THE OCCUPATIONAL RADIATION EXPOSURE SPECTRUM – IT’S WIDER THAN YOU MIGHT THINK

Mention workplace radiation exposure and the default assumption is that you are talking about x-rays or some other type of ionizing radiation. Although generally less energetic, non-ionizing radiation sources can also present significant hazards in a wide variety of workplaces – for example, hospitals, medical & dental offices, manufacturing plants, construction sites, and research laboratories. Non-ionizing radiation (NIR) can originate in nature (e.g., sunlight and lightning) or be man-made (e.g., wireless communications, industrial, scientific and medical applications). The NIR spectrum includes optical radiation (ultraviolet, visible, near-infrared, and laser radiation), radiofrequency & microwave, extremely low frequency, and static magnetic fields. This presentation will provide an overview of non-ionizing radiation:

- Characteristics
- Exposure limits
- Biological effects
- Ancillary hazards
- Exposure control measures
- Relevant standards, and
- Applicable information resources
About the Speaker: Stephen W. Hemperly is an advisory industrial hygienist in San Jose, CA with HGST, a Western Digital company, an organization engaged in digital information storage device research, development, and manufacture. Having worked for Federal-OSHA, Cal/OSHA, an industrial hygiene consulting firm, and a large health maintenance organization, Stephen's safety and health experience spans more than 35 years. He is a Certified Industrial Hygienist, a Certified Safety Professional, and a Certified Laser Safety Officer. A member of AIHA since 1978, he has served on and held office in its Nonionizing Radiation Committee as well as in its Confined Space and Laboratory Health & Safety Committees.

Stephen’s other health and safety-related affiliations include the AIHA’s Northern California and Yuma Pacific Southwest sections, ACGIH, the Laser Institute of America, Bay Area Laser Safety Officers, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), and the American Chemical Society’s Division of Chemical Health and Safety. He is also an AIHA Fellow award recipient and is the Local Section Regional Representative for AIHA’s Pacific Region.

Seltech Inc is the sales organization representing a number of nuclear measurement manufacturers. Clyde Makinson in Richland Washington is an application-oriented salesman with many years of experience in the nuclear industry.

Seltech Represents:
- Ludlum Measurements
- Gamma Products – automatic sample changers, counting systems and shields
- HI-Q Environmental Products – air sampling equipments
- Lab Impex Systems – area and stack monitoring system
- XRF Corp – Hand Held Isotopic Identifier with CdTe detector
- Ordela Inc – alpha scintillation detector and alpha spectrometers
- TSA Systems – SNM monitors and mobile GPS survey systems.
- Bladewerx – alpha spectra, continuous air particulate monitors
- Shieldwerx - Polyethylene-Based Gamma & Neutron Shielding

For additional details, visit our website.
Thermo Fisher Scientific is continuing to advance instrumentation used in the measurement of radiation. These advancements are in the areas of personnel contamination, dosimetry, and hand-held survey instruments.

The *iPCM-12* is a direct replacement for the PCM-2, however it expands the capabilities in areas of body coverage, background reduction using a unique proportional detector design, and a unique Rn-rejection algorithm.

The *Thermo-Harshaw TLD* products (readers and materials) are the state of the art for passive monitoring using TLD. The *EPN-Mk2* and *EPD-N2*(gamma neutron) are the active dosimeters of choice at virtually all DOE and DOD sites.

The *RadEye-“X”* series has already been selected by many DOE National Labs as a superior replacement for the older box-style analog meters, including our own E600. These labs are realizing not only the cost savings advantages of the RadEye-X, but also the simplicity and robustness that has been designed into a sophisticated digital meter that weighs approx 4 oz. and “talks” to all of your existing probes.

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**A Note from The Newsletter Editor**

NCCHPS is always interested in news relating to NCCHPS chapter business and information relevant to the practice of health physics in Northern California.

You may direct news items to Warren TenBrook, newsletter editor, at warren@tenbrook.org.

Submissions are subject to editorial review and all newsletters are reviewed by the NCCHPS Board.

Your contributions give our newsletter local flair and we encourage your participation.

*Warren TenBrook, Editor*
The Burton J. Moyer Memorial Fellowship (BMMF) was established by the Northern California Chapter of the HPS in memory of the late UC Berkeley Professor Burton J. Moyer and to encourage his ideals in the study of the safe use of radiation for the benefit of all people.

