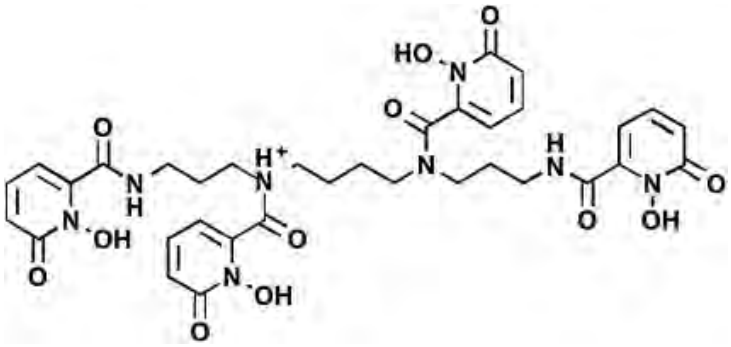
NCCHPS

Northern California Chapter-Health Physics Society
September 2016

The NCCHPS September 2016 Dinner Meeting

Thursday, September 15, 2016
Trader Vic's Restaurant, Emeryville
5:30 pm Social / 7 pm Dinner / 8 pm Announcements and Technical Presentation



Development of New Therapeutics for Radionuclide Decorporation: From Discovery to Product Availability

The threat of a major radiological contamination presents a danger of not only large-scale external radiation exposure of the population but also internal contamination with radionuclides. While major components of such contamination are likely to be actinides and lanthanide fission products, current therapies for the treatment of f-element internalization are still limited. Over the past three decades, the Lawrence Berkeley National Laboratory has dedicated a research program to the discovery of oral therapeutics for actinide decorporation, leading to the emergence of the active pharmaceutical ingredient 3,4,3-LI(1,2-HOPO) as an exceptional candidate for actinide sequestration. This chelator is currently undergoing advanced development for the treatment of individuals with known or suspected internal contamination with actinides such as plutonium (Pu), americium (Am), curium (Cm), uranium (U) or neptunium (Np) to increase the rates of elimination of these radionuclides. Following the submission of an Investigational New Drug application, the U.S. Food and Drug Administration approved the first clinical study for the decorporation agent 3,4,3-LI(1,2-HOPO) in August 2014.

The scientific and regulatory work undertaken for the successful development of such new decorporation therapeutic option will be presented.

About the Speaker

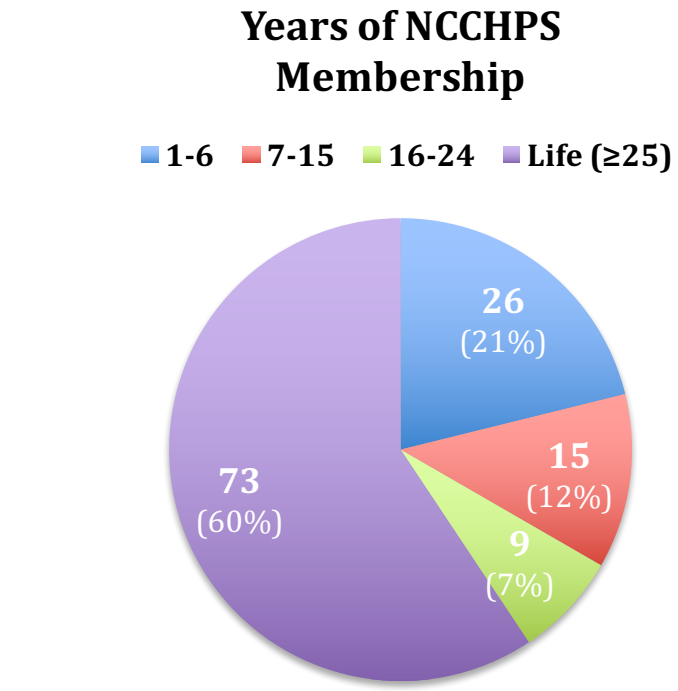
Rebecca Abergel
Ph.D., Chemistry, University of California, Berkeley, 2006
Staff Scientist, Chemical Sciences Division, and
Deputy Director, Institute for Resilient Communities,
Lawrence Berkeley National Laboratory

Dr. Abergel's research program is dedicated to understanding the coordination chemistry of heavy and radioactive elements to develop new nuclear decontamination strategies, new therapeutics for radioimmunotherapy, or new light harvesting materials. She leads a large collaborative effort on the development of new drug products for the treatment of populations contaminated with radionuclides. One of these products was granted an Investigational New Drug status from the U.S. Food and Drug Administration in 2014. In addition, she has been actively involved in the new Lawrence Berkeley National Laboratory Initiative for Resilient Communities, the radiological component of which was sparked by the aftermath of the 2011 Fukushima Daiichi accident.

