



VCU Section of the American Nuclear Society



2017 - 2018 Samuel J. Glasstone Application

Submitted to the ANS Glasstone Award Committee

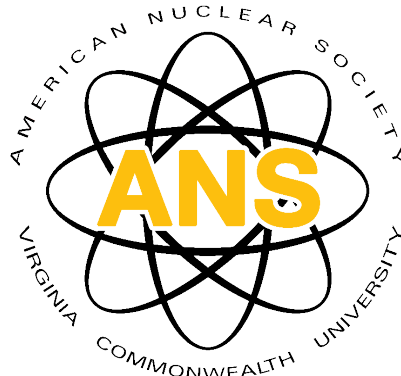
May 1, 2018

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Introduction

The nuclear engineering program at Virginia Commonwealth University (VCU) has always been committed to advancing nuclear engineering education and research. VCU is the leading provider of nuclear engineering education in the Commonwealth of Virginia and according to the U.S News & World Report, the VCU nuclear engineering program was ranked number 24 in the U.S. VCU is currently the only university in Virginia to offer a full complement of degrees in nuclear engineering, including an ABET accredited BS and State Council of Higher Education for Virginia (SCHEV) approved MS and PhD. Currently, there are approximately 100 students enrolled in the undergraduate nuclear engineering major concentration and about 115 graduate students enrolled in the MS and PhD programs in the country's only hybrid mechanical and nuclear engineering program. The VCU student section of the American Nuclear Society (ANS at VCU) started in 2011, and has remained extremely active since, offering professional development and outreach opportunities to VCU nuclear engineering students.

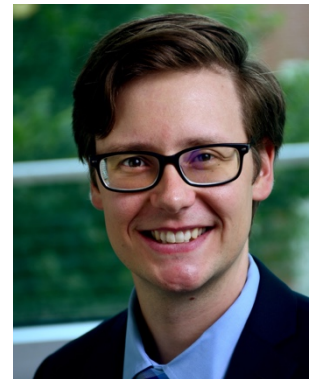
The 2017-2018 academic year was an exciting year for ANS at VCU. We increased our paid membership roster by over thirty percent from the previous year. In addition to increasing our membership, our list of accomplishments includes submitting the winning bid to host the 2019 ANS Student Conference, holding the second annual Day at the VA Capitol, hosting and promoting the Richmond, VA premiere of *The New Fire*, and designing and implementing graduation regalia to distinguish those undergraduate students in the nuclear engineering major concentration. Additionally, ANS at VCU was recognized as the Outstanding Graduate and Professional Student Organization by the VCU Student Government Association (VCU SGA) based on our professional development opportunities, public education and advocacy events, and distinguished list of speakers hosted at our meetings.

Executive Board

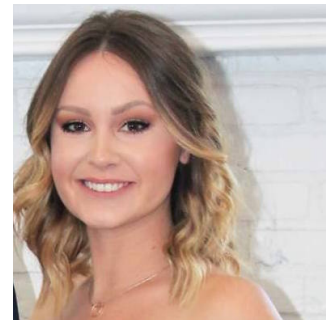
The executive board of ANS at VCU is comprised of the president, vice president, treasurer and secretary. Additionally, three governors are elected to complete the executive board. Two of these governors serve as chair positions. One is the program chair and arranges the speakers and other details of our two regular general body meetings a month. The other is the social media/website chair and manages our social media accounts and website. Finally, the third governor is simply a voting member of the executive board who provides assistance as needed. The main goal of this year's executive board was exposing members and general public to the latest advances in nuclear engineering by strategically planning events onsite and off campus.

2017-2018 Executive Board

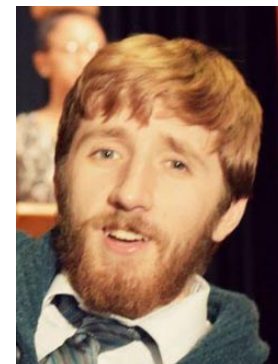
President: Daniell Tincher served as the president. Daniell is a PhD candidate in his third year in the Mechanical and Nuclear Engineering Department at VCU and a U.S. DOE NEUP Fellow. His research focuses on real-time, interactive modeling and simulation of nuclear power plants to engage nuclear engineering students and improve the efficiency of nuclear power plant studies. He has been active in ANS in student and local sections and as a national member since 2009.



Vice-President: Brooke Bates served as the vice president. She is a senior undergraduate student pursuing a B.S. in Mechanical and Nuclear Engineering. She is currently a PRA intern for Dominion Energy and has accepted a full-time position there contingent on graduation. She is also active in the VA-ANS local section. Furthermore, she has successfully organized the Girl Scout and Boy Scout Getting to Know Nuclear Patch and Nuclear Science merit badge workshops.



