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In This Issue

Standing Room Only at "Consistency in Radiation Protection Standards" Timely Plenary Session at the 2012 HPS Annual Meeting

Barbara Hamrick, CHP


Barbara Hamrick

At this year's Health Physics Society (HPS) annual meeting in Sacramento, California, I had the honor of sharing the plenary session dais with many speakers, both nationally and internationally renowned for their work in health physics and related fields. The session was both well attended and well received, due in part to the timely theme chosen by Past President Kathryn Pryor, "Consistency in Radiation Protection Standards."

Not surprisingly, the presentations focused on the potential harmonization of U.S. regulations with the International Commission on Radiation Protection (ICRP) Publication 103 recommendations. Our U.S. radiation protection regulations have not seen a major change since the U.S. Nuclear Regulatory Commission (NRC) made significant revisions to title 10 of the Code of Federal Regulations, Part 20 (10 CFR 20) in 1991 to incorporate recommendations contained in ICRP Publication 26. Ironically, that major change came on the heels of ICRP Publication 60, which was published slightly too late to be considered in the 1991 revisions to 10 CFR 20.

Why This Is the Time to Adopt ICRP 103

Dr. Jack Valentin, a consultant on radiological protection at the Karolinska Institute in Stockholm, Sweden, scientific secretary emeritus for ICRP, and this year's G. William Morgan Lecturer, kicked off the session with an entertaining exploration of why this is the right time for the United States to adopt ICRP Publication 103 recommendations. Valentin took the audience through the history of international radiation protection recommendations, beginning with the 1928 recommendation for occupational exposure in medicine to avoid deterministic harm and culminating in the ICRP Publication 103 recommendations related to occupational and public exposure, focused on reducing the risk of probabilistic harm.


Dr. Jack Valentin

Valentin shared data from the United Kingdom and Canada related to the cost of those countries' adoption of the ICRP Publication 60 recommendations and their further transition to the ICRP Publication 103 recommendations. In both cases, the costs nationwide were modest and primarily related to the increase in the number of occupationally exposed persons requiring personal monitoring. In addition, he provided practical advice based on the experience of other countries with respect to ensuring a successful process for the change, which included (1) long lead-in times for the change, (2) extensive stakeholder involvement, (3) flexibility in the timing of the changes to legislation and regulation, and (4) a constructive relationship between the regulators and licensees to work through licensee-specific or activity-specific potential impediments to a smooth transition.

Valentin closed with a concise list of benefits that await the United States upon our adoption of the ICRP Publication 103 recommendations above and beyond the dose savings for our workers and the public. These included long-term lower operational costs for licensees due to improved planning processes and a boost to our national reputation among the international radiation protection community. Overall, Valentin laid out a compelling case for the adoption of the ICRP Publication 103 recommendations by the United States in the near term.

Worldwide Harmonized Radiation Protection Standards: An Essential Asset for Safety

Renate Czarwinski

The next speaker was Renate Czarwinski, former head of International Atomic Energy Agency (IAEA) Radiation Safety and Monitoring, International Radiation Protection Association (IRPA) president, and this year's Robert Landauer Lecturer. Czarwinski's presentation focused on the relationship between consistent (or harmonized) regulation and safety from a global perspective. She provided a comprehensive discussion of how all the various organizations, including ICRP, IRPA, and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), among other organizations, work in harmony to develop, revise, and disseminate radiation protection standards. Beginning with the assessment of the underlying science by UNSCEAR, through the translation of that science to general principles of radiation protection by ICRP and others, through the establishment of specific radiation protection standards by the IAEA, among others, to the ultimate adoption and enforcement of these standards by national and local agencies throughout the world, Czarwinski gave an inclusive overview of the international framework supporting radiation protection recommendations and guidance.

Czarwinski detailed the importance of global harmonization of radiation protection as new and increasingly complex radiological technologies are developed. Harmonization of radiation protection standards serves to reduce errors in communication and increases international collaboration in research and development. Harmonization also simplifies international transport, enhances cooperation in the global security community, and reduces risk of miscalculation or inaccuracy in global emergency-response efforts, such as the international response to the 2011 event at Fukushima Daiichi.

Perhaps Czarwinski's most important point was that relating to the strength of the science underlying the recommendations, the transparency and inclusiveness in the development process, and the public confidence to be gained by relying on international scientific consensus for the development of radiation protection standards.

