



Cascade Chapter



Avalanche

The official newsletter of the
Cascade Chapter of the Health Physics Society

Spring 2010 Issue

<http://www.hpschapters.org/cascade/>

Annual E. Dale Trout Meeting

This year's annual meeting will take place at Oregon State University in Corvallis on May 7th. We have a number of speakers lined up for this year's annual meeting

The featured speaker for this year's meeting will be HPS President-Elect, Edward Maher. Dr. Maher attended Lowell Technological Institute, Lowell, Massachusetts, where he earned a bachelor's of science in electrical engineering and was commissioned in the United States Air Force in 1971. He received a master's degree in biomedical engineering from Worcester Polytechnic Institute, Worcester, Massachusetts and entered active military service in 1973.



In 1985, Dr. Maher earned a doctor of science degree in radiological protection and health from the Harvard School of Public Health. His principle research areas were radon measurement and control of radon in residences, environmental aerosol physics, and biostatistics. Upon completion of his doctoral studies, he was assigned to the USAF Occupational and Environmental Health Laboratory, Brooks AFB, Texas to variety of positions that included: Chief, Nonionizing Radiation; Chief, Radioanalytical Services; Chief, Personnel Dosimetry; and Chief, Radiation Services Division. In these positions, Dr. Maher provided a wide range of health physics support services to worldwide USAF installations. These support services included: environmental, medical and occupational radiological protection consultation and field investigations; radioanalytical laboratory

services; radiation dosimetry; radioactive source permitting and transportation safety; site characterization and remediation; and radiological accident contingency response planning and risk assessment.

In 1990, Dr. Maher was assigned to the Human Systems Center, Armstrong Laboratory, Brooks AFB, Texas. In this capacity, he was the overall director of comprehensive environmental and occupational health services support to worldwide USAF installations. The Division's specialty areas were air and water quality, medical, environmental, and occupational health physics; hazardous waste and material management; and environmental noise research. Dr. Maher retired from active military service on January 1, 1994 in the grade of colonel.

Following his military retirement, Dr. Maher joined Arthur D. Little, Inc., in Cambridge, Massachusetts as an Associate Director in Occupational Safety and Health, and Manager for the Radiation Policy and Technology Unit. In early 1996, Dr. Maher accepted the position as Director of the Environmental Laboratory for Yankee Atomic Electric Company. The laboratory provided ongoing environmental laboratory, remediation and consultative health physics services for commercial nuclear power, Department of Energy and Department of Defense clients. In 2001, Dr. Maher assumed the position of Manager, Environmental Health and Safety for Framatome-ANP in Marlborough, Massachusetts. In 2004, Dr. Maher joined Dade Moeller & Associates and is currently the Objective 3 Manager for the NIOSH Dose Reconstruction Project under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA).

Dr. Maher was certified for comprehensive practice by the American Board of Health Physics (ABHP) in June 1986, and has since recertified in 1990, 1994, 1998, 2002 and 2006. Dr. Maher is a past Board Member of the ABHP and the Board Chairman in 2000. He served on the ABHP Panel of Examiners for the Part II Comprehensive Examination from 1989-1993, and was the Panel Chairperson in the 1992 exam year. He is a past President of the American Academy of Health Physics (AAHP) and the New England Chapter of the Health Physics Society (NECHPS). He is a Fellow of the Health Physics Society (HPS), a past Director and Secretary for the HPS and the Society's current President-Elect. Dr. Maher is also an adjunct faculty member at the Harvard School of Public Health (HSPH) and a faculty member at the HSPH Center for Continuing Professional Education.

The title of Dr. Maher's presentation is *Challenges in Dose Reconstruction – Update on the Energy Employees Occupational Illness and Compensation Program Act (EEOICPA)*.

We also have four students lined up to talk about their research. The titles and abstracts of their presentations along with more meeting information can be found in this newsletter.

Announcements

2010 Dues

We are now accepting payments for 2010 dues. In order to keep up with the increased operating costs, dues for 2010 have increased. This year's dues are \$25 for Plenary membership, \$20 per person for Group membership, and \$12.50 for Student and Member Emeritus membership. If you are not sure if you have paid your 2010 dues, please contact the chapter secretary.

