



**Department of Nuclear Engineering and
Radiation Health Physics**

**Glasstone Application
ANS Student Chapter**

May 1, 2013

Executive Committee Officers

The Current Board for the election term of Spring 2012 through Spring 2013 is listed below:

President - Ryne Burgess

Email: burgess@onid.orst.edu

Vice President & Interim President - Jackson Harter

Email: harterj@onid.orst.edu

I'm a senior in the Nuclear Engineering program at Oregon State University. I'm from Corvallis, Oregon and spent about eight years in the culinary industry before attending college. My research interests include nuclear materials for next generation reactors, reactor physics, and computational methods. I've been involved with ANS since I was a sophomore, and have held the positions of Social Chair, Vice President, and President.

President:

President of the ANS chapter at Oregon State University (OSU) has the job of running all of the meetings, as well as orchestrating and delegating tasks for the other members to fulfill. The President is the liaison to the national council as well as operations around OSU. The president interacts on a daily basis with NE students and faculty.

Vice President:

The primary role of the Vice President is to provide support to the President and oversee the organization of the club when the President is unavailable or out of town.

Secretary - Brooke Bowman

Email: bowmanb@onid.orst.edu

The primary role of the Secretary is to take the minutes from each officer meeting, keep records of the meetings held, and control documentation within the officer group.

Treasurer - Philip Belsterling

Email: belsterp@onid.orst.edu

Philip Belsterling is a senior in NE who will be working in the nuclear power industry upon graduation. He served as treasurer for the OSU ANS chapter. As treasurer, he was responsible for maintaining the chapter budget and making recommendations on how to best allocate funds.

Outreach Chair - Tommy Holschuh

Email: holschut@onid.orst.edu

My name is Tommy Holschuh and I am a senior in nuclear engineering originally from Albuquerque, New Mexico. I have been involved in nuclear technology since high school and have worked on projects involving fusion, thermal hydraulics, and reactor physics. I have served as the Outreach Chair for two years, and enjoy this position in ANS for its community involvement. I am in charge of the Outreach programs for our chapter and look forward to continuing this work in the future.

Social Chair - Doug “Princess” Woods

Email: woodsd@onid.orst.edu

The social chair is responsible for the preparation and execution of ANS chapter social events, which may include barbeques, athletic events, and movie nights. The social chair is greatly involved in the inclusion of underclass nuclear engineering students, since they are traditionally not exposed to ANS on a national level, at events such as the national student conference.

Webmaster - Molly McCulloch

Email: mccullmo@onid.orst.edu

The role of Webmaster entails keeping our website updated with any information that would prove useful to Oregon State ANS members. It also tracks officer election results, and serves as a calendar to alert members of any upcoming events.

Sophomore Representative - Michael Perlin

Email: perlinm@onid.orst.edu

The role of the Sophomore Representative is to keep the sophomore class abreast of any announcements and important happenings taken from officer meetings. This person acts as the liaison between the executive staff and the sophomore class.

Freshman Representative - Arianna Foley

Email: foleya@onid.orst.edu

My name is Ari Foley from Portland, Oregon; Austin, Texas; and Dublin, Ireland and I am a freshman in Nuclear Engineering. I would be interested in focusing on Mathematics and Computation. This year I was the freshman representative for the chapter and worked to help encourage more freshman involvement.

According to the OSU ANS student chapter constitution, officer elections occur each year prior to the end of spring term to ensure a transition period, enabling incoming officers to be more prepared for the upcoming school term in the fall.

Next year's ANS student chapter executive committee will consist of the following members, with their Fall 2013 standing in parantheses. This upcoming school year represents not an unsubstantial number of new executive members, with few incumbents, which will ideally involve a lot of new members into OSU ANS.

President: Travis Neuman (Senior)

Vice President: Grant Blake (Senior)

Secretary: Ari Foley (Sophomore)

Treasurer: Sarah Luebke (Junior)

Outreach Chair: Tommy Holschuh (Graduate)

Social Chair: Nick Boulton (Graduate)

Webmaster: Derek Hubler (Junior)

The sophomore representative and freshman representatives are elected in the fall term of the following year by their respective classes.

Introduction and Statement of Purpose

The Oregon State University Student Chapter of the American Nuclear Society serves a distinct purpose in the department of Nuclear Engineering and Radiation Healthy Physics and the Corvallis community.

Our main roles include interactions within the department, enrichment of our members' and other students' academic experience, and relations outside the department.

When students enter the NERHP department at Oregon State University, they are required to enroll in general science and engineering classes with students from many other engineering majors. Our small student population limits the amount of classes that we take with fellow nuclear engineers. As a result, the ANS chapter provides an additional connection for lower undergraduates and allows them to interact with upper class students, who may have more technical and professional experience.

Our chapter is involved with many aspects of the OSU, the Corvallis community, and the nuclear industry through outreach events. Our influence is constantly expanding through the continued involvement of the ANS executive committee and student members within these non-NERHP realms. Our goal is to inform and educate, but we emphasize the important role that nuclear energy plays in the national and global energy portfolio. In addition, we attempt to gain the interest of younger students by sharing that nuclear engineering can be an exciting career choice for many reasons.