NCRP and International Consistency in Radiation Protection Standards

The third speaker was Dr. John Boice, professor of medicine at the Vanderbilt University School of Medicine, current president of the National Council on Radiation Protection and Measurements

(NCRP), and this year's Dade Moeller Lecturer. As president of NCRP, Boice brought a unique perspective to the issue of harmonization, which arose from the NCRP's Congressional Charter specifying that NCRP shall cooperate with ICRP. Boice focused on the similarities of NCRP and ICRP recommendations in the context of the overarching goals of the recommendations.


John Boice

While generally supporting the adoption of many of ICRP's recommendations, Boice pointed out that consistency does not require identicality. A particularly cogent example of this thinking relates to the recommendation regarding occupational exposure limits. Essentially, the ICRP has recommended that the occupational dose limit be 100 millisieverts over five years, with no single year exceeding 50 millisieverts. One of the primary considerations related to this recommendation is the limitation of lifetime dose. As an alternative, the NCRP has proposed that the annual dose limit remain at 50 millisieverts per year, with an additional lifetime cap of 10 millisieverts multiplied by the occupationally exposed individual's age in years; thus, the intent of the ICRP recommendation (limiting lifetime dose) is met while the annual dose limit remains unchanged.

Boice also recognized that the ICRP's most recent recommendations reflect a strong scientific consensus on revised dose-calculation methodologies and that these newer approaches can and should be incorporated into the assessment of dose in the United States irrespective of whether the dose limits themselves are changed.

Boice's principal message was that of recommending substance over form. Globally, radiation protection professionals embrace the fundamental concepts of justification, optimization, and dose limitation. Consistency with international standards may be fully achieved by applying these principles in the context of the most current scientific knowledge, using alternative standards that meet the same underlying goals of avoiding deterministic harm and minimizing probabilistic harm.

NRC Activities to Examine Increasing Alignment with International Radiation Protection Standards


Mark Satorius

Next up was Mark Satorius, director of the NRC Office of Federal and State Materials and Environmental Management Programs. Satorius provided the audience with a look back at the NRC's efforts related to the adoption of the ICRP Publication 103 recommendations, beginning with the 2009 *Federal Register* notice seeking public comment on the potential changes to 10 CFR 20 and ending with the most recent staff recommendations issued 25 April 2012 in a Commission paper (SECY-12-0064).

Satorius explained that the current radiation protection standards in 10 CFR 20 are an admixture of prior ICRP recommendations, and the intent of recent efforts to revise these regulations is to bring the U.S. regulations into alignment with the most current scientific knowledge relating to the risks of radiation exposure. He mentioned that the regulatory process involving a major change to the basic radiation protection limitations may be quite protracted, extending over many years, involving multiple iterations of the proposed rule change, extensive public participation and comment, and thoughtful consideration of certain unique circumstances experienced by some classes of licensees.

ICRP Recommendations and U.S. Standards for Radiation Protection: How We Got Out of Step

The fifth speaker was Michael Boyd, senior health physicist in the Radiation Protection Division of the U.S. Environmental Protection Agency (EPA). Boyd took a look back at the history of radiation protection in the United States, beginning with its roots in the first incarnation of the


Michael Boyd

ICRP in 1928 and moving through the establishment of the Atomic Energy Commission in 1946, the Federal Radiation Council in 1959, and the EPA in 1970. Between 1928 and 1977, the U.S. standards for radiation protection remained reasonably consistent with the international recommendations.

In 1977 a major shift occurred with ICRP Publication 26, which contained recommendations that introduced new concepts and principles to support the long-standing goals of the radiation protection standards to protect human health.

Boyd explained that it is not simply our protracted rulemaking process that inhibits a timely response to new recommendations, but also many aspects of our system of law that are in place to protect against arbitrary regulatory action. One such protection is the "anti-backsliding" provision of the Safe Drinking Water Act, which is in place to prevent revising maximum contaminant levels (MCLs) upward to allow more of a contaminant in drinking water than was allowed in the past. This has the unusual effect that if the EPA were to use newer dosimetry models to calculate MCLs, some would rise and some would fall, but the EPA could only adopt those that fall, meaning the new MCLs would be based on a mixture of dosimetry models depending on which one provided the lowest MCL for each contaminant.

The NRC is also constrained by its "backfit rule," which provides that a rulemaking that will require changes to an existing system or process must result in a cost-justified substantial increase in protection of the public health and safety or the common defense and security. Simply improving the science on which the regulations are based may not translate into such a cost-justified increase in protection.

