hps.org).



## The HPS Effect

### Council of Scientific Society Presidents



**The Council of Scientific Society Presidents meeting at the Carnegie Institution in Washington, DC**  
Photo courtesy of Darrell Fisher

Health Physics Society (HPS) President Emeritus Darrell Fisher represented the HPS at a meeting of the Council of Scientific Society Presidents (CSSP) at the Carnegie Institution in Washington, DC, in early December. Fisher is a member of the CSSP executive board and an active participant in CSSP program planning and legislative strategy.

As might be expected, the member societies were highly anxious about the election outcomes and a potential Trump science agenda. Members voiced strong interest in having good scientists nomi-

nated to key science positions in the Executive Branch. Fisher gave an overview of the President-elect Transition Team nomination-and-selection process. He also presented the names of several HPS members for open positions in the next administration, seeking full council support.

Among the featured speakers at the council were Marcia McNutt (president of the National Academy of Sciences), Clayton Christensen (Harvard Business School), and Jeremy Berg (*Science* editor in chief). Kris Nygaard of ExxonMobil gave a thorough explanation of oil-well construction, hydraulic fracturing, and minimization of environmental impacts. Mark Zoback of Stanford University described the relationships between water removal from oil wells and induced seismicity. Elizabeth Loftus of the University of California at Irvine presented the Kavli Science at the Frontiers Lecture, "The Fiction of Memory."

## Announcements

### ConRad 2017—Global Conference on Radiation Topics 8–11 May 2017, Munich, Germany

The [ConRad Global Conference on Radiation Topics](#), organized by the Bundeswehr Institute of Radiobiology, will be held 8–11 May 2017 in Munich, Germany. Topics will include radiation preparedness, response, protection, and research. For more information, contact [Christina Beinke](#).

### 6<sup>th</sup> International Conference on Education and Training in Radiological Protection, 30 May–2 June 2017, Valencia, Spain

The [call for papers](#) for the 6<sup>th</sup> International Conference on Education and Training in Radiological Protection (ETRAP) 2017 is now available. The conference will be held 30 May–2 June 2017 in Valencia, Spain. More information is available on the [ETRAP 2017](#) website.

### CRPA 2017 Annual Conference, 5–7 June 2017 Saskatoon, Saskatchewan, Canada

The Canadian Radiation Protection Agency (CRPA) 2017 Annual Conference—"Reflecting on the Future"—will be held 5–7 June 2017 in Saskatoon, Saskatchewan, Canada, at the Radisson Hotel (405 20<sup>th</sup> St E, Saskatoon, SK S7K 6X6, Canada). The point of contact is Sue Singer, CRPA Secretariat, 613-253-3779, [secretariat@crpa-acrp.ca](mailto:secretariat@crpa-acrp.ca). More information is available on the [CRPA website](#).

## IRPA15 Recruiting for Committee Members

After the success of the 14<sup>th</sup> Congress of the International Radiation Protection Association (IRPA14) in Cape Town, South Africa, planners are forging ahead in preparation for the 2020 IRPA15 Congress in Seoul, Korea. The International Congress Organising Committee (ICOC) is recruiting candidates who are to be appointed by the associate societies for the International Congress Programme Committee (ICPC) Corresponding Group for IRPA15.

The ICPC is responsible for the scientific and technical programme of an IRPA congress within the framework formulated by the ICOC. In constituting the ICPC, IRPA15 organizers are looking for a group of young and highly qualified experts, with working methods being mainly by email.

All interested persons should send a short CV to Health Physics Society (HPS) [Executive Director Brett Burk](#) by 21 January 2017, before the 2017 HPS Midyear Meeting in Bethesda, Maryland. The composition of this team will be finalized around mid-April 2017.

## HPS Standards Corner

### Dave Fuehne to Be New ANSI/HPS N13 Environmental Section Manager

*J. Matthew Barnett, Chair, Accredited Standards Committee N13, Radiation Protection*



**Dave Fuehne working in the field with a shrouded probe**  
Photo courtesy of Fuehne

Dave Fuehne was approved on 11 November 2016 as the new Environmental Section Manager by the Accredited Standards Committee (ASC) N13, *Radiation Protection*. In this role, he will help coordinate the development of new and proposed standards addressing environmental radiation protection as well as assist in the reaffirmation and revision of existing standards in the section. Dave has been an active participant on the standard ANSI/HPS N13.1, *Sampling and Monitoring Releases of Airborne Radioactive Substances From the Stacks and Ducts of Nuclear Facilities*, and the project N13.61, *Sampling and Monitoring Airborne Radioactive Substances From the Ambient Atmosphere*, for the past several years, making him familiar with the standard-preparation process.

