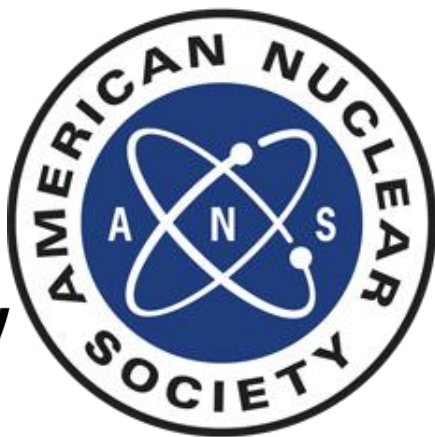


Samuel J. Glasstone Report

University of Idaho

May 2, 2019



University and Section Background

University of Idaho, the premier land grant institution in the state of Idaho, has nearly 12,000 students enrolled across 5 campuses. The main campus in Moscow is home to the majority of students and nearly all the undergraduate students. The satellite campus in Idaho Falls houses the Nuclear Engineering program, as well as other graduate engineering programs, to benefit from strategic partnerships with Idaho National Laboratory. The faculty advisor and the majority of University of Idaho ANS (UI ANS) members reside at the Idaho Falls campus, but a growing number of undergraduate students across the engineering college at the main campus are showing interest in nuclear and ANS. With the two campuses sitting on opposite ends of the state, over 500 miles from each other, the UI ANS section has to manage administrative and logistical tasks differently than any other student section in the country.



To achieve harmony between the two groups, UI ANS organized the Moscow committee this year, including adding the Moscow Committee chair to the executive board. The Moscow Committee Chair became responsible for working with the University and the engineering college under the direction of the UI ANS president. Meetings were held via video conference, generally with 10-15 students in Idaho Falls and 5-7 in Moscow. The president, vice president, faculty advisor and other students also went to Moscow to hold an info session and physically coordinate with the Moscow Committee. This year was the first year, but it is anticipated that a similar trip will be planned yearly. The Moscow students were able to hold some of their own activities, such as engineering week outreach; take part in regional activities, such as Pacific Northwest National Lab Day; and teleconference into events and talks, such as the visit from ANS president John Kelly.

While UI ANS does have logistical difficulties, we are able to draw on 50 years of collective nuclear experience in Eastern Idaho. We have a strong connection with the local section, Idaho ANS (IANS), where the president of UI ANS is invited to each monthly IANS executive meeting to report on UI activity and discuss collaborations. UI students attend IANS dinner meetings regularly and contribute to outreach events that they organize. IANS also helps support UI ANS with professional expertise and financial assistance.

We also work closely with Idaho National Laboratory to put on outreach events around nuclear science week. This has put our students in front of INL researchers and made for great laboratory connections. Last summer 75% of Idaho Falls students interned at INL and at least 1/3 of graduate students do some collaboration that is funded by INL for their research. The INL educational contract with the University also means there are many part time students who are lab employees.

The University of Idaho section, though technically 25 years old, came back from a decade long hiatus about three years ago. As such, it has been our goal to develop lasting programs and

participation that will ensure such a hiatus does not happen again. This year we focused our efforts on three main areas; increasing section participation, participating more in local, regional, and national nuclear programs and ANS, and increasing community outreach.

Finances

The University of Idaho ANS section holds its own bank account, where the money managed by the section treasurer and executive board sits. The table below lists income and expenditures for the 2018-2019 school year. The Idaho ANS local section awarded UI ANS \$1250 to assist with travel for 6 students' travel to ANS conferences. One student's travel cost towards the NETS topical meeting and 5 students' travel costs to the ANS student conference were covered. We also had \$1700 roll over from last year, given to us as seed money from Dr. Bob Borrelli's start up to help ensure that expenses could be paid for upfront, rather than be reimbursed, as reimbursement often creates financial hardships for students who can't front the cost of travel.