Nevertheless, since the 1990s, the United States has embraced concepts in ICRP Publication 60 and later publications in a piecemeal manner, with the NRC allowing licensees to request to use newer dosimetry models contained in later publications and the EPA developing the Yucca Mountain disposal standards based on those same models.

Consistency in Regulations: Sources, Obstacles, and Resistance in the User Community

Closing this session, I chose to approach the topic from a more philosophical angle, with a discussion of what consistency really means and why it is or isn't a desirable goal. In addition, as a representative of the licensed community, I shared some real-life consequences that may arise from a rigid or sudden adoption of the current ICRP recommendations. Of particular concern are those potential consequences to our older and most experienced interventional radiologists.

I also presented some suggestions on how the United States might move closer to consistency with the international recommendations, while avoiding any precipitous changes or unintended negative consequences. These suggestions included moving toward a single system of units. Recognizing that it is extremely unlikely we would revert solely to using the traditional units, this single system would necessarily be the International System of Units (SI units). Taking up Boice's suggestion of a lifetime dose cap based on age, I further refined the suggestion to include a grandfathering period for those professionals who may have already reached the proposed lifetime cap.

In some ways, the entire session was a tribute to reasoned compromise. It seemed we all agreed to agree that change was likely coming, but that it could be achieved in a measured manner, that consistency embraced a spectrum of possibilities, and that we should never lose sight of the underlying goal of radiation protection: to protect the public health and safety, including the environment in which we all live.

The Many Valuable Aspects of the 2012 HPS Annual Meeting

The 2012 Health Physics Society (HPS) Annual Meeting offered informative sessions, constructive meetings, interesting tours, and a chance to work and socialize with other health physicists. Several participants in the meeting provided their opinions on the highlights of the time spent in Sacramento.

Kathy Pryor
2011–2012 President

In my opinion, the 2012 HPS Annual Meeting in Sacramento went very well! I enjoyed the convention center and the host hotel, and the location right across from the Capitol Park was great. Program Committee Chair Matt McFee and Task Force Lead Bryan Lemieux did a great job on the technical program. Of course, as president, the only session I was able to attend was the plenary session, "Consistency in Radiation Protection Standards." I had a great deal of fun putting the session together and we ended up with a wonderful set of speakers. Embedded videos in one of the presentations caused us some consternation, but the speakers were agreeable to changing things up and recovered very gracefully. We were able to present a very diverse set of viewpoints on the topic, which the audience seemed to appreciate (see details provided by Barbara Hamrick on page 1). The Monday lunch in the exhibit hall was a big draw and got lots of positive comments from the exhibitors. They only wished there was lunch in the exhibit hall on Tuesday as well. The awards banquet was really good as well—it was very well attended and we had some of the best acceptance speeches from award winners that I've ever heard. I am looking forward to the 2013 HPS Annual Meeting in Madison, Wisconsin!

HPS President-elect Darrell Fisher (left) receives the ceremonial chicken from President Armin Ansari as Past President Kathy Pryor watches.

Armin Ansari
2012–2013 President

One of the most enjoyable parts of the meeting for me was the awards ceremony. All the speeches that evening were touching and memorable. One thing I would like to see changed in 2013 is for us to record the awards ceremony and post it for all members to see. The opening plenary session on Monday was informative and engaging, and the panel was superb. I had time to peek into a Monday afternoon session called "Emerging Issues for Radiation Protection and Nanotechnology," organized by our new Nanotechnology Committee. This is an area we are going to hear more and more about in the coming years. It was also exciting to meet with the committee chairs and section officers and see their enthusiasm and energy as they discussed their plans for the coming year.

On a lighter note, I happened to walk by the room at the Hyatt Regency where the Open Mic Night was, and I wandered in. I had never attended an Open Mic Night before, and now I regret what I have missed all these years. I saw a colleague I had known for 30 years and never knew he could dance, and another I had worked with for many years but didn't know he could sing! This was fun and a relaxing moment in an otherwise intense week.

I want to sincerely thank all members who donate their valuable and countless hours of personal time to work with the Secretariat and make these meetings a success—the Program Committee, the Continuing Education Committee, the Local Arrangements Committee, our affiliate members and vendors, the session organizers and speakers, and all the members who travel and attend the meeting to make it a productive and enjoyable experience for all.

Jim Case and Marcia Hartman
Local Arrangements Committee (LAC)

We heard a lot of positive comments from the meeting attendees. From the program, conference facilities, and hotel accommodations to the nice break in the Sacramento weather, the conference was a success!