Treasurer: Joshua Billion was the treasurer this past year and is a senior in the Physics Department at VCU. His interests lie in medical nuclear application and he is hoping to attend graduate school to pursue this interest further.



Secretary: Michael Woods was the elected secretary this year, he is a PhD candidate in in the VCU Mechanical and Nuclear Engineering department. His graduate research focuses on electrochemical separations for alkali/alkaline-earth fission products from used nuclear fuel. He serves as a member at large of the Executive Committee of the VA-ANS local section and he has presented his work at ANS student, winter, and annual conferences.



Program Chair: Daniel Bond was the program chair for this past year. He is a PhD candidate in the Department of Mechanical and Nuclear Engineering with an interest spacecraft shielding for manned missions into deep space using both NASA's On-Line Tool for the Assessment of Radiation In Space (OLTARIS) and LANL's Monte Carlo N-Particle Code (MCNP). His main job in the ANS at VCU section is to coordinate and schedule the speakers for the twice-monthly, general body meetings.



Social Media/Website Chair: Maria Molina is currently the social media/website chair, and she is a PhD candidate in Mechanical and Nuclear Engineering at VCU. Her research focuses on the development of a new nanomaterial that enhances the sensitivity of harmful tissue to radiation therapy. This year she completely revamped the website of the ANS at VCU section to make it more user-friendly and better manage membership. She served as the Student Program Co-Chair at the 2017 ANS Winter meeting in Washington DC.



Governor: Hunter Kobrinetz served as the governor to round out the executive board. He is currently a sophomore pursuing a B.S. in Mechanical Engineering with a Nuclear Concentration. He is also in pursuit of a Physics degree to complement the nuclear degree. Hunter also served as a co-chair for the ANS at VCU bid to host the 2019 ANS Student Conference.



2018-2019 Executive Board

The new slate of officers to serve on the Executive Board were elected the week of April 16-20, 2018. The newly elected officers began attending all Executive Board meetings immediately after being elected along with the existing officers. Each officer position has implemented a knowledge transfer plan and have documented the necessary information for the position to ensure the smoothest possible transition from current officers to the new ones. The slate of officers to serve on the next Executive Board are listed below along with their new contact information.

ANS at VCU Executive Board Members for 2018-2019 Academic Year.

Position	Name	Email	Phone
President	Dimitris Killinger	killingerdp@vcu.edu	804-615-1941
Vice President	Meredith Eaheart	eaheartmb@vcu.edu	804-539-6388
Treasurer	Michael Woods	woodsme2@vcu.edu	850-218-9536
Secretary	RK Umretiya	umretiyarv@vcu.edu	410-567-6306
Program Chair	Sarah Strickler	stricklersc@vcu.edu	540-574-1859
Social Media/Website Chair	Maria Molina	molinahiggimc@vcu.edu	804-928-2461
Governor	Daniell Tincher	tincherdj@vcu.edu	770-710-6385

Student Section Management

Finance

Ensuring a solid financial foundation for our student section each year is a priority for our executive board. Each year, we set a budget and make contingency plans to ensure the financial success of the section. Included in the priorities for the budget are planning enough funding to send as many students as possible to the ANS Student Conference. Additionally, we make every effort to send a large number of students to the ANS Winter Meeting. Support for these efforts is sought from donations from local partners such as the Virginia section of the ANS and Dominion Energy. Additionally, the treasurer and president apply for funding through the VCU Student Government Association (SGA). In addition to funding travel to conferences, our budget also plans for outreach events and advocacy events. ANS at VCU has created an efficient process to secure supplies for the Boy Scouts and Girl Scouts workshops at a minimal cost by documenting what is required and where to get the best prices. Our income is comprised of membership dues, donations, and VCU SGA funding.

This year, our budget shows a loss of \$320.43 over the previous year's ending balance. The main contributor to this was the purchase of graduation cords (qty. 200). This large purchase took advantage of a reduced per unit cost and will enable ANS at VCU to continue to sell these cords to graduating nuclear engineering students for years to come. These cords will be sold to student members of ANS at VCU for \$5 each and to non-members at \$10 each.

2017-2018 ANS at VCU Financial Report.

Expenses	Amount	Comment
Food for Meetings	\$497.76	Mostly pizza
General Supplies	\$196.43	Plates, cups, napkins, etc.
T-Shirts	\$378.00	
Graduation Cords	\$495.00	One-time cost to last for years to come
Nuclear Science Week	\$450.29	Food and promotional coffee cups
ANS Winter Meeting	\$823.11	Hotel
ANS Student Conference	\$1,435.97	Travel
Total Expenses	\$4,276.56	
Income	Amount	Comment
Dues	\$964.48	\$20 per member, PayPal payments require a fee
VCU SGA Reimbursement	\$530.68	
VA-ANS Donation	\$1,000.00	
Graduation Cords Sales	\$25.00	
ANS Student Conference Reimbursement	(\$1,435.97)	Anticipated
Total Income	\$3,956.13	
Bank Account Balance		
August 18, 2017	\$2,022.21	Starting balance
May 1, 2018	\$1,701.78	Ending balance

File Management

We use a Google Drive hosted by the university to maintain records and retain knowledge. This drive is accessible to all executive board members as well as those members that require access. This Google Drive has been invaluable as the repository for speaker contacts, financial records, and planning documents. Additionally, this drive helps ensure a smooth transition from the previous slate of officers to the next.