Total Income	\$2950
Total Expenditures	\$1250
Roll Over for Next Year	\$1700

Additionally, outside of the ANS account, the UI ANS section was awarded \$1150 from the university's Engineering Students Advisory Council. This money was split into three pots; ANS student conference travel assistance, PNNL Lab day travel assistance, and money for Moscow area outreach events. This money is not managed by UI ANS but is dispersed directly to students to reimburse the cost of the aforementioned activities. Reimbursements are handled by the engineering college and the Nuclear Engineering Department.

Activities

The activities are documented in chronological order.

Pacific Northwest National Laboratory "Lab day" and Framatome Tour

May 2018

Six students went to the Richland WA area for a tour of the Framatome fuel production plant and to participate in the Pacific Northwest National Lab (PNNL) lab day. We first toured the fuel production plant where we learned the entire process for converting the enriched Uranium Hexafluoride to the ceramic fuel pellets used in many Light Water Reactors. This included explanations on down-blending the enriched Uranium and mixing in Gadolinium with the fuel to match each reactor's individual needs.

PNNL lab day consisted of information sessions followed by recruiting activities. In the afternoon, students toured the Hazardous Materials Management and Emergency Response training facility where they learned how customs and border patrol detect radioactive and other hazardous materials in vehicles and shipment. Students were able to search shipping containers and vehicles with

different radiation detection equipment and in the end identify which isotopes were present. The following day we went to the Hanford B reactor and were able to tour the facility. The tour included detailed explanations of the reactor design and operation as well as the shutdown of the cooling system as part of the disarmament treaty with Russia.

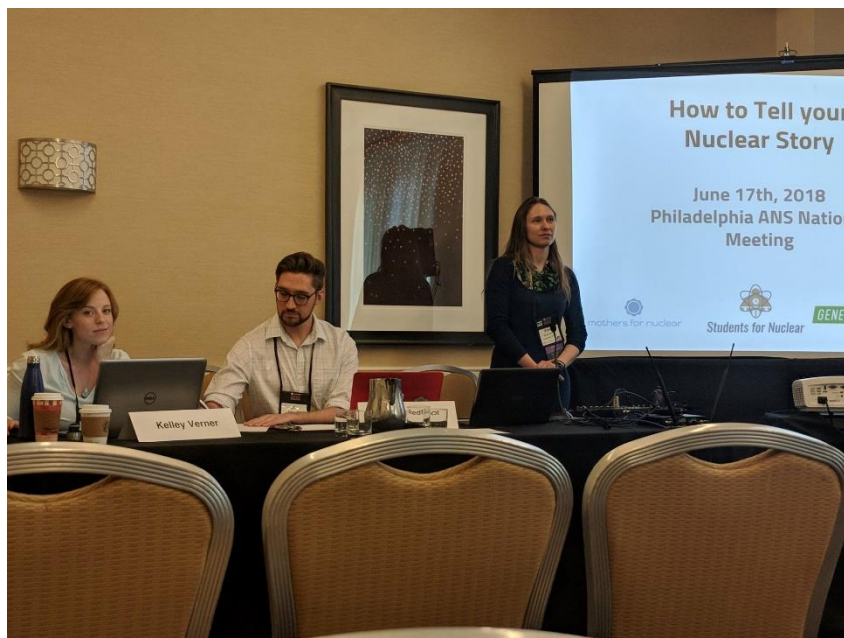
The entire event helped us interface and discuss nuclear with regional university students who do not have nuclear programs (Washington State, University of Washington) and helped students in their professional development as they learned about fuel fabrication, detectors, nuclear arms treaties, etc.



ANS National Meeting in Philadelphia, Pa

June 2018

Five students attended last summer's ANS annual meeting in Philadelphia. All five participated in the student program and three papers were presented. James Richards and Kelley Verner fulfilled their duties as members of the Bylaws and Rules Committee and the Student Sections Committee, respectively. Emma Redfoot and Kelley Verner lead a panel titled "Students for Nuclear—Telling your Nuclear Story—Panel," which focused on helping attendees practice speaking about why they support nuclear energy. Redfoot also planned two other panels, "Water Technologies and Nuclear Power" and "Load Following Attributes for Nuclear".