Serving on the LAC really was an eye opener to all that goes on behind the scenes to pull off a conference like the HPS annual meeting with over 1,000 attendees. We would especially like to thank our LAC members and all those who volunteered to help out. We couldn't have done it without them! Thanks also to Lori Strong and the staff at Burk & Associates for all their help and support! They were a true joy to work with.

And thanks to all those who stopped by our logo clothing table! We sold everything!

John Boice
Dade Moeller Lecturer

The meeting was exceptional—in large part because of the topics chosen. The plenary session, "Consistency in Radiation Protection Standards," included top speakers from the International Commission on Radiological Protection, International Radiation Protection Association, National Council on Radiation Protection and Measurements, Environmental Protection Agency, and Nuclear Regulatory Commission (NRC) and the "community of users," and at 8:15 a.m. all seats were taken! If you "build it" they will come! What a terrific opportunity to learn new things, stay abreast of the latest developments in radiation protection, make new friends, and reminisce with longtime colleagues. There were ample opportunities for those informal sidebars that add value to attending the annual meeting, and the spirit of collegiality and friendliness and openness continued.

Elizabeth Gillenwalters
Student Support Committee (SSC)

The SSC had positive feedback regarding the meeting in Sacramento. While an official tally was not taken, there seemed to be a larger student population at this meeting than the last few years. The locations of the hotels were very convenient relative to the meeting activities. The convention center was very meeting friendly, and despite some small hiccups in the scheduling of the student reception, the student activities went over very well.

Harry Cullings and Tetsuji Imanaka
"Department of Energy Special Session on Atomic Bomb Survivor Dosimetry – Residual Radiation Exposure"

The Department of Energy (DOE) Special Session, organized by Dr. Joseph Weiss and Dr. Isaf Al-Nabulsi of DOE, featured presentations on various areas of topical interest regarding the potential dose received by the survivors from local fallout of fission-product radionuclides from

bomb debris and the activation of soils near the hypocenters by bomb neutrons. Perhaps the most important point coming from this session was the importance of distinguishing between indications that may have come from fission-product fallout (which had a particle size too small for gravitational settling and could only have come from rain or some other mechanism transporting it to earth from the bomb debris cloud) and activated soils (which were only generated very close to the hypocenters but may have been moved around to some extent by blast forces and winds). It is also important to confirm initial indications with additional, careful studies employing appropriate techniques of spatial statistics and other disciplines, such as epidemiology, where relevant. A report on the session and an accompanying workshop on the same topic are being prepared for publication in *Health Physics.* Most of the work reported by the Japanese group is also available online on a site maintained by the city of Hiroshima at http://city.youth-service.com/.

Jeff Whicker
Environmental/Radon Section Special Session: "Tritium in the Environment"

The Environmental/Radon Section sponsored the well-attended special session "Tritium in the Environment." National and international researchers presented current information on internal dosimetry (relative biological effectiveness [RBE] of tritium oxide [HTO] and organically bound tritium [OBT]), tritium metabolism, environmental transfer mechanisms and chemistry, tritium releases at nuclear power plants, and numerous environmental health physics practices associated with tritium in the environment. A detailed discussion on selection of deposition velocities of tritium oxide (including remission) was followed by a presentation on the interplay of science, regulation, and society. The problem of setting tritium drinking-water standards not based on dose, but at levels "just because you can" measure it, was discussed. Next, details on impacts of tritium releases from the nuclear power plants (planned and unplanned) was provided, followed by research on the radiation quality of tritium (HTO and OBT) where the RBE for OBT is found to be about twice that of HTO. New human dosimetric models for HTO and OBT were presented, as well as environmental and other factors that control transport and fate of tritium in the environment. Much of this research is being done in Europe and has resulted in substantially improved models. Measurement techniques for measuring tritium vapor in subterranean vadose zones and a comprehensive analysis of all uncertainties involved in tritium measurements in environmental samples finished off the session.

Vicki Morris and Steve King
Medical Section Special Session: "Patient Release"

The Medical Section Special Session was well attended and the main emphasis was release of patients who have been administered ^{131}I radiopharmaceuticals. The speakers provided information on the history of the "30 millicurie" rule, the results of studies to determine realistic doses that may be received by members of the public from a patient administered ^{131}I, issues radiation safety officers (RSOs) and physicians deal with in regard to patient release, things to consider when releasing patients to hotels, and the status of the NRC's examination of patient release. All the information presented was of significant interest to medical RSOs. If there was one important message, it was that doses received by members of the public from released patients are low.