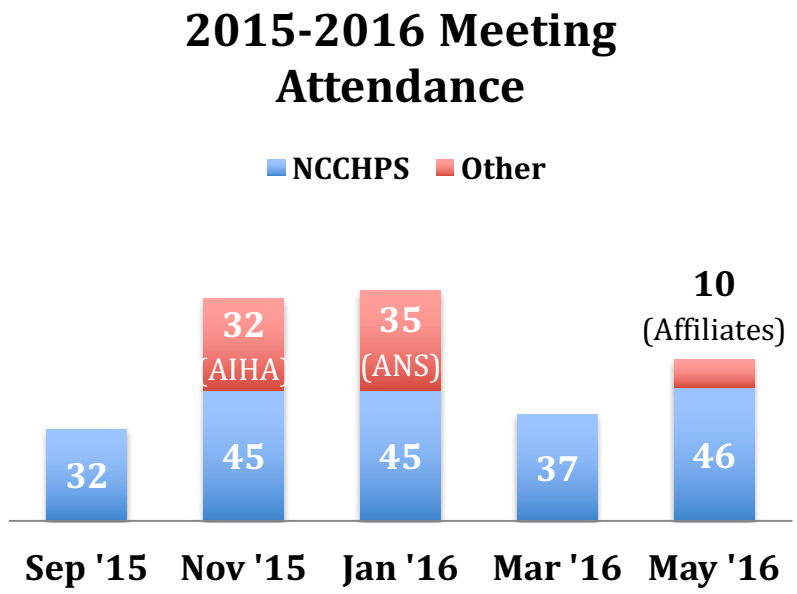
Dr. Abergel was raised in France and graduated from the École Normale Supérieure of Paris in 2002. She conducted her graduate studies in inorganic chemistry at UC Berkeley, under the supervision of Professor Kenneth Raymond. Her doctoral work focused on the synthesis and characterization of siderophore analogs to probe microbial iron transport systems and design new iron chelating agents. As a joint postdoctoral researcher between the UC Berkeley Chemistry Department and the group of Professor Roland Strong at the Fred Hutchinson Cancer Research Center, she investigated the bacteriostatic function of the innate immune protein siderocalin in binding siderophores from pathogenic microorganisms such as *Bacillus anthracis*, for the development of new antibiotics. Dr. Abergel joined Berkeley Lab in 2009, where she currently serves as the chair of the Radioactive Drug Research Committee and is an associate editor for the International Journal of Radiation Biology and a corresponding member (USA) for Radioprotection. In 2014, Dr. Abergel received an Early Career Award from the U.S. Department of Energy and was selected as an Innovator under 35 – France by the MIT Technology Review. She is also the recipient of a Junior Faculty NCRP award (2013) from the Radiation Research Society, and a Young Investigator Research Fellowship (2010) from the Cooley's Anemia Foundation.

2016 Membership Report

During the 2016 election period, 123 members were eligible to vote. Here is the breakdown by years of membership:



We also observed excellent meeting attendance last year, including two joint meetings with our partner organizations and a very well-attended Affiliates' Night in May.



News from Burton J. Moyer Memorial Fellowship Fund Committee

The Burton J. Moyer Memorial Fellowship Fund (BJMMFF) was established by NCCHPS to provide financial support to a full-time student who is beginning or continuing enrollment in a bona fide U.S. graduate program in health physics, or other closely related field of study. BJMMFF has been continuously awarded, on an annual basis, since 1985.