Idaho Falls Millennial Nuclear Caucus

July 2018

Six University of Idaho ANS members participated in the Idaho Falls Millennial Nuclear Caucus presented by the DOE and INL. One student, Emma Redfoot, served as an advocacy mentor,

discussing policy and advocacy with over 100 students and young professionals who were at the event.

National Nuclear Security Administration Info Session

September 2018

Born through our collaboration with PNNL lab day, we hosted Leesa Duckworth of PNNL for an information session on the National Nuclear Security Administration (NNSA) Fellowship. This prestigious fellowship was awarded to a recent UI graduate, so he was able to come back for this and discuss his experience as an NNSA fellow working at Los Alamos National Laboratory. PNNL and NNSA now plan to come to UI every fall to give this information session.

Nuclear Science Week, Night at the Museum

October 2018

As part of nuclear science week, the University of Idaho ANS section partnered with Idaho National Lab and Idaho ANS to do a “STEM at the Museum” at the Museum of Idaho in Idaho Falls. Over 300 kids, aged K-8, came throughout the day to participate in over a dozen STEM-related activities that focused on hands-on learning. They donned lab coats and observed radiation trails in a cloud chamber, held Geiger counters detecting radiation from bananas, and took home souvenir paintings of their own from mixing paint in baking soda-vinegar reactions, to name just a few activities. Student volunteers from the UI ANS section were present throughout the day to help with the demonstrations and teach related principles while providing insight into a nuclear education and career. The event was successful and has become a recurring partner event between UI ANS, the local IANS, and INL.



Nuclear Family Science Night

October 2018

The section had a table at the Nuclear Science Family Night event, hosted by INL, where we introduced K-12 students to Cherenkov radiation using blue slime. Over 100 students came throughout the course of the evening and participated in the activity.



ANS Meeting and Nuclear Info Session on the Main Campus (Moscow, ID)

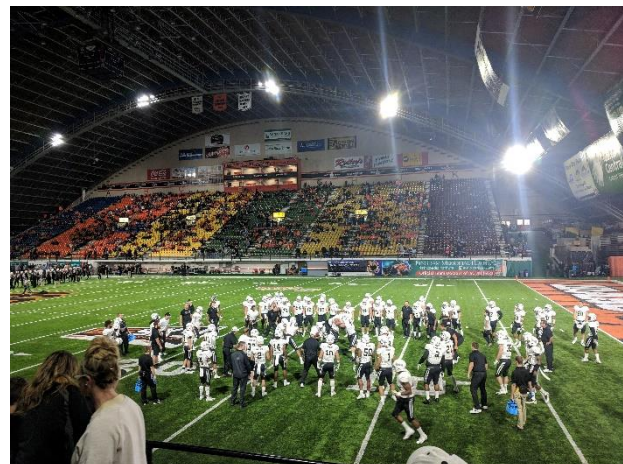
October 2018

The University of Idaho ANS student section is divided between two locations: the main university campus in Moscow and the nuclear engineering-focused satellite campus in Idaho Falls. The faculty advisor and bulk of UI ANS members reside in Idaho Falls. In October of 2018, the President, Vice President, faculty advisor, and several other members from Idaho Falls travelled to the main university campus to meet with the members of the student section and raise awareness for ANS and the graduate nuclear engineering program among those undergraduate students seeking STEM degrees. Over twenty students attended the event, in which student section members discussed their ongoing research, answered questions about the nuclear engineering program, and distributed information about applications and admissions. This trip was also valuable in section management as a Moscow committee was formally organized, meaning they could work as liaisons to the engineering college, the university, and plan more Moscow centric activities.

UI vs ISU Football Game

October 2018

Because of our distance from the main campus, students in Idaho Falls rarely experience athletics. When University of Idaho play Idaho State, which is only a 50 minute drive, we took advantage and organized a section for students to sit in and rides for carpooling down. Fun was had despite UI's porous defense.