Our ANS section provides a simple way for students to get involved. Our chapter hosts about a dozen recruiting and informational presentations on campus each year, with visitors arriving from national laboratory, industry vendors, and the military. As an organization, ANS also provides a way to give power to individual students. For example, when a student within the NERHP department proposes an outdoor recreational trip, the ANS executive officers will assist the student in organization and planning by sending electronic invitations to students in the department and setting up posters to increase awareness of the trip. In some circumstances, the ANS treasurer may agree to provide some amount of financial assistance for the trip or event.

During the introductory level courses for nuclear engineering at OSU, students are encouraged to apply to become an ANS member by allowing the NERHP department to pay for the first-year membership. As a result, freshman nuclear engineering students begin receiving ANS national publications, as well as the increased awareness of ANS topical meetings and national conferences. From the first year in the OSU NERHP department, students are encouraged to participate in these student and professional conferences to present independent or funded research in the form of podium or poster presentations.

One of the duties for the ANS executive officers involves tutoring for other students within the NERHP department. Since ANS executive officers are usually upperclassmen, they have taken and excelled in courses that lower undergraduate students are currently enrolled in, which results in a mutually beneficial relationship, where younger students gain a greater understanding of their course material as well as potentially become more involved with ANS, while the older students connect with other NERHP students that they would not ordinarily interact with.

ANS Winter Conference

One of the focuses of our ANS chapter at OSU is the annual ANS national student conference. The students in our department perform a large amount of research, both independent and funded, to pursue their academic interests. Getting an opportunity to present at the national conference is a special privilege, and our chapter attempts to bring as many students to the national conference as we can. In fact, at the 2012 ANS student conference, hosted by UNLV in Las Vegas, OSU had the most participants of any visiting school. In addition, in the past years at the ANS national conference, OSU has had several students win awards for their presentations. Though the caliber of work produced by OSU NERHP students is excellent, the winter conference gives presenters extra experience and confidence when they face an audience on the national stage. Our ANS chapter funds airfare for nearly all of our national conference representatives, including the entire executive committee and most of the other ANS members whose abstracts are accepted by the ANS national conference.

Presenting at the ANS national conference may cause some students to become apprehensiveness, so, each year, ANS holds its annual OSU NERHP Winter Conference to prepare for the ANS national conference. The Winter Conference is modeled after the ANS national conference, where students are required to submit abstracts and present their work in front of peers and department professors, who serve as judges and reviewers. Held on a Saturday in the second or third week of the winter trimester, the Winter Conference usually has 20-25 student presenters, in addition to an equal number of observers. At least two professors are present during each session, with topics ranging from thermal hydraulics to environmental radiochemistry.

Attached within this application packet is a brochure from the 2013 OSU NERHP Winter Conference hosted by OSU, which was held on January 19, 2013 and included 22 undergraduate and graduate presenters, who spent most of the day describing their research. Its yearly success has ensured that the annual winter conference will continue in the future.

2013 ANS Student Conference at MIT

At this year's ANS national conference, held at the Boston Renaissance Waterfront Hotel, Oregon State University students presented 11 podium presentation and several podium presentations. The podium presentations were presented in the following categories:

Detection & Measurements

Walter Williams (G), "Neutron Radiography and Tomography: Determining and Optimizing Resolution of Neutron Sensitive MCP Detectors."

Human Factors, Instrumentation, & Controls

Kristofer Zieb (U), "Optimal PID Tuning in Coupled Flow Rate-Pressure Control System at the Oregon State Hydro-Mechanical Fuel Test Facility."

Nuclear Installations Safety

Wesley Deason (G), "Modeling of Fission Product Transport in a Representative Helium-cooled Fast Reactor using STELLA."

Operations & Power

Justin Mart (G), "Feasibility Study on Soluble Boron-Free Operation in a Prototypical Small Modular Reactor Through an Advanced Control Rod Algorithm."

Radiation Protection & Shielding

Ruirui Liu (G), "Study on Sampling and Measurement of ^{210}Po in the Waste Stream of Coal-fired Power Plant."

Reactor Physics

Jackson Harter (U), "Verification of Burnup-Depletion Results for Vented Nuclear Fuel in MCNPX Using ORIGEN-ARP."

Molly McCulloch (U), "Design of Optimization of the Advanced Test Reactor Low Enrichment Fuel for Conversion."

Thermal Hydraulics/Fluids

Robert Aldridge (G), "Development of RELAP-3D Models of the MHTGR and HTTF to be used in Scaling Studies of the HTTF."

Joshua Graves (G), “Top-Down Scaling Analysis of the Integral Reactor Vessel Test Facility.”

Tom Holschuh (U), “Methodology for Strain Gage Adhesion To Test Plates for Measurement During Operations.”

Trevor Howard (G), “Computational Fluid Dynamics Simulation of Vortex Shedding Between Inline Plates.”