Section Promotion

This year, we developed two ways to promote ANS at VCU. The first was the annual t-shirt. Each member receives a shirt when they pay their dues. Additionally, we special ordered graduation regalia to honor and highlight those students graduating with the nuclear engineering major concentration. Previously, there was no distinction for those students who put in the extra work to earn this nuclear engineering major concentration from the other mechanical engineering students during graduation ceremonies. After submitting our design to the VCU Dean of Students, our cords were approved. The design features magenta and yellow intertwined rope.



2017-2018 T-shirt design for ANS at VCU.



Approved graduation cords for nuclear engineering students features magenta and yellow rope.

Website

This year, our website/social media chair, Maria Molina, undertook the redesign of our website. The new website matches the formatting from the national ANS website and more importantly, it should be a more sustainable website. The maintenance of the website will be simpler than the previous version and any new webmasters should be able to easily take ownership. The url for our website is <http://student.ans.org/vcu/>.

Social Media

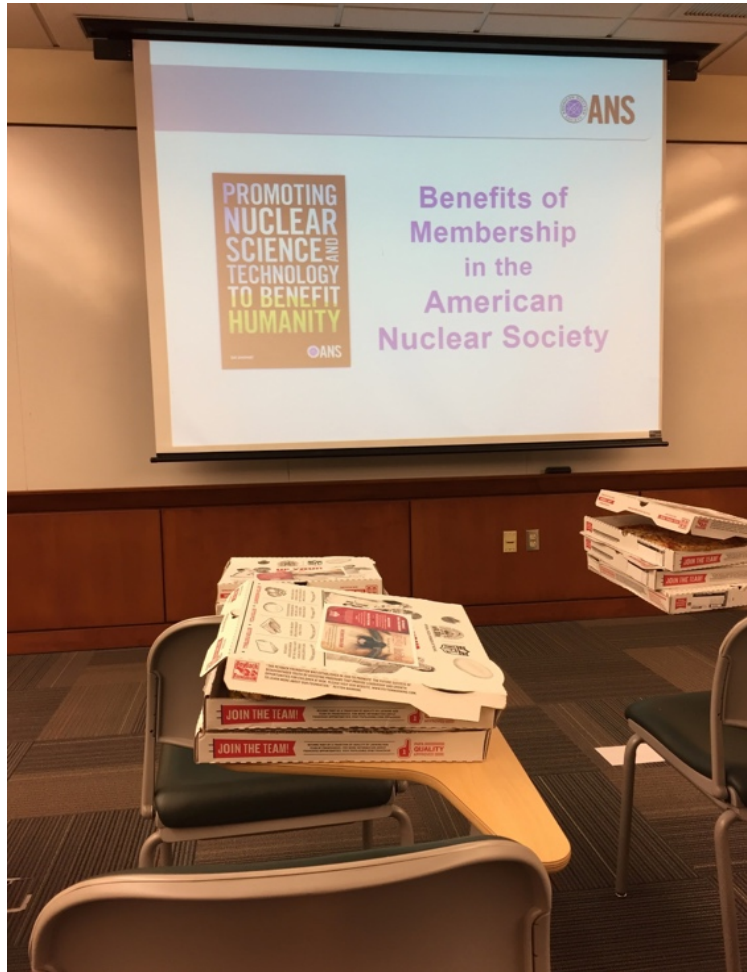
We have increased our social media presence for ANS at VCU by taking control of our Facebook account and making four officers as administrators of this account. This way, the burden of maintaining a presence is spread out. Additionally, we have continued to maintain our Instagram and Twitter accounts.



Some of our Facebook posts reached close to two thousand people.

General Body Meetings

ANS at VCU typically hosts two general body meetings a month. These meetings start with the normal business of the section, which includes announcements, enlisting volunteers for upcoming events, and reports from the executive board as necessary. The meetings then feature an invited guest speaker. Most meetings provide food, typically pizza, to all in attendance at no charge. The general body meetings typically occur every other Thursday evening at 7pm.



Pizza...one of the many benefits of membership in the American Nuclear Society.