Kathy Shingleton
The AAHP Special Session

The American Academy of Health Physics (AAHP) sponsored a full-day technical session at the 2012 annual meeting titled "The National Ignition Facility—Bringing Star Power to Earth" (summarized in the *CHP News*). The session content is arranged for by the immediate past president of the AAHP and, therefore, varies significantly from year to year. The AAHP special sessions were established some years ago by Frazier Bronson as a way for the AAHP to give back to

the HPS by arranging for a technically stimulating session at the annual meeting. The 2012 session certainly met this standard by providing multiple talks about technically astonishing science, interwoven with talks about the day-to-day challenges that come with operating a large facility with both contamination and activation issues. It's a rare opportunity for our generation of health physicists to be in on the ground floor of a new technology; hopefully the next generation of health physicists will see laser inertial fusion energy as a "normal" part of their work environment.

Eric Goldin
Power Reactor Section Special Session

The successful Power Reactor Section special session included great presentations to a near-capacity room. Several papers focused on the U.S. response to the Fukushima Daiichi disaster, including presentations on the U.S. regulatory perspective and response; descriptions and the basis for the recommended local protective measures for U.S. citizens; lessons learned for U.S. nuclear plant emergency preparedness, with a focus on planning for events involving more than one unit; the radiological consequences for the area around Fukushima as more details about environmental conditions are known, including the results of additional environmental monitoring in the United States; and a perspective and lessons for recovery compared to Three Mile Island, where damaged fuel had to be removed from the reactor. Representatives from Dominion North Anna Power Station discussed the response to and consequences from an unusual and damaging East Coast earthquake, providing lessons for emergency planning and for future plant and operational enhancements. Radiological performance indicator trends for the U.S. nuclear power industry were reviewed and discussed in light of marked improvements over the years.

Lorraine Day
Nanotechnology Special Session

The fourth annual special session on nanotechnology opened with Dr. Mark Hoover giving an overview on how the Nanotechnology Committee has a mission to provide the HPS membership with professional education program presentations and to foster collaboration with partnering professional organizations, scientific bodies, and government agencies. Dr. Lorraine Day summarized some potential interactions of nanotechnology and health physics by looking at examples for various HPS sections. Of particular interest in this session was Leigh Cash's discussion of preliminary results for the derived specific absorption parameters for inhalation of plutonium nanoparticles that have been calculated. Scott Walker explained how the medical community is developing organ-targeting drugs that will transport radioactive nanoparticles directly to the organ of interest. Challenges facing the nuclear medical community include determining the biological effects, biological half-lives, and biodistribution of these nanomaterials. In addition, new internal dosimetry models, new procedures, contamination control, and material control practices will have to be developed. Dr. Erno Sajo illustrated the use of high Z nanoparticles in achieving higher effective LET levels than obtainable with ionizing radiation alone. The session concluded with an open panel discussion with members of the audience on some emerging issues for radiation protection and nanotechnology.

Wayne Glines and Debra McBaugh
Decommissioning and Homeland Security Sections Joint Special Session: "Response and Mitigation Following a Major Radiological Event"

The Decommissioning and Homeland Security Sections conducted a well-received joint special session, "Response and Mitigation Following a Major Radiological Event." The session papers focused primarily on longer-term response and mitigation activities, rather than immediate response, and covered topics ranging from cleanup following nuclear weapons

testing in the South Pacific to rapid triage of individuals who may have received significant radiation exposure. Several papers addressed issues associated specifically with the Fukushima Daiichi reactor accident. The presenters included representatives from the U.S. Environmental Protection Agency, the U.S. Food and Drug Administration, and the Centers for Disease Control and Prevention. These agencies are working to develop guidance and protocols for response, recovery, and mitigation following a major radiological event. Also presenting were DxTerity Diagnostic and Dade Moeller, private firms supporting work to develop new response or mitigation technologies. Significant points addressed in these papers included the need to (1) incorporate lessons learned from the Fukushima events, (2) constantly review and critically assess existing response and mitigation plans, (3) ensure that response and mitigation plans consider the potential for extreme events, e.g., the 2011 Tohoku earthquake and subsequent tsunami, (4) ensure adequate risk and dose assessments in developing cleanup and recovery guidance, (5) develop new and improved waste-management techniques, and (6) establish and maintain critical communication and data systems.