Dave has worked at Los Alamos National Laboratory for 22 years, predominantly in the environmental compliance area. He is currently the technical program manager for the Radionuclide National Emissions Standards for Hazardous Air Pollutants (NESHAP) Compliance Program, which manages 27 major air-emissions sources, over 80 minor sources of radionuclide air emissions, and 40 ambient-air-monitoring stations. In past years, he has been team leader for the Environmental Radiation Protection Program and served a stint as group leader for the Environmental Stewardship Group. Dave's unique experience in bringing commonsense approaches to radiation monitoring and in meeting requirements without expending scarce resources will prove an asset in the standard-development process.

Dave, a certified health physicist, has been a member of the Health Physics Society for 20 years. He has an MS in health physics from Texas A&M University and a BS in nuclear engineering from the University of Illinois. Outside of work, Dave volunteers in school activities for his three children, referees high school basketball, enjoys hiking the abundant trail network around Los Alamos, and is a pitcher for the Spacenukes softball franchise.

Visit the HPS website for more news about the Society  
and health physics — [Current News](#)

## Notes

### Radium Journal Back Again

Joel O. Lubenau, CHP

The journal *Radium* was published 1913–1925 by the Radium Publishing Company, a subsidiary of the Standard Chemical Company of Pittsburgh, Pennsylvania, the first and largest American producer of radium. It is an invaluable resource for researching early production and medical applications of radium and the dangers to radium workers.

The Carnegie Library of Pittsburgh (CLP) has a complete set of the journal that was donated by the publisher. In 2010 CLP made it available online. Last year, during the library's transition to a new online platform, problems were encountered in accessing the digital files from the old server. The result was (1) loss of online access and (2) no certainty as to when the files could be recovered from the old server.

Fortunately, a researcher had downloaded the *Radium* files shortly after they were made available in 2010 and offered them to the CLP as a replacement. This enabled the CLP to repost *Radium* online recently. You can access *Radium* through the [catalog listing](#) or through a [direct link](#).

CLP's statement of rights and terms of use of the digital files states, "This digital object is protected under U.S. and international copyright laws and is copyright by Carnegie Library of Pittsburgh. You may copy, modify, or distribute this object for any non-commercial or educational purpose." With those standard restrictions, the journal *Radium* is back again.

## CHP Corner



AMERICAN ACADEMY OF HEALTH PHYSICS email: [AAHP@burkinc.com](mailto:AAHP@burkinc.com)

1313 Dolley Madison Blvd. ■ Suite 402 ■ McLean, VA 22101 ■ 703-790-1745 ■ FAX: 703-790-2672

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Email: [mzittle@uw.edu](mailto:mzittle@uw.edu)

### 2016 ABHP Certification Exam Results

Nancy Johnson, Executive Director

#### Congratulations!

The results of the 2016 American Board of Health Physics (ABHP) certification exam are as follows: 64 out of 152 candidates passed Part I and 35 out of 94 candidates passed Part II.

The following individuals have successfully completed the ABHP certification examination process and are eligible for certification:

Alexander, Daniel E.

Beal, William C.

Beckfield, Felicity J.

Boozer, David L.

Evans, Kayla E.

Fong, Show-Hwa L.

Green, Kelly A.

Green, Jeffrey A.

Hallworth, John M.

Hammersborg, Kaylie H.

Harshman, Amber M.

Hogue, Nathan G.

Kim, Karen S.

Kinne, Craig S.

Krzyaniak, Nathan A.

Luo, Peng

Madairy, Paul R.

Manickam, Vivek

Marshall, Aaron J.

Matta, Tina

McNeel, Jason L.

Meikle, Andrew T.

Metyko, John P.

Monnig, Robert E.

Ngachin, Merlin

Pate, William J.

Rai, Arif M.

Simpson, Eric J.

Spence, Justin I.

Stanford, Susan E.

Tai, Lydia I.

Tries, Mark A.

Western, Evan T.