Benefits of membership include lowered cost of meetings, professional contacts, the Avalanche newsletter, and association with really great people. If you have five or more members in your organization, then a Group membership is the way to go. In addition to the above benefits, each Group member receives free admission to the Annual meeting (lunch is not included).

More information about the different membership categories and the benefits of each type of membership can be found on the [CCHPS website](#).

2010 Elections

The 2010 election is underway. You should have received a ballot with this newsletter. The ballot will close on May 7, 2010 at 10:00 AM. If you will be attending the chapter meeting, you can turn in your ballot during the meeting registration. If you will not be attending the meeting, please return your ballot to the secretary by May 5th in order for it to be counted at the meeting. The ballots can be sent via email or regular mail. The ballots will be counted and the winners will be announced during the May 7th meeting. If you have any problems with your ballot contact the Secretary for assistance.

Ludlum Calibration Training

The Community Relations Committee is looking into the possibility of bringing the Ludlum calibration trailer to our area this summer.

It looks like we have enough interest to hold training sessions in both Oregon and Washington. The Oregon session would probably be at Oregon State University, and we are looking into the possibility of holding the Washington session at a University of Washington facility in Eatonville, WA.

Dates still need to be decided, but the two-day training sessions will probably be in August or late July.

This will be discussed at the next CCHPS meeting. If you would like to provide input to the discussion and cannot make it to the meeting, please send your comments to the secretary.

More information about the training will be provided after the annual meeting.

Student Presentations

David Bytwerk (Radiation Health Physics PhD Student) – “Chlorine 36 work at Oregon State”

³⁶Cl is a long lived radionuclide that has only recently been recognized as a critical nuclide for radioactive waste management. Its 300,000 year half-life and chemical mobility mean that it is likely to still be around at the time of peak doses from solid waste repositories, and likely to move quickly through the biosphere once released. The predicted importance of ³⁶Cl at a number of repositories worldwide led BIOPROTA, an international collaborative forum, to include it among the radionuclides it studies. Oregon State has been

involved in a BIOPROTA project looking into sources of variation and uncertainty in the predictions of ³⁶Cl models used by national authorities and industry in various countries and identifying gaps in the data used to parameterize those models. One of the gaps identified has been in parameters related to foliar interception and uptake, and Oregon State has begun an experimental research program to provide foliar uptake data for chlorine where none has previously existed. Oregon State's contributions to both modeling and experimental work are presented along with a brief discussion motivating the work.

Kellen Thuo (Radiation Health Physics MS Student) – “Hot Particle Dosimetry Using Gafchromic film”

Hot particle skin contamination can produce highly localized doses from gamma and beta radiations. Beta-emission characteristics and/or the presence of protective clothing between the source and skin can significantly affect skin dose. The energy released by photons is a straightforward calculation; however, kinetic energy released per unit mass (KERMA) will overestimate the true absorbed dose at shallow depths during the buildup of electronic equilibrium. Gafchromic EBT film is used to directly quantify this buildup of dose at shallow depths. The self-developing properties of Gafchromic film, along with its effective Z of 6.8, make the film ideal to evaluate dose to tissue. Isotopes (Cesium, Barium and Carbon) of various energies are used to evaluate dose to the skin. Dose is assessed using combinations of clothing thickness and air gaps (between clothing and skin). The film is layered at depths (70-1000microns) so as to provide data at the points of interest. Following the film exposure, each layer is scanned on an EPSON 10,000 XL flatbed scanner and analyzed by image J and Film QA software. Estimates of dose are also made for the same scenarios using a photon/electron Monte Carlo transport method (MCNP5).

Jonathan Bristol (Radiation Health Physics MS Student) – “Eye Plaque Brachytherapy”

Eye Plaque Brachytherapy has been a developing treatment for Ocular Melanoma. In the 80's the Collaborative Ocular Melanoma Study was conducted to assess the success of the eye and for some cases vision saving technique of Eye Plaque Brachytherapy as compared to enucleation (surgical removal of the eye). The study found no statistically

significant difference between outcomes from either treatment if the ocular tumor was within a focus size range. Following the COMS, Eye Plaque Brachytherapy became a viable cancer treatment. My research has been focused on testing a treatment planning system called Plaque Simulator by BeBig, against both a statistical code (random sampling) called Monte Carlo and a deterministic code called Attila. Since the release of the COMS findings, much research has gone into determining the most accurate method for calculating dose to points of interest for Eye Plaque Brachytherapy treatment. Areas of focus have been the affect of attenuation through plaque material, inhomogeneity of material around the eye, and the affect of scatter from the air to eye interface. The Plaque Simulator by BeBig has developed correction factors altering their dose calculations to account for these affects. My research is looking at how well the sum of all their correction factors compare to the more precise calculations of MCNPX and Attila.