J. Matthew Barnett
NESHAPS Special Session: "Radioactive Air Annual Meeting"

This year's NESHAPs (National Emission Standards for Hazardous Air Pollutants) session on radioactive air was designed to provide an opportunity for regulators, federal employees and contractors, and industry to work together to address the current implementation status of radioactive air emissions. The session was cooperative in the exchange of information and working together as related to compliance with regulations and standards. The most important aspect of the session was CAP88, Clean Air Act Assessment Package-1988, a computer model that is a set of computer programs, databases, and associated utility programs for the estimation of dose and risk from radionuclide emissions to air. The CAP88 presentations included highlights to CAP88 Version 4 (beta) provided by EPA and Trinity Engineering Associates (due out for testing before the end of the calendar year), a review of unexpected variance in receptor dose calculations, a comparison of the existing CAP88 versions, and a review and discussion of population dose. In addition to our discussion on CAP88, presentations were made by both EPA-HQ and DOE-HQ highlighting relevant activities of these agencies over the past year. The group also discussed the status of standards, directives, and guides including the recent reaffirmation of the 1999 standard *Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities* (ANSI N13.1-2011), the formation of a new ANSI N13 working group on sampling and monitoring airborne radioactive substances from the ambient atmosphere, implementation of *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports* (DOE-STD-1027-92), and the status of the proposed DOE update to *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance* (DOE/EH-0173T).

Paula Tumlinson
Dade Moeller

Exhibiting at the HPS annual meeting was valuable to Dade Moeller because it provided an excellent opportunity to enhance relationships with the health physics community. Attendance in the exhibit hall was outstanding on Monday, slow on Tuesday, and back to normal on Wednesday.

At the Dade Moeller booth, Brian Gleckler (left), Paula Tumlinson, and Ed Maher

Lynn Raabe
Companion Hospitality Program


Railroad Museum

The companion activities that we planned for the 2012 HPS meeting went very well. The theme breakfasts were well received, beginning the days with laughter and the confirming of new friendships.

The walking tours provided companions with great food and much interesting information about past and present Sacramento, including trips to Old Sacramento, the Railroad Museum, the State Capitol, the Crocker Art Museum, Sutter's Fort, and the California Indian Museum. Every day we began in the cool, walked and walked, ate and talked, and ended up coming back to the hotels in the hot of the late afternoon. I was delighted with the laughter and willingness of friends who went on the walking tours that were planned.

The bus tour to Lake Tahoe was also a very positive experience, as was the opportunity on Thursday for companions to revisit their favorite site or explore a new one. ■

2012 HPS Fellow Members


Left to right, Eric Goldin, Wes Bolch, Mike Grissom, Gary Kramer, and David Simpson (not pictured, James Neton)

2012–2013 HPS Officers and Board of Directors


Left to right, Mark "Andy" Miller, Linnea Wahl, Sam Keith, Sarah Roberts, Mike Stabin, John Lanza, Advisor Howard Dickson, Past President Kathy Pryor, Scott Schwahn, President Armin Ansari, Secretary Barbara Hamrick, Treasurer Nancy Daugherty, Carl Tarantino, Secretary-elect Elizabeth "Liz" Brackett, Student Support Committee Chair Charlie Wilson, Steve King, and President-elect Darrell Fisher

Elda E. Anderson Awardees at the 2012 Health Physics Society Annual Meeting in Sacramento

Left to right: Eric W. Abelquist 2003, Richard R. Brey 2002, Ali A. Simpkins 2007, Wesley E. Bolch 1993, Ronald L. Kathren 1977, Darrell R. Fisher 1986, Timothy A. DeVol 2004, Howard W. Dickson 1981, Michael T. Ryan 1989, Jason Harris 2012, John R. Frazier 1988, Sarah J. Roberts 2011, Scott O. Schwahn 2006, Kathryn A. Higley 1995, Derek Jokisch 2010, Glenn M. Sturchio 1999, Paul L. Ziemer 1971, James E. Tarpinian 1991, Phillip W. Patton 2008

2012 Awards

Antone Brooks—2012 Distinguished Scientific Achievement Award

Leo G. Faust—2012 Founders Award

Paul L. Ziemer—2012 Distinguished Public Service Award

Kent Lambert (left) accepts the 2012 Honor Roll Award from Ed Maher on behalf of Sydney W. Porter, Jr.

Larry Vallario (left) and Bette Vallario accept the Founders Award Memorialization from Ed Maher on behalf of Edward J. Vallario.