Nuclear Care Partners Day of Remembrance

November 2018

Nuclear Care Partners, an organization that provides medical care to elderly and retired workers from the cold war era nuclear industry, put on a luncheon for the retirees under their care and asked that we attend and participate by asking questions and interacting with their patrons. The section sent about 10 students who were able to mingle and discuss the early nuclear industry with these retired workers. This built a respect among students for those who came before in the nuclear industry. It also helped foster a connection among the workers who appreciated the chance to discuss their work with the new generation.

Hosting Brigham Young University ANS section in Idaho Falls

November 2018

As a smaller section, we find it valuable to collaborate with other regional sections. In November 2018, the ANS section from Brigham Young University (BYU) toured the Idaho National Laboratory facilities. After the tour, the University of Idaho (UI) section hosted the BYU section at the Center for Advanced Energy Studies (CAES).

Students from BYU and UI got together and discussed research and graduate school opportunities (since BYU does not have a nuclear engineering program), and the BYU students got a tour of the CAES facility. BYU students were able to have one-on-one discussions with UI students and faculty, to ask questions and learn about UI's unique graduate program. This visit facilitated collaboration between UI and BYU students, and encouraged undergraduate BYU students to consider graduate school at UI or in nuclear engineering in general.



Brigham Young University Info Session

November 2018

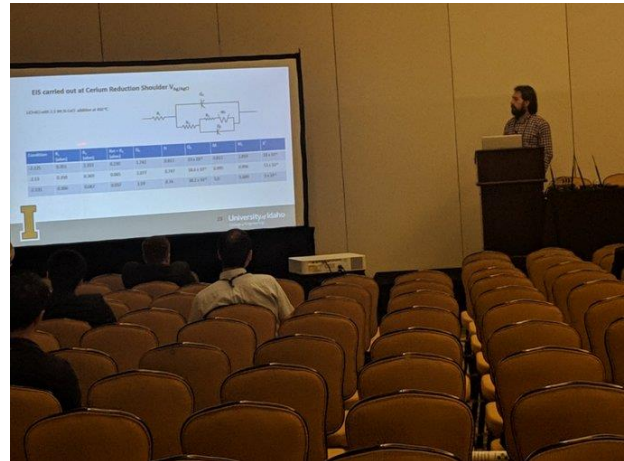
Born out of the previous engagement with BYU, UI students were invited to come give a talk and info session down at BYU. Two students traveled down to Provo, UT, about 300 miles from Idaho Falls. The UI students met with the local BYU ANS section to present information about the nuclear engineering graduate programs at BYU. The presentation included a discussion of research activities at UI, and the unique collaboration opportunities UI has to offer. BYU students were able to ask questions about the program, and have face-to-face interactions with UI graduate students. This

helped BYU students understand what kinds of research go on in nuclear engineering and deepened the connection between the two sections.

ANS Winter Meeting in Orlando, FL

November 2018

Three students attended the ANS winter meeting in Orlando, FL. Two students, James Richards and Kelley Verner, performed their duties on their respective national committees. James also presented a poster and a third student, Brandon Day, presented his materials engineering research. This conference had attendees from both the Idaho Falls and Moscow campuses. All three students were supported in part by the Student Program.



TRIO STEM Event For Local High School Students

December 2018

At the University of Idaho, the Upward Bound Program was started with the purpose of "...providing educational opportunity for all Americans regardless of race, ethnic background or economic status, Congress established a series of programs (TRIO) to help low-income Americans enter college, graduate and move on to participate more fully in America's economic social life." This program is under the College of Education, Health and Human Sciences, or the TRIO programs. This year a "TRIO-Ignite STEM Day" was held at the Center for Advanced Energy Studies and the College of Eastern Idaho (CEI). UIdaho ANS students assisted by demonstrating several scientific experiments for high school students from all around Eastern Idaho. The demos included Elephant Toothpaste,



World of Radiation, and Hands On Power Grid. Students also toured the CAVE at CAES and the campus at CEI. The event was intended to show students fun scientific experiments while also giving

them an opportunity to talk with University students and staff about what college is like and what types of careers are available to them in the state of Idaho. Ninety students participated in each of the three UI booths.