Jarvis Caffrey (Radiation Health Physics BS Student) – “A Review of Thermoluminescent Dosimetry in Space”

The radiation field that exists outside of Earth's atmosphere and magnetosphere contains a greater flux of radiation with high linear energy transfer (LET) than exists at the Earth's surface. The traditional TLD, which responds accurately to beta and gamma radiation, suffers from poor efficiency and ambiguity when used to detect this high-LET radiation. The result is the underreporting of dose to astronauts when using the traditional TLD alone.

The misrepresentation of high-LET dose is especially concerning when considering the large biological impact associated with heavy charged particles. The discrepancy in dose determination can be resolved using several techniques, three of which will be described.

- Plastic Nuclear Track Co-Detection Method
- High Temperature Peak Ratio (HTR) Method
- Relative Efficiency Method

2010 Annual Meeting

The 2010 Dale Trout Annual Meeting will be held **Friday May 7, 2010** at the LaSells Stewart Center on the campus of Oregon State University in Corvallis, OR.

Agenda

9:15 Executive Committee meeting
9:30 Breakfast sponsored by Mirion Technologies
9:45 Registration
10:00 Ballot Closed
10:00 Chapter Business Meeting

- Appointment of New Officers
- Treasurers Report
- New Business
- Old Business

11:00 Student Presentations
12:00 Lunch
1:00 Student Presentations
2:00 Break – Ice cream sundaes sponsored by Seltech
2:30 Presentation – Edward F. Maher, Sc.D., CHP (Associate and Senior Health Physicist, Dade Moeller & Associates, Inc.) – “Challenges in Dose Reconstruction – Update on the Energy Employees Occupational Illness and Compensation Program Act (EEOICPA)”

Food

Breakfast goodies provided by Mirion Technologies will be available in the morning during the registration period. Come early and enjoy coffee, juice and goodies.

Lunch will include:

- Chicken or cheese enchiladas with red sauce, served with beans, onions, sour cream, lettuce, tomatoes, olives, and chips.
- Tortilla chips with salsa and queso dip
- Coffee, lemonade, and assorted cold beverages

If you do not want to order the lunch please indicate that on your registration form.

There will be an ice cream sundae bar during the afternoon break sponsored by Seltech. This will include chocolate and vanilla ice cream, chocolate sauce, strawberries, crushed Oreo topping, sprinkles, whipped cream and cherries.

Registration

Please send your registration form to the chapter secretary before May 5th. If you would like to pay your 2009 dues at the same time, please indicate that on the form.

Cost

Prices for the meeting are:

	<u>Meeting Only</u>	<u>Lunch & Meeting</u>
Member	\$10	\$25
Non-member	\$15	\$30

Directions to the meeting:

LaSells Stewart Center is located at the corner of 26th Street and Western Boulevard in Corvallis, OR.

The physical address is: 875 SW 26th Street, Corvallis, Oregon 97331-3101 ([Google](#))

From I-5: Highway 34 to Corvallis, left on 4th Street, right on Western Boulevard, right on 26th Street

From the North on 99W: turn right on Western Blvd., right on 26th Street

From the South on 99W: turn left on Western Blvd., right on 26th Street

From Highway 34: turn on 26th Street

[Printable directions and map\(PDF\)](#)

Parking

The LaSells Stewart Center features ample parking across the street in the Reser Stadium parking lot. **The campus parking lots are pay lots from 7 am to 5 pm Monday through Friday.** Parking permits are available from automated kiosks in the lots and from the Parking Services office in Adams Hall. The full-day price is \$5.

Cascade Chapter Officers:

President:	Howard Wallace
President-Elect:	Julia Sober
Secretary:	Philip Campbell
Treasurer:	Mike Zittle
Member-at-Large:	Marge Slauson

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