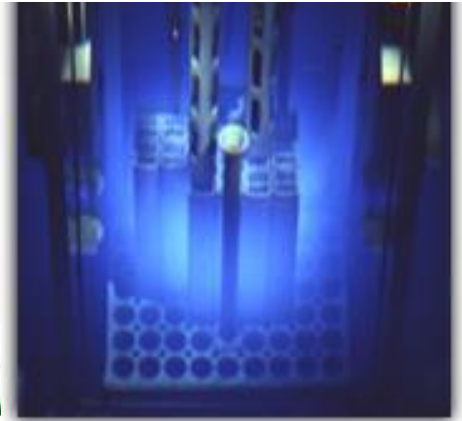




American Nuclear Society Missouri University of Science & Technology

SAMUEL GLASSTONE AWARD APPLICATION 2013-2014



INTRODUCTION

The Missouri University of Science and Technology is an institution dedicated to the advancement of clean and sustainable technology for the developing world. The science and engineering of nuclear energy plays a fundamental role in this vision. We of the local American Nuclear Society recognize this fact and strive to promote its revival in our generation. The nuclear renaissance will begin when the people of our world come to understand this nuclear object, and that has been the focus of this year's local administration. Focusing on outreach and public information has been as much our duty this year as it has been our passion.

PUBLIC INFORMATION

The MS&T chapter of ANS has developed a large public presence on campus and in the community. The chapter has participated and assisted in several public speaking panels, discussions, co-sponsored events, trainings, informative exhibits, and special nuclear career fair events.

Our chapter has significantly increased public speaking events from years past. This year, the chapter held three successful and well-attended speaker events. Rick Eastman, a state-level nuclear lobbyist and employee at the Callaway nuclear power plant in Fulton Missouri, spoke about Westinghouse's recent SMR development and the potential to bring the SMR manufacturing industry to Missouri. He spoke about the importance of nuclear energy for the economy as well as the environment, and our need to update the electrical infrastructure in Missouri. This event was attended by approximately one-hundred and thirty people.

A few weeks later, the chapter co-hosted a panel discussion event with the MS&T French Club about the strengths and successes of the French nuclear energy program. The panel introduced the benefits France has seen as well as the large development of nuclear power in their country and how it has affected Europe as a whole. This discussion was designed to highlight some of the key differences between the French and US nuclear fuel cycles alongside methods that are successful in France despite their absence in

the US. The speakers were professors of the MS&T nuclear engineering department, one of which was our chapter adviser, Dr. Carlos Castaño. Attendance was approximately twenty-five.

In the Spring semester, the chapter and the Mars Rover Design Team co-hosted a speaking event with Dr. Jeffrey King, the interim Director of the Nuclear Science and Engineering Department of the Colorado School of Mines. He discussed the necessities and possibilities for nuclear space propulsion, specifically for thermal nuclear rockets. This event was likewise well-attended with an audience of over one-hundred, among which included engineering students of many different areas, faculty, staff, graduate plasma propulsion research assistants, and recognized student organization members from Advanced Aero Vehicle Group, Mars Rover Design Team, Society of Physics Students, Women in Nuclear, and Alpha Nu Sigma. This event was designed to reach across campus and show MS&T students the fascinating interdisciplinary nature of nuclear science and technology in space applications. Aerospace engineering majors composed a great part of our audience.

In the process of establishing a greater presence on campus, this chapter of ANS has been pushing to work with other organizations, student and otherwise. As such, we have been strengthening relationships with organizations such as Mars Rover Design Team, Women in Nuclear, French Club, Alpha Nu Sigma, and are hoping to increase relationships with many other areas of campus as well. To assist in this endeavor, members of the ANS chapter attended a conference and workshop to practice with working towards common goals with other organizations. This workshop focused on developing stronger advertising methods for events and the planning of co-sponsored events, skills that our chapter has taken advantage of fully.

We are working to increase membership and visibility by having posters and booths present at the freshman registration and orientation events on campus. Our chapter took part in MS&T Earth Day festivities, as we had a booth to interest and inspire all age groups in the benefits of nuclear energy. By doing this, we are providing positive information about nuclear

energy to a greater part of the Rolla and campus community. The Earth Day event was attended primarily by elementary school students, and several expressed interest in looking into nuclear engineering as a future career.