Wrubel, Neil

The following individuals successfully completed one part of the 2016 ABHP certification examination process:

Akintokun, Adekunle H.	Guindon, Addasonne M.	Prioleau, Wagnus D.
Ash, David A.	Harling, Sean K.	Puckett, Robert R.
Baca, Michelle A.	Hawkley, Gavin C.	Rabon, Adam C.
Baker, Steven C.	Hendrickson, Craig E.	Register, Cade J.
Barker, Andrea K.	Hinchcliffe, William A.	Riley, Nathan J.
Bruns, Michael	Hopponen, Chad E.	Riley, Robert L.
Caffrey, Emily A.	Huff, Nathaniel O.	Roberts, Amy N.
Cappon, Derek J.	Jandeska, Adam	Saha, Krishnendu
Caudill, Jeffrey S.	Jordan, Robert B.	Sexton, Jenna L.
Cho, Steven S.	Klumpp, John A.	Sivasubramanian, Lakshmi
Costeira, Thomas J.	Lai, Matthew	Sobolesky, Marc C.
Day, Quinon L.	Larsen, Kevin B.	Spichiger, Gary M.
Doenges, Daniel D.	Liu, Ruirui	Sublett, Sarah M.
Dorrell, Nicholas J.	Lobaugh, Megan L.	Thompson, Barbara J.
Edelman, Jacob W.	McAllister, David K.	Underwood, James K.
Edwards, Andrew C.	McMahon, Kieran J.	Walnicki, Scott A.
Finkenbine, Charles D.	Molina, Gustavo	Wang, Chu
Gallagher, Thomas M.	Panfel, Jacob R.	Wassenaar, Richard W.
Goke, Sarah H.	Park, Raina J.	Wirth, Marilyn M.
Greene, Robert A.	Paulu, David G.	Wofford, Angela M.
Grove, Travis J.	Phipps, Jasiri	

**A NOTE OF THANKS:** The ABHP appreciates the help of the many certified health physicists (CHPs) who have donated many hours of their time to develop and grade the exams and to serve as proctors. Without their help, the examinations could not have taken place.

#### REMINDERS

- Exam applications must be postmarked by 15 January 2017.
- Nominations for the William McAdams Award should be made on or before 2 March 2017.
- Nominations for the Joyce P. Davis Award should be made on or before 1 March 2017.

Information about these awards can be found on the [Academy website](#).

And again...



**ABHP EXAM APPLICATION REMINDER**

The time is NOW! Applications to take either part of the 2016 ABHP examination must be filed with the Secretariat, and postmarked **no later than 15 January 2017**.

Application information may be found [here](#).

Have you been thinking about a job change? Don't forget there are job opportunities on the Members Only section of the Health Physics Society website.

Check out the job postings at <https://hps.org/membersonly/employment/jobs>.



## Short Courses

There is a \$100 fee for each training course advertised (up to 450 words).

Send short course advertisements to:

News Editor Mary A. Walchuk  
19884 Fish Lake Lane  
Elysian, MN 56028  
Phone: 507-267-4447  
Email: [editormw@hps.org](mailto:editormw@hps.org)

Listings that reach the office by **10 January 2017** will appear in the February 2017 issue of *Health Physics News*. *Health Physics News* retains the right to edit short course listings to conform to *Health Physics News* format.

For information about specific short courses, contact the offeror.

**BEVELACQUA RESOURCES.** Attn: Dr. Joseph J. Bevelacqua, CHP, PhD, RRPT, 343 Adair Drive, Richland, WA 99352; 509-628-2240 or 509-521-8036; email: [bevelresou@aol.com](mailto:bevelresou@aol.com); website: [bevelacquaresources.com](http://bevelacquaresources.com); Facebook: Join us as a friend of Joseph Bevelacqua & Bevelacqua Resources; Twitter: Follow Bevelacqua Resources at [@JJB007](https://twitter.com/JJB007); LinkedIn: Connect with Joseph Bevelacqua