NCCHPS is committed to contributing $5,000 annually to BJMMFF; the national Health Physics Society (HPS) graciously matches this contribution. This level of support, a total monetary award of $10,000, makes BJMMFF among the most prestigious and most generous fellowships available in the study of health physics. The BJMMFF is meant to encourage greater numbers of qualified students to the study, and eventually the professional ranks, of health physics.
Some other fellowships and internships in the health physics or related field are:

- HPS Robert S. Landauer, Sr., Memorial Fellowship - $5,000
- HPS Robert Gardner Memorial - $5,000
- HPS Richard J. Burk, Jr., Fellowship - $5,000
- HPS J. Newell Stannard Fellowship - $5,000
- Dade Moeller Scholarship Awards - $3,500
- HPS Environmental/Radon Section Scholarship - $2,000
- American Association of Physicists in Medicine –Summer undergraduate fellowships
- American Society of Safety Engineers Scholarships and Grants
- As well as several US government agencies: DHS, DoE, EPA, NRC, NASA, etc.

BJMMFF monies are divested into 7 Fidelity mutual funds and one money market account. As of August 4, 2016, the value of BJMMFF investments totals $118,274. BJMMFF is governed by NCCHPS Bylaws and these monies are separate from the NCCHPS operational funds.

The NCCHPS BJMMFF Committee reviews and ranks the top 3 HPS scholarship candidates, as provided by HPS Academic and Education Committee (AEC), according to established criteria resulting in a BJMMFF recipient recommendation to HPS. All NCCHPS members are welcomed to participate in the review and ranking of candidates for the Burton J. Moyer Memorial Fellowship Fund.

Taiee (Ted) Liang was the Burton J. Moyer Memorial Fellowship Fund recipient for 2016; Taiee (Ted) attended the May NCCHPS dinner meeting at the Oakland Yacht Club in Alameda.

The current market conditions threaten the long-term sustainability of the Burton J. Moyer Memorial Fellowship Fund; please consider a small donation ($10-$50 is OK) to BJMMFF, any 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

Interview with Ted Liang

2016 Recipient of the Burton J. Moyer Memorial Fellowship

The Burton J. Moyer Memorial Fellowship was established in 1984 by the NCCHPS to memorialize 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.

The 2016-2017 Fellowship was awarded to Ted Liang, a PhD student in Nuclear and Radiological Engineering at the Georgia Institute of Technology. Here's a little more about Ted in his own words:

Tell us a little about yourself—where are you from; which schools have you attended; how long have you been in the Bay Area?

I was born in Memphis, TN to Taiwanese parents who came to the US to study accounting at the University of Memphis (where they met and later I was born). I attended the Georgia Institute of Technology for my undergraduate degree where I studied Nuclear and Radiological Engineering (NRE). After completing my Bachelor's, I entered the graduate program at Georgia Tech and am pursuing a PhD in NRE.

I arrived in the Bay Area about 3 years ago in Summer 2013 to work on my research thesis under the supervision of Sayed Rokni of the Radiation Protection Department at SLAC National Accelerator Laboratory. I am currently finishing up my research at SLAC and plan to graduate in Spring 2017.

How did you become interested in radiation safety?

I first became interested in radiation safety and health physics during my undergrad at Georgia Tech when I started work as a health physics student technician at GT's Office of Radiological Safety. I greatly enjoyed the various tasks and responsibilities of an HP tech, whether it was surveying x-ray machines or radiological material packages. In addition, I had performed neutron measurements with Bonner spheres with Dr. Nolan Hertel at TRU Waste Processing Center and at Kewaunee Nuclear Power Station. These experiences during my undergrad fueled my interest into the field of health physics.

Interview with Ted Liang (continued)

Whether at "rad labs" at universities, hospitals, nuclear power plants, and also accelerator facilities, I realized radiation safety was necessary for these facilities to function. As stated previously, I also had the great opportunity to pursue my research thesis at SLAC with the Radiation Protection Department where I learned from colleagues and experienced myself how integral radiation safety is to the accelerator facility and its experimental halls. There was all this incredible and breakthrough science taking place, and it was supported by the radiation safety work from the Radiation Protection Department.

What are you currently researching, and would you be able to explain it to a five-year-old? (Inspired by Reddit's ELI5—a highly informative and entertaining website!)