COMMUNITY SERVICE

The MS&T chapter of ANS has worked to introduce young minds to the nuclear sciences by hosting a nuclear merit badge program for several Boy Scout troops. This was a campus wide event, known as the "Rolla Merit Badge University," for which hundreds of Boy Scout troops attended. ANS lead a group of about thirty boy scouts through various aspects of nuclear science, such as radiation, fission energy, industrial applications, and nuclear medical practices. Along with presentations and hands-on workshops, the boy scouts were led around campus with Geiger-Muller counters to identify objects and locations exhibiting high radiation. It was shown that harmless granite sculptures gave off more radiation than did the outer walls of the containment building of our on-campus nuclear reactor, MSTR. The Boy Scouts were subsequently given a tour of the MSTR facility and were shown how nuclear binding energy can be used to produce clean electricity. To expose our scouts to the medical applications of nuclear science, they were given a tour of the radiation oncology department at the local hospital, Phelps Country Regional Medical Center.

This year, our chapter has Adopted a Highway in the city of Rolla, under the Missouri Department of Transportation. We have sent approximately a dozen volunteers to clean this highway in the month of April, as part of the No More Trash initiative. This event proved to be an enjoyable and social event for those who attended, and inspired several social event ideas later in the semester.

UNIVERSITY SERVICE

In MS&T's mining and nuclear engineering departments, the graduate students are required to attend a certain number of seminars provided by the

department. Our ANS chapter has provided several speaking events, as described in Public Information, that have been of sufficient quality to allow these graduate students to meet their seminar attendance requirements by attending them. In this respect, our chapter is assisting the mining and nuclear engineering departments in providing our students the quality academic and professional seminars that give our students an edge in the nuclear community.

Early in the academic year, our members attended an Engineering Ethics panel presentation in Leach Theater. This presentation featured an architectural engineer's recount of a building collapse, and a NASA scientist's telling of the Columbia shuttle disaster, among others. Especially in the field of nuclear engineering, we understand the necessity of our commitment to maintaining a moral standard in engineering design and safety.

At the 2014 ANS Student Conference, one of our attending members provided our department with some positive reputation and national visibility. Susan Sipaun, a Ph.D. student doing work under Dr. Shoab Usman, won the Best Graduate Poster Award.

Additionally, several members help coordinate the Nuclear Engineering Summer Camp, a special program that focuses on recruiting high school students into the nuclear engineering department, and inspiring interest in the nuclear sciences.

PROFESSIONAL DEVELOPMENT

The MS&T chapter of ANS encourages all members of the department to attend a special Nuclear Career Fair, which is organized by Women in Nuclear. This promotion increases interest and career fair participation by the department, especially in new freshmen who may lack direction in the standard campus career fair.

Our chapter has a notable amount of students involved in research and special academics. A small contingent of our research-involved members was able to present their work at the Opportunities for Undergraduate Research Experiences expo earlier this semester, a campus-wide event at MS&T.

Additionally, many of our members attend the bi-weekly Mining and Nuclear Engineering Department graduate seminars, especially those who have earned a departmental scholarship.

Our chapter of ANS has helped develop a new departmental initiative, headed by several nuclear engineering graduate students, to teach technical computer skills such as MATLAB, LaTeX, Star-CCM+, and MCNP5 to our department's undergraduate students. This initiative has already helped many learn the basics of MATLAB, after starting only several weeks ago.

Individual students from our chapter have also taken initiative to strive for recognition beyond MS&T. Webmaster Keith Sponsler earned the American Nuclear Society Sophomore Undergraduate Scholarship for this academic year, and our Student Council Representative Benjamin Prewitt was offered a WISE internship for the summer of 2014.

NUCLEAR INDUSTRY SUPPORT

In addition to hosting Rick Eastman as a speaker for the event mentioned in Public Information, this chapter has offered its support to the nuclear industry by regularly attending the ANS Student Conferences and networking with employers to garner ANS-to-employer communications. Often in the president's officer report in chapter meetings, Dylan Prevost includes a slide that describes current industrial activity in the nuclear engineering field that members should be made aware of. Such reports have included the construction of AP1000 units in China and the southern US, SMR policy development in Tennessee, nuclear waste policy development in Nevada, and NuScale's ambitious SMR business plan.