**TITLE: Certification Review Course Part I; Self-Study Course Part I; Background Materials Review; Part I Question & Answer CD and Site License; Part I Additional Question & Answer Volume; NRRPT Question & Answer CD and Site License.** This course and supporting materials prepare candidates for the successful completion of the Part I American Board of Health Physics (ABHP) Certification Examination. Historically, our students have achieved passing rates that exceed the average exam passing rates. The Part I Course has been granted 40 CECs (2014-00-014). The instructor, Dr. Bevelacqua, was an ABHP Part II Panel member, vice-chairman, and chairman. His experience gained in developing the certification examination and knowledge of candidate weaknesses have strengthened the content of this course and supporting materials. Examination strategies and techniques for successfully passing the examination are emphasized. **Part I Course:** The Part I Course is intense, with lectures followed by problem sessions. An exam-specific mathematical review is included with the course. About 30% of the course is devoted to problem solving, with instructor critique and guidance provided to each student. The Part I Course materials include the Part I Self-Study Course materials. Class times are 0815–1700 each day. The Part I Self-Study Course contains 1,600+ problems with solutions, the textbook *Basic Health Physics*, detailed course notes, examination preparation materials, and a summary of recent (1997–present) NCRP reports. **Supporting Materials:** In addition to the materials used in the Part I Course, supporting materials are available to assist a student's certification preparation: (1) A Background Materials Review (BMR) of basic mathematics, physical science, and operational health physics is available to assist students with weaknesses in these areas. The BMR includes 700 questions and solutions and the textbook *Basic Health Physics*. (2) The Part I Additional Question and Answer Volume contains 440 Part I Questions and Answers, 200 background material questions with solutions, and *Basic Health Physics*. (3) The Part I CD contains 1,500+ problems with solutions, examination strategy recommendations, and *Basic Health Physics*. (4) The National Registry of Radiation Protection Technologists (NRRPT) CD contains 1,500+ problems with solutions, examination strategy recommendations, and *Basic Health Physics*.

**EXAM DATE:** 10 July 2017

**FOREIGN STUDENT ADVISORY:** The course language is English. Translation services are not provided.

**DATES:** 3–7 April 2017

**FEES (\*):** \$3,350 (Part I Course)

\$2,650 (Part I Self-Study Course)—Includes domestic shipping and handling.

\$1,950 (Part I CD with 1,500+ Questions and Answers)—Includes domestic shipping and handling.

\$1,950 (NRRPT CD with 1,500+ Questions and Answers)—Includes domestic shipping and handling.

Site Licenses are available for both CDs—License fee prices are available on request.

\$2,150 (Background Materials Review)—Includes domestic shipping and handling.

\$2,150 (Part I Additional Q&A Volume)—Includes domestic shipping and handling.

Foreign shipping and handling depends on the destination country.

\*Given pending changes to federal and state tax structures, fees are subject to change. All credit card purchases incur a 4% surcharge. Foreign purchases are subject to additional fees. Any changes will be announced on Facebook, Twitter, and LinkedIn and in subsequent *Health Physics News* ads.

**REFUND POLICY:** Based on local, state, and federal accounting requirements, no inventory is maintained. Given these restrictions, no refunds are available after an order is processed.

**PLACE:** Red Lion Hotel/Richland Hanford House  
802 George Washington Way, Richland, WA 99352  
509-946-7611

**BEVELACQUA RESOURCES.** Attn: Dr. Joseph J. Bevelacqua, CHP, PhD, RRPT, 343 Adair Drive, Richland, WA 99352; 509-628-2240 or 509-521-8036; email: [bevelresou@aol.com](mailto:bevelresou@aol.com); website: [bevelacquaresources.com](http://bevelacquaresources.com); Facebook: Join us as a friend of Joseph Bevelacqua & Bevelacqua Resources; Twitter: Follow Bevelacqua Resources at [@JJB007](https://twitter.com/JJB007); LinkedIn: Connect with Joseph Bevelacqua

**TITLE: Certification Review Course Part II; Self-Study Course Part II; Background Materials Review; NRRPT Question & Answer CD and Site License.** This course and supporting materials prepare candidates for the successful completion of the Part II American Board of Health Physics (ABHP) Certification Examination. Historically, our students have achieved passing rates that exceed the average exam passing rates. The Part II Course has been granted 40 CECs (2014-00-013). The instructor, Dr. Bevelacqua, was an ABHP Part II Panel member, vice-chairman, and chairman. His experience gained in developing the certification examination and knowledge of candidate weaknesses have strengthened the content of this course and supporting materials. Examination strategies and techniques for successfully passing the examination are emphasized. **Part II Course:** The Part II Course is intense, with lectures followed by problem sessions. An exam-specific mathematical review is included with the course. About 60% of the course is devoted to problem solving, with instructor critique and guidance provided to each student. The Part II Course materials include the Part II Self-Study Course materials. Class times are 0815–1700 each day. The Part II Self-Study Course includes the textbook *Contemporary Health Physics*, sixteen Part II examinations with solutions, detailed lecture notes, examination-preparation materials, and a summary of recent (1997–present) NCRP reports. **Supporting Materials:** In addition to the materials used in the Part II Course, supporting materials are available to assist a student's certification preparation: (1) A Background Materials Review (BMR) of basic mathematics, physical science, and operational health physics is available to assist students with weaknesses in these areas. The BMR includes 700 questions and solutions and the textbook *Basic Health Physics*. (2) The National Registry of Radiation Protection Technologists (NRRPT) CD contains 1,500+ problems with solutions, examination strategy recommendations, and *Basic Health Physics*.