The OSU Chapter had one presenter win their category: Undergraduate in Thermal Hydraulics presentation. Overall, the chapter had a great time at the national conference and we look forward to next year’s national conference at Penn State.

ANS BBQ

At the beginning of each year, our ANS chapter hosts a barbeque for all the incoming freshman and returning students. We provide burgers (both meat and veggie varieties), hot dogs, and sides to the students in a picnic style on the lawn in front of the Radiation Center.





ANS Movie Night

During the pursuit of a student's education, it is often beneficial to take a break and relax. ANS hosts several movie nights throughout the term to allow students to eat ANS-funded pizza and snacks, socialize, and enjoy movies such as Dr. Strangelove (Or How I Learned to Stop Worrying and Love the Bomb), Terminator 2, and October Sky.

ANS Soccer Team

Oregon State University facilitates a large number of intramural sports leagues throughout the year. In the spring, soccer is one of the largest IM sports and it encourages both semi-professional and novice players to take part in exciting matches. For the past several years, ANS has sponsored the NERHP soccer team, Cherenkov FC, through its wins and losses (there have been plenty of both). The team encourages students to participate in outdoor activities with other students from the department, since the spring weather in Oregon is exceptionally good.

ANS Nuclear Bowling

The OSU ANS chapter is always open to ideas for new department activities. This year, we tried a new event during the week of midterms to relieve the stress associated with the exams. Undergraduate and graduate students bowled on a series of ANS sponsored lanes. The event was a huge success and there are already future bowling nights being planned for the rest of this year and the next academic year.

List of Companies who gave presentations

Areva

Naval Nuclear Program

Palo Verde Generating Station

Pacific Northwest National Laboratory

NuScale Power

Outreach

Every year, our chapter is involved in several large events at Oregon State University. Discovery Days, a two-day event held twice a year, aims to educate local elementary-age children about science and technology. Booths are set up from a dozen engineering and science disciplines at OSU, each with hands-on, interactive demonstrations to entertain the visitors. Each year, one of the most popular booths is run by the ANS members in the NERHP department. With Geiger counters, radioactive rocks, a functioning cloud chamber, and several nuclear-related activities, it's obvious why the children enjoy our booth so much.

In an effort to continue our goals of public education and local community service, several of the ANS executive officers are involved with the Boy Scout Merit Badge program, in which scouts attempt to earn their nuclear science merit badge by completing hands-on activities and informational worksheets. The local area's scout troops have been eager to learn during these

sessions, and our chapter is proud to maintain such a mutually beneficial relationship with the Boy Scouts of America.



During the fall and spring, Oregon State University hosts Dad's and Mom's weekend, respectively, a time when students and their visiting parent can participate in campus events, see various student organizations?, and take tours of academic departments. Our chapter hosts the tours of the Radiation Center on campus, which includes a visit to the TRIGA reactor and the NERHP department's four large thermal hydraulic test facilities: APEX, MASLWR, HMFTF, and HTTF.

New OSU ANS Website

During previous years, the ANS webpage for the OSU student chapter had been neglected and unmaintained. This year, the website was completely revamped to include more user-friendly features and provide resources for current and prospective chapter members. The webpage includes an up-to-date calendar of ANS events, as well as links to career fair websites, the NERHP Facebook page, and other social media sites. The webmaster took the lead during the site's refurbishment, and the result is a substantial improvement in the overall quality of the webpage's design.

Engineering Expo

During the spring term of each year, OSU hosts its annual Engineering Expo on campus. The Expo highlights the accomplishments of many engineering departments by allowing senior design and research teams to present their work in an open house. Our ANS chapter is available to help any of the NERHP student teams with poster set-up prior to the event. In addition, ANS usually occupies a booth near the entrance to the expo, allowing executive members and student volunteers from the department to engage visitors and inform them of the role that ANS plays within the NERHP department and the OSU community.

List of General Meetings/Officer Meetings

The officers hold bi-weekly meetings in order to stay updated and to prepare for any upcoming events. As an ANS chapter, we attempt to hold general meetings at various occasions during the term for all the students in our department. This year, we have held four general meetings so far: a single meeting in the fall and winter terms, with an additional two so far in this spring term.

Other Organizations

Oregon State University student ANS members are active leaders and members in their local community, and are active in dozens of student groups, philanthropic organizations, professional teams, and athletic affiliations.

- Navy ROTC
- NERHP department Academic Tutors (ANS executive committee)
- LSAMP (Louis Stokes Alliance for Minority Participation)
- OSU Honors Society
- Health Physics Society
- Alpha Nu Sigma chapter executive members
- Oregon State Space Society and Rocketry Team
- ANS Cherenkov FC Soccer Team

Conclusion

Our nuclear engineering department is currently experiencing a boost in student population, which will hopefully transfer into continued and expanded involvement with all of our ANS members as well as within the executive committee. With more students involved, it allows us to participate in social events to improve interactions within the department and in outreach events that incorporate the public to advance the image of a typical nuclear engineer.