A. For my PhD thesis, I am characterizing the ionizing radiation generated from high-intensity laser-matter interactions as a function of laser-optics parameters. There is a large scientific community interested in studying matter in extreme conditions, such as those found abundantly in giant planets such as Jupiter. To create these states of matter, scientists use high-power lasers (tera- and petawatt) and focus them down to micrometers onto matter (very high laser intensity). This interaction (and secondary interactions) can generate a tremendous amount of ionizing radiation as a mixed field of electrons, photons, neutrons, etc.

   My research is finding the relationship between the laser-optics parameters (such as laser intensity) and the dose from the ionizing radiation generated. This information will provide radiation protection programs working with these high-intensity laser facilities to better perform hazard analyses and develop radiological controls.

B. My attempt if addressing a five-year-old. This was actually quite challenging...

   There are scientists who are interested in what it's like deep inside planets in space. (If you dig and dig and dig down, what kind of "dirt" would you find? Would it be warm or cold, wet or dry, packed tight or loose?) Because the scientists can't get to these planets (just yet), they can make that "dirt" in their laboratories. But when they do, they also make things that may be harmful to themselves or others. (Imagine you are digging outside and suddenly a spider pops out and surprises you. Is it going to bite you or leave you alone?) My work is keeping the scientists safe, so they can do their science (make sure the spiders don't surprise you and can't hurt you).

President's Message

I hope you've all had a good summer and are ready to start another year with NCCHPS! The Board met in July to transition our incoming board members into their new roles. I'm so pleased to welcome President-Elect Ibrahim Ozcan, Treasurer Chad Hopponen, and Member-at-Large Paul Swearingen to the 2016-2017 NCCHPS Board of Directors. Thank you for volunteering your time to help keep our chapter going strong.

Of course, I can't forget that our chapter runs so smoothly because of the efforts of those who came before us (and in a few cases, stayed far longer than they probably wanted to). I'd like to extend special thanks to Jon Dillon and Melissa Mannion, who have both served double terms since 2012. Thank you also to Claire Vandevoorde, our outgoing Member-at-Large, for your solid contributions to our chapter over the past two years.

I'm looking forward to serving as your president over the next year. My goal for our chapter is to maintain the momentum and activity we've had for a long time. I know this sounds suspiciously like I'm setting myself up to "under-promise and over-deliver," but considering our membership demographics and geographical range, I think it's a realistic challenge to maintain our typical meeting attendance at 40-45 and our active membership around 120.

We are only as active as you help us to be, so I'm very thankful to each of you who attend our dinner meetings! I hope you all take a minute to invite the new HP in your office to the next one. (If you don't have any new HPs, invite the grumpy antisocial ones; we're not picky.) Six years ago, I was the new HP in the office and Jack Topper, then President-Elect, didn't waste five minutes shoving an application form in my face.

As you can see, it worked.

Please contact me at tai4@llnl.gov if you want to share any ideas or just want to get more involved.

See you in September!

Lydia Tai

Photo from May 2016 Affiliates' Night

(see more on our redesigned website!)

If you see this guy on the left at one of our meetings, try not to scare him with too much health physics—he gets enough of that at home! You can direct your health physics at Radoslav instead.

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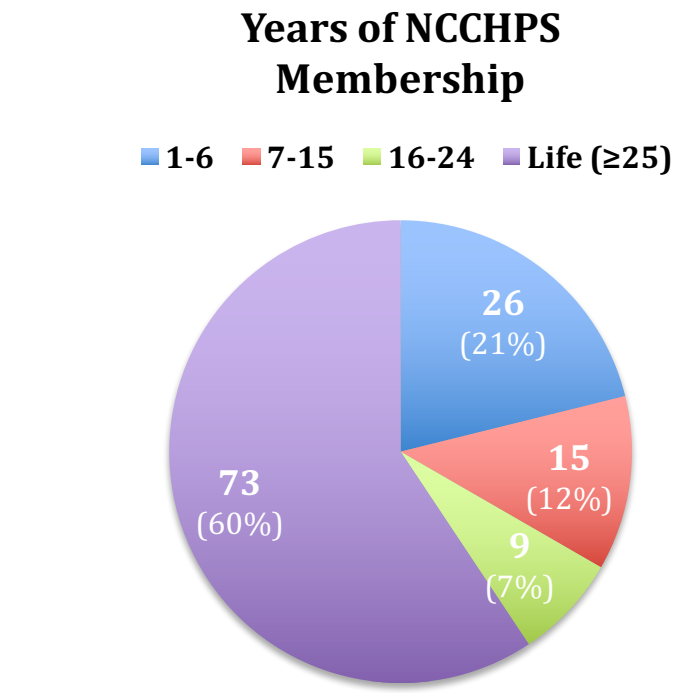