End of the Year Social

December 2018

At the end of December 2018, the University of Idaho ANS student section hosted an end of the year social for students, faculty, and their families in Idaho Falls. Many of the participants brought food and drinks to share, and everyone involved celebrated the start of the winter break following the conclusion of the university's fall semester.

Salt Lake City Millennial Nuclear Caucus

February 2019

In February this year, the U.S. Department of Energy in collaboration with the Utah Associated Municipal Power Systems (UAMPS) hosted the Millennial Nuclear Caucus in Salt Lake City, UT at the State Office Building Auditorium. This event intended to bring together the next generation of leaders in nuclear innovation, had over 100 participants in attendance, four of which were students from the University of Idaho, Idaho Falls ANS.

To facilitate discussion at this event were informative panel members which included; Mason Baker, General Counsel at UAMPS, Lenka Kollar, Director for Business Strategy at NuScale Power, Matthew Memmott, Professor at Brigham Young University and Advisor at Alpha Tech Research Corp, and John Wagner, Associate Laboratory Director at INL, with Suzie Jaworowski, Senior Advisor at DOE NE as the moderator.

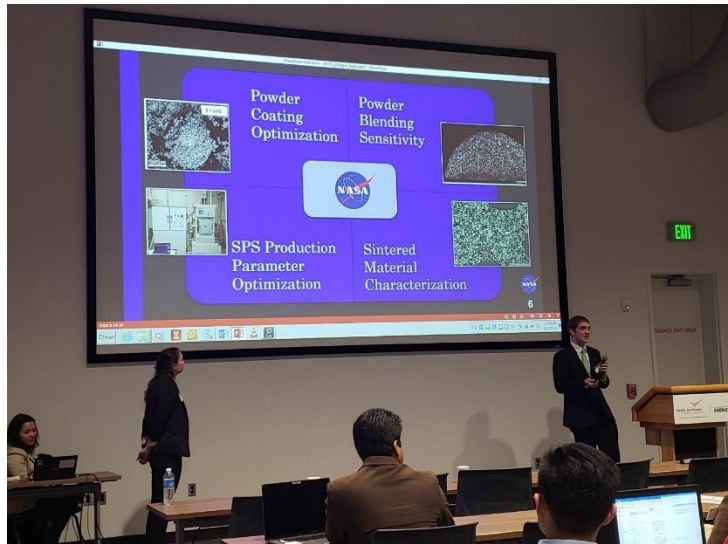
Major points from the discussion included how nuclear energy provides nearly 20 percent of the nation's electricity and is currently the largest source of clean, carbon free energy, the importance of Nuclear for the future of clean energy and the role that Modular Small Reactors (MSRs) can play in this endeavor. John Wagner took some time to elaborate on how the INL, NuScale Power and UAMPS intend to operate and bring to market the electric power generated from a NuScale MSR. The panelists also took turns to talk on the effects this undertaking will have on different aspects of society and the development of nuclear in the country.

The feedback from the U of I ANS members in attendance was that the event was informative about the direction of the development of MSRs in the nation and that it also presented a unique opportunity for networking in the nuclear environment. We were also able to discuss the Nuscale/UAMPS build with the Idaho Falls Mayor, who was in attendance and gave a brief talk because Idaho Falls is a member of the UAMPS project.