**EXAM DATE:** 10 July 2017

**FOREIGN STUDENT ADVISORY:** The course language is English. Translation services are not provided.

**DATES:** 8–12 May 2017

**FEES (\*):** \$3,350 (Part II Course)

\$2,650 (Part II Self-Study Course)—Includes domestic shipping and handling.

\$1,950 (NRRPT CD with 1,500+ Questions and Answers)—Includes domestic shipping and handling.

Site Licenses are available for the CD—License fee prices are available on request.

\$2,150 (Background Materials Review)—Includes domestic shipping and handling.

Foreign shipping and handling depends on the destination country.

\*Given pending changes to federal and state tax structures, fees are subject to change. All credit card purchases will incur a 4% surcharge. Foreign purchases are subject to additional fees. Any changes will be announced on Facebook, Twitter, and LinkedIn and in subsequent *Health Physics News* ads.

**REFUND POLICY:** Based on local, state, and federal accounting requirements, no inventory is maintained. Given these restrictions, no refunds are available after an order is processed.

**PLACE:** Red Lion Hotel/Richland Hanford House

802 George Washington Way, Richland, WA 99352

509-946-7611

**REED COLLEGE RESEARCH REACTOR.** 3203 Southeast Woodstock Blvd., Portland, OR 97202-8199; voice: 503-777-7222; fax: 503-777-7274; email: [reactor@reed.edu](mailto:reactor@reed.edu); website: <http://reactor.reed.edu>

**TITLE: Radiation Safety Officer Class.** This course is designed to provide radiation safety officers (RSOs) and assistant RSOs with an introduction to the practice of health physics. Regulation and documentation will be covered in addition to the practical skills necessary to perform the duties of RSO. Topics will include atomic structure, radioactivity, shielding, regulations, radiation, and its biological effects; dosimetry; instrument selection, use, and calibration; contamination control; emergency planning; radioactive waste management; transportation; and laser safety. The facility includes an operating TRIGA nuclear reactor that will provide the basis for some of the laboratory exercises. The course concludes with a final exam and certificate.

**DATES:** 19–23 June 2017

**FEE:** \$1,500

**PLACE:** Portland, Oregon

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**TECHNICAL MANAGEMENT SERVICES, INC.** Attn: Robin Rivard, PO Box 226, New Hartford, CT 06057; 860-738-2440; fax: 860-738-9322; email: [info@tmscourses.com](mailto:info@tmscourses.com). For other course listings please visit our website: [tmscourses.com](http://tmscourses.com).

**TITLE: Principles of Radiation Shielding.** This five-day course focuses on the fundamentals of the production and interaction of ionizing radiation with matter and on how to use these fundamental properties to estimate and reduce radiation doses in practical situations. Simplified analytical and computer-based methods are presented for estimating doses from gamma rays, neutrons, beta particles, and alpha particles. Both the similarities and differences in shielding methods for different types of radiation are presented. The application of fundamental shielding principles to a wide variety of important radiation protection problems is emphasized. In addition, special approximate techniques applicable for a particular radiation or special geometry are also reviewed. The course is based on the widely used textbook *Radiation Shielding* by Professors Shultis and Faw. This text and additional supplementary material will be provided to all course registrants.