NCCHPS Burton Moyer Fellowship Committee is comprised of a Committee Chair and two members who are tasked to manage the fund and its investments, to solicit donations and to participate in the selection process of the Burton Moyer Fellowship Award recipient. The current membership of the NCCHPS Burton Moyer Fellowship Committee is Radoslav Radev, LLNL, Chairman, Bill Vermeere, Consultant, and Chad Hopponen, Mirion Technologies. Chad Hopponen stepped in for Committee member Megan Lobaugh after she accepted an assignment with IAEA in Vienna, Austria.

The Burton J. Moyer Memorial Fellowship was first awarded in 1985 and since then every year the NCCHPS Burton Moyer Fellowship Fund (BMFF) provides financial support to one full-time entering or continuing student enrolled in a bona fide U.S. graduate program in health physics or a closely related field. The HPS (through the Academic and Education Committee) has responsibility for screening and ranking the candidates. Our chapter has a permanent voice in selecting the final Burton Moyer Fellow. NCCHPS Burton Moyer Fellowship Committee reviews and ranks the top candidates as per the established criteria for the Burton Moyer Graduate Fellowship.

The 2014-2015 Fellowship was awarded to Deepesh Poudel, a PhD Student in Nuclear Science and Engineering at Idaho State University. HPS provided a travel grant for him to attend the HPS annual meeting in Indianapolis, IN. Can you find Deepesh Poudel in the picture of the students who attended the 2015 HPS meeting? Mr. Poudel photo was featured in one of our previous newsletters.

The current market value of the Burton Moyer Fellowship Fund is $121,019 as of October 23rd, 2015. BMMF money are invested into 7 Fidelity mutual funds and one money market account. The latter is used for disbursement of the NCCHPS annual cash contribution ($5,000) to the Burton Moyer Fellowship Award independent of the market swings. The Burton J. Moyer Fellowship Fund is separate from the NCCHPS operational funds. The stock market this year has been in roller-coaster influenced by modest US consumer confidence, concerns about world’s economy growth and international politics of Syria and Middle East. Donations to Burton Moyer Fellowship Fund are encouraged in order to compensate for bear market periods and our annual contribution to the Award.

**DONATIONS**: For the past year we had one donation from the Vanguard Charitable Endowment Program. Contributions from chapter members even with a ‘small’ contribution would indicate that our chapter as a whole continues to support graduate study. **Consider a small donation ($10-50 is OK) for the Burton J. Moyer Memorial Fund.** The donations are tax deductible. Checks payable to NCCHPS may be sent to our treasurer, with the notation “For the Moyer Fund” or you can contribute when you pay for your dinner meeting with one combined check. You may indicate if you wish your donation to remain anonymous.

**Radoslav Radev, Chairperson, NCCHPS Burton Moyer Fellowship Committee**
### Upcoming NCCHPS Meetings...

- **November 19, 2015**
  Joint NCCHPS-AIHA NCS Meeting

- **January 21, 2016**
  Joint NCCHPS-ANS NorCal Meeting

- **March 17, 2016**
  HPS President-Elect Visit

- **May 19, 2016**
  Affiliate Night

### The Next NCCHPS Meeting!

- **Thursday, November 19, 2015**
- 6 pm social, 6:45 pm dinner, 7:45 pm announcements & presentation

#### Varian Medical Systems
- Campus Center Cafe
- 3100 Hansen Way
- Palo Alto, CA 94304

The buffet dinner will feature:
- Little Gem Lettuce, Shaved Beets, Candied Hazelnuts with Caramelized Apple Vinaigrette
- Grilled Range Chicken with Pomegranate Jus
- Hickory Smoked Tri Tip
- Toasted Barley and Squash Pilaf
- Sautéed Haricot Vert, Roasted Olives and Fingerling Potatoes

*If you prefer vegetarian entrée, please indicate in comments section on the registration form*

PLEASE NOTE: Tickets to purchase beer & wine will be available for $4.00 each. ONLY CASH can be accepted for beer & wine tickets, sorry no credit cards.

Register by November 12th, 2015:

- [http://hpschapters.org/ncchps/dinner.php3](http://hpschapters.org/ncchps/dinner.php3)
- NCCHPS members $30
- ($35 @ door)
- Guests $35
- Students $10
- Non-members $40

Contact craig.maxwell56@outlook.com

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