Nuclear and Emerging Technologies for Space Applications (NETS) Conference

February 2019

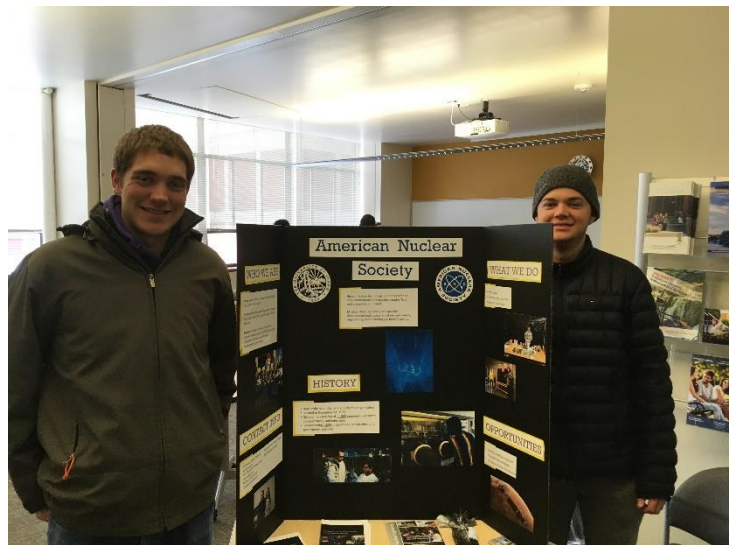
UI ANS sent one student, James Zillinger, to the Nuclear and Emerging Technologies for Space Applications (NETS) in Richland, WA. James presented on summer research previously done on cermet nuclear fuels at the NASA Marshall Space Flight Center. This experience helped James, an undergraduate in materials engineering at the Moscow campus, develop nuclear skills while coming from outside of a traditional nuclear engineering degree. It also allowed for networking with other ANS club presidents and members to compare and share ideas for ways of being involved in our communities and college campuses.



University of Idaho Engineering Week

March 2019

Because UI ANS now has a presence on the main campus in Moscow, we were able to participate in engineering week. The Moscow committee put together a booth and materials to discuss nuclear science and engineering with students during the university's engineering week club fair. They were able to reach hundreds of students and promote nuclear to students who don't see nuclear engineering students on a day to day basis and don't usually think of nuclear as an option.



Visit from ANS President John Kelly

March 2019

The UI ANS section turned 25 this year and we hosted John Kelly, the President of ANS, at a ceremony where he presented the anniversary certificate. Attended by 20 students, we gave Dr. Kelly a tour of our facilities and nuclear reactor simulator, had breakfast, and discussed where the section had been in the last 25 years, and where we would like to go in the next 25. This event was very helpful in having some of our newer members understand how ANS national works and how it helps us directly.



ANS Student Conference at VCU

April 2019

The ANS student conference at Virginia Commonwealth University served a good spring board for several students to further ANS involvement. UI ANS sent 5 students, 4 of which presented research, while Kelley Verner performed her duties as the Vice Chair of the Student Sections Committee. The students also had a booth to discuss UI graduate opportunities with other students. Every UI student that attended was able to make meaningful connections with faculty, professionals, and other students that attended. One student section member, Kelley Verner, was also awarded a Commendation for Student Service and Leadership.



Concluding Remarks: Large Ambition from a Small Section

The University of Idaho section is one of the smallest student sections in the country with around 20 members. Those members are split across two campuses that are over 500 miles apart and span two time zones. There is no nuclear engineering undergraduate program at the University of Idaho. Despite these challenges, students continue to step up and show passion for nuclear science, the University of Idaho, the American Nuclear Society, and the local community.

Only three short years after coming back from a decade long dormant period we now have recurring, yearly collaborative events set up with Idaho National Lab, Pacific Northwest National Lab, IANS, BYU ANS, and local k-12 schools. We have two members that serve on national committees, with one of those taking over as chair in June 2019. We sent 15 students to 4 different ANS conferences over the course of the last year, presenting research and organizing panels. We have interacted with hundreds of local area k-12 students, talked to the Idaho Falls Mayor about nuclear, and worked closely with the local ANS section. And we feel that this is only the beginning.

This group of students has shown the passion and drive to keep UI ANS moving year after year. Different students are constantly stepping up to take on more responsibility, so the same people aren't doing the work every year. There are already plans this coming year to expand the Moscow presence, send students to at least 5 different ANS national, student, or topical meetings, work on advocacy events at the Idaho State capital, and develop connections with other regional universities like Idaho State University and Utah State University. The goal of the University of Idaho ANS student section is always to have an impact at the local, regional, and national levels that defies our small size, and we feel that we have accomplished that this year.

Signed,

University of Idaho ANS 2018/2019 Executive Board

James Richards, President

Kelley Verner, Vice President

Brandon Day, Secretary

Stephen Hancock, Treasurer

James Zillinger, Moscow Committee Chair

Eugene Engmann, Social Media Outreach