The success of the future nuclear industry will depend on the number of nuclear engineering students that are recruited into undergraduate programs in our universities. In light of this, our chapter will be hosting a recruitment smoker at the beginning of next year to stimulate interest in the nuclear engineering department. We will invite professors to give a brief talk about why they love the nuclear sciences, what their research interests are, and any academic projects

they would like to have help on or see happen. As a smaller university, we students have the benefit of getting to know our professors personally, and it is our intention to show the new freshman and older engineering students that our professors are approachable, friendly, and always looking to hire research assistants. The nuclear community is small and inviting group of passionate individuals, and it is our hope that others will see this as well.

SOCIAL EVENTS

This semester, the MS&T chapter of ANS has started a tradition of doing "Classy Bowling" every semester. Members dressed up in formalwear and went to the local bowling alley for a night of classy and carefree fun. After bowling, the group went out to a local restaurant to eat and spend time socializing. More people attended Classy Bowling in the second semester than the first, and many people are interested in the concept, so we plan on continuing to do this every semester.

Our Chapter is also combining a movie night potluck with a book release party for one of our professors. Dr. John Story, a physics professor at MS&T and someone all nuclear engineering majors here meet before they graduate, has recently published a science-fiction novel that is going on sale this Friday. Due to the fact that all nuclear engineering majors at MS&T are required to take his modern physics class and so many enjoy it, ANS is encouraging members to attend his book release and signing party at a local restaurant. Directly after this, our chapter is getting together to watch Pandora's Promise, a powerful documentary which details the benefits of nuclear energy. We believe that through social events such as these, ANS can grow in membership and also in strength. We recognize that an officer team and a chapter body that can appreciate each other's company in a purely relaxed and social environment is a chapter capable of great success.

SECTION MANAGEMENT

During the academic year, our chapter has planned several fundraising events, primarily in t-shirt sales. The “limit” shirts we sell are on campus have a legend behind them, as they have been around for longer than any of our members have been alive, and are recognized by alumni not much younger than a great deal of our professors. Several times throughout the year we have sold various shirts to individuals and other organizations on campus, and are petitioning to having them be sold in our campus bookstore. In the winter time, we combine hot chocolate sales with these t-shirt selling booths, and have done so with much success in the past year.

Communication within our chapter and the campus community is important. To ensure all members are informed of events and functions of the organization, an online system by the name of “OrgSync” has been implemented on the MS&T campus, and our chapter has created and maintained one of these accounts in this academic year. The system is designed to mimic Facebook in the way that it helps students synchronize their schedules around all the organization events they are involved in, and we find it to be a great tool for chapter organization.

Every academic year, the nuclear engineering department releases a department newsletter by the name of “The News~Tron Transport”, and every year, our chapter submits a one-page article for this publication, as a means to communicate the successes of the chapter and stimulate interest in our fellow engineering students. However, since our chapter has become much more active this year than it has been in recent years, we will begin publishing our own newsletter- the first of which will be completed before the first chapter meeting of next semester.

MOVING FORWARD

The Missouri University of Science and Technology American Nuclear Society student chapter has grown considerably this academic year and is looking to increase membership through a strategic recruiting

plan, to be effective early next semester. Beyond simply gaining more members, we are looking at ways to keep everyone involved, no matter the size of our organization. The use of planning committees will be implemented next semester, in several types: Social and PR, Outreach Coordination, Fundraising, Scholarship, and Service. We will focus on quantitative goals for each committee, per semester, and set our expectations of each committee early in the semester.

Specific goals we have in mind are starting up a tradition to show Pandora’s Promise once per semester on campus, and with each showing, hosting a new and engaging speaker. This year, our chapter has worked closely with the Energy Research and Development Center of MS&T to plan a public Pandora’s Promise event in the city of Rolla, and have received significant funding from them for the DVD’s public performance right’s license. They have additionally offered to help us get in contact with Dr. Patrick Moore, co-founder of Greenpeace and nuclear energy advocate, to invite as a speaker to one of these events. We have also come into personal contact with Michael Shellenberger, a star in the film and CEO of the Breakthrough Institute, and are looking for ways to fund his visit to MS&T.

We have a young officer team and a strong sense of purpose here at MS&T, and look forward to another exciting year of building ANS’s influence in the Missouri community.