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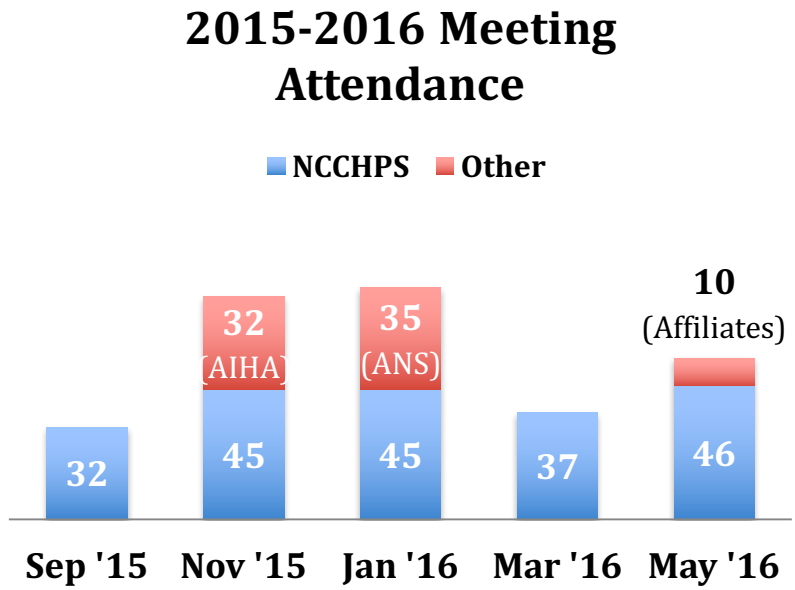

2017 Health Physics Society Midyear Meeting & Exhibition
22-25 January 2017
Bethesda, Maryland

ABSTRACTS DUE BY: 12 September 2016

The 2017 Midyear Meeting will be held in the thriving urban district of Bethesda, Maryland. Bethesda is brimming with nearly 200 restaurants, two live theatres, 20 art galleries, and some of the best shopping in the Washington, DC Metro Area. Bethesda is also the home of the Bethesda Naval Hospital (Bethesda Naval Medical Center) and the National Institutes of Health (NIH). The midyear will not be a topical meeting so we are strongly soliciting the full spectrum of radiation protection specialties. Everyone is welcome to come to share their world to make this a wonderful midyear session!

Upcoming NCCHPS Meetings…

September 15, 2016
Dr. Rebecca Abergel, LBNL

November 17, 2016

January 19, 2017

March 16, 2017
HPS President Elect

May 18, 2017
Affiliates Night

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The Next NCCHPS Meeting!

Thursday, September 15, 2016
5:30 – 7:00 pm no-host meet & greet
7:00 – 8:00 pm dinner
8:00 pm announcements and technical presentation.

Trader Vic's Emeryville
9 Anchor Dr, Emeryville, CA 94608
(510) 653-3400

The menu is:

Grilled chicken sandwich - seasoned chicken breast with garlic chili aioli on a brioche bun

Trader Vic's side salad - assorted young greens, belgian endive, hearts of palm, and javanese dressing

Vegetarian option: vegetable chow mein - mushrooms, carrots, scallions, bean sprouts with Shanghai-style crispy noodles

Dessert: Dark Chocolate Mousse Parfait

Register by September 5, 2016 at:

http://hpschapters.org/ncchps/docs/pages/meetings.html

NCCHPS members $30 ($35 @ door)
NCCHPS guests $35
Students $10
Non-members $40

Please register by Midnight on September 5, 2016. Only online registrations accepted.

Contact Member-at-Large Paul Swearingen ONLY if you encounter difficulties using the form: swearingen.paul@gene.com

Please note that in order to avoid unnecessary costs to the Chapter, you may be charged for no-shows. Cancellations may not be made after the RSVP deadline.

2016-2017 NCCHPS Board Members:

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