**DATES:** 16–20 January 2017

**FEE:** \$1,295

**PLACE:** San Francisco, California

**TITLE: External Radiation Dosimetry.** This five-day course provides a review and update of recommended approaches to external dosimetry with a focus on the nuclear power industry (but the discussions on personnel monitoring and portable survey instrumentation are applicable to any radiation protection program). Also included is a discussion of special exposure situations including hot-particle exposures and multiple badging requirements. Standards applicable to personnel monitoring devices and portable survey instruments will be discussed in addition to recommended calibration techniques. This course is designed to help you understand: the basic principles used to determine absorbed dose equivalent to the whole body, skin, extremities, and affected organs; recent International Commission on Radiological Protection recommendations and limits for external exposures; operating principles of personnel monitoring devices, including the advantages and limitations of various TLD types; the latest techniques for determining shallow skin dose from hot particles; record keeping and reporting of regulatory compliance; assessment of the need and approach to multiple badging; the proper selection of portable survey instruments to assess exposure rates; and the principles of effective ALARA (as low as reasonably achievable) program design and documentation.

**DATES:** 30 January–3 February 2017

**FEE:** \$1,295

**PLACE:** Las Vegas, Nevada

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**RSO SERVICES, INC.** Contact: Robert Harrison, PO Box 575, Niceville, FL 32588; 850-651-0777; fax: 866-254-3211; email: [info@rsoservices.com](mailto:info@rsoservices.com); website: [rsoservices.com/school](http://rsoservices.com/school)

**TITLE: Radiation Safety Officer (RSO) School and Refresher Class.** Michael Hensley, PhD, senior radiation specialist and instructor, has been providing a full 40-hour RSO School and Refresher Class for over 40 years. The course is updated throughout the year for the latest changes in all aspects of being a radiation safety officer as approved by the states and the Nuclear Regulatory Commission. We specialize in industrial fixed gauges, x-ray sources, naturally occurring radioactive material, disposals, and more. We have a broad spectrum of customers from all industries: power, chemical, oil/gas, pulp and paper, mining, hospitals, government, radiography, etc. We offer no electives because everything is covered and course emphasis is given based on the attending students' work field. Please check our website at [rsoservices.com/event-calendar](http://rsoservices.com/event-calendar) for the latest school dates and optional on-site training at your facility. Textbook, calculator, pad, pen, and beverages are included.

**2017 DATES:**

9–13 January 2017: Jasper, Alabama

17–21 April 2017: Pigeon Forge, Tennessee (in the Smoky Mountains)

5–9 June 2017: Orange Beach, Alabama (on the Beautiful Gulf Shores)

31 July–4 August 2017: Orange Beach, Alabama (on the Beautiful Gulf Shores)

25–29 September 2017: Orange Beach, Alabama (on the Beautiful Gulf Shores)

6–10 November 2017: Pigeon Forge, Tennessee (in the Smoky Mountains)

January–December 2017: Anytime, Anywhere, One-week on-site training at your facility

**FEE:** 40-hour class is \$1,495 and Refresher Class is \$925

**RADIATION SAFETY & CONTROL SERVICES, INC.** Attn: Ginger Nownes, 91 Portsmouth Avenue, Stratham, NH 03885; 800-525-8339 or 603-778-2871 (x220); fax: 603-778-6879; email: [ganownes@radsafety.com](mailto:ganownes@radsafety.com); website: [radsafety.com](http://radsafety.com)

**TITLE: Radiation Safety Officer Training Class.** This comprehensive 40-hour course provides students with a balance of technical and theoretical information along with practical applications of radiation safety. Fundamental concepts are presented in a logical progression, providing a sound basis for understanding the day-to-day requirements of the radiation safety officer (RSO). An optional exam for RSOs whose programs require testing is provided along with a Department of Transportation exam. References from past students are available upon request. The three instructors of the course are certified health physicists with a combined 70 years of experience in their field. As RSCS principals, they operate a nuclear instrumentation calibration facility and an analytical measurement laboratory and also perform consulting for radioactive material licensees. Continuing education credits have been approved by the American Academy of Health Physics (40 continuing education credits) and the American Society of Radiologic Technologists (40 hours of Category A continuing education credits).

**DATES:** 27 February–3 March 2017, Orlando, Florida  
5–9 June 2017, Exeter, New Hampshire  
25–29 September 2017, Exeter, New Hampshire  
5–9 December 2017, Las Vegas, Nevada

**FEE:** \$1,495 (Includes all materials, daily continental breakfast and snack breaks, and a catered lunch and social on the first day of the course)

**PLACE:** Orlando, Florida; Exeter, New Hampshire; Las Vegas, Nevada

For information on advertising in *Health Physics News*,  
see the HPS website at [hps.org/hpspublications/adinfo.html](http://hps.org/hpspublications/adinfo.html)  
or contact News Editor Mary Walchuk at [editormw@hps.org](mailto:editormw@hps.org).

### Code of Ethics for the Members of the Health Physics Society

These principles are intended to aid members of the Health Physics Society, individually and collectively, in maintaining a professional level of ethical conduct. They are intended as guidelines by which members may determine the propriety of their conduct in relationships with employers, coworkers, clients, governmental agencies, members of other professions, and the public.

- Members of the Society shall give support to the objectives of the Health Physics Society.
- Members shall strive to improve their professional knowledge and skill.
- Each member shall be a judge of his/her competence and will not undertake any assignment beyond his/her abilities.
- All relations with employers, coworkers, clients, governmental agencies, and the general public shall be based upon and shall reflect the highest standard of integrity and fairness.
- Members shall never compromise public welfare and safety in favor of an employer's interest.
- No employment or consultation shall be undertaken which is contrary to law or the public welfare.
- Members will gladly accept every opportunity to increase public understanding of radiation protection and the objectives of the Society.
- Professional statements made by members shall have sound scientific basis. Sensational and unwarranted statements of others concerning radiation and radiation protection shall be corrected, when practical.
- Members shall protect the sources of confidential communications, provided that such protection is not itself unethical or illegal.



## Upcoming Events

- [50<sup>th</sup> HPS Midyear Meeting](#)  
22–25 January 2017, Bethesda, Maryland
- [62<sup>nd</sup> HPS Annual Meeting](#)  
9–13 July 2017, Raleigh, North Carolina
- 63<sup>rd</sup> HPS Annual Meeting  
15–19 July 2018, Cleveland, Ohio
- 64<sup>th</sup> HPS Annual Meeting  
7–11 July 2019, Orlando, Florida

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### Officers of the Health Physics Society:

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Eric Abelquist, President-elect  
Nancy Kirner, Past President  
Eric Goldin, Secretary  
Karen Langley, Secretary-elect  
Michael Lewandowski, Treasurer  
Brett J. Burk, Executive Director

### Health Physics News Contributions and Deadline

Items received by the news editor by 10 January and approved by the Web Operations editor in chief will be printed in the February issue.

### HPS Disclaimer

Statements and opinions expressed in publications of the Health Physics Society or in presentations given during its regular meetings are those of the author(s) and do not necessarily reflect the official position of the Health Physics Society, the editors, or the organizations with which the authors are affiliated. The editor(s), publisher, and Society disclaim any responsibility or liability for such material and do not guarantee, warrant, or endorse any product or service mentioned. Official positions of the Society are established only by its Board of Directors.

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HPS Home Page URL: [hps.org](http://hps.org)

## From the Archives

*Jim Willison, CHP, History Committee Chair*



Occasionally, news stories pop up that have a connection to the history of the Health Physics Society (HPS). The horrific wildfires in Gatlinburg, Tennessee, have recently been put out. Many may not know that the 1959 HPS Annual Meeting was held in Gatlinburg and that it was at this meeting that the first gathering of the American Board of Health Physics took place.

In this picture from the banquet at the Gatlinburg meeting, we see (from left) future HPS President John Laughlin, President-elect Elda Anderson, President Lauriston Taylor, and University of Tennessee President Andrew Holt.

This is just one of many pictures from past [annual meetings](#) and [midyear meetings](#) of the HPS that are available for viewing on the HPS website. Stop by sometime and have a look.

### Article II, Section 1, of the Bylaws of the Health Physics Society declares:

"The SOCIETY is a professional organization whose mission is excellence in the science and practice of radiation safety. SOCIETY activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. SOCIETY members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits."

*Health Physics News* is intended as a medium for the exchange of information among members. *Health Physics News* is published monthly in electronic format and is available on the Health Physics Society website to the members of the Society as a benefit of membership.

### CHANGE OF EMAIL, ADDRESS, PHONE, OR FAX INFORMATION

To receive notices when the latest issue of *Health Physics News* is available online, keep your email address current via the Health Physics Society website ([hps.org](http://hps.org)) in the Members Only section. Address, phone, and fax information can be changed there also. The changes will be made to the website database and will automatically be sent to the Health Physics Society Secretariat so that changes will also be made on the Society database.