Sept. 14, 2017 - Get to Know Nuclear at VCU

At this meeting, we had about 40 people in attendance. Our nuclear faculty introduced themselves, their research, and discussed any needs they had for student help on projects they were working on this year. We knew that many of our new members would be fairly new to the department, and we had two new nuclear faculty join our department recently. This was a chance for members to get to know our faculty, since sometimes, it can take up to two years for students to have all of the professors in class. Our speakers were Dr. Sama Bilbao y Leon, Dr. Supathorn Phongikaroon, Dr. Jessika Rojas, Dr. Braden Goddard, and Dr. Zeyun Wu. At this meeting, VCU ANS provided pizza and drinks for all those in attendance.



Dr. Rojas is a faculty member that specializes in the combined use of nanomaterials and radiation. Here, she explains her work at the first general body meeting for ANS at VCU.

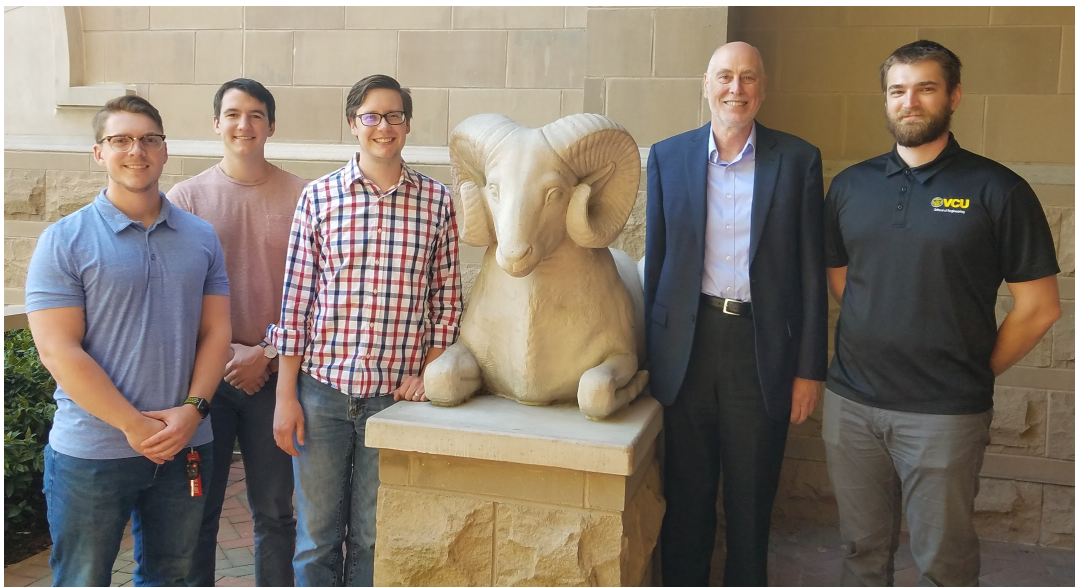
Sept. 28, 2017 - Student Members' Summer Adventures

This meeting highlighted the exciting things that our members did over the summer. The purpose of this meeting was to bring awareness to the numerous opportunities for undergrads and graduate students, alike, over the summer. It is important that students are made aware of these opportunities early, since they often require applications or networking well in advance. Student members Sarah Morgan, Cody Llyod, Brandon Dodd, Jake Littlepage, Ivan Cano, Daniell Tincher, and Nagen Sapkota all spoke about their respective summer activities. This included: internships at Oak Ridge and Argonne National Laboratories, a study abroad trip in Dresden, Germany for a nuclear reactor practicum, Nuclear Facilities Experience (NFE) trips to Japan and the U.K., the CASL institute, and a workshop on nuclear non-proliferation held at the Middlebury Institute of International Studies at Monterey. VCU ANS provided pizza and drinks for all those in attendance.

Oct. 12, 2017 - Andrew Hutton, from Jefferson Lab

Our speaker for this meeting was Dr. Andrew Hutton, the previous Associate Director of Accelerators at Thomas Jefferson National Accelerator Facility. Dr. Hutton described Jefferson Lab in Newport News, VA, a fantastic world-class nuclear science facility that we have just in VCU's backyard, yet most of us know very little about it.

Jefferson Lab in Newport News, Virginia is part of the Department of Energy National Lab System and is focused on using superconducting accelerators to perform fundamental research in Nuclear Physics. The talk described the facilities and the kind of research that is carried out to improve the accelerator capabilities. The talk also addressed the Electron-Ion Collider, JLEIC, which is being designed right now as a future expansion of Jefferson Lab.



Dr. Andrew Hutton poses for a photo with ANS at VCU members and a VCU ram.

Oct. 26, 2017 - Andrew Paterson, Principal, Environmental Business International - Joint Meeting with VA ANS hosted at VCU



This meeting was a joint meeting between the Virginia local section, VA-ANS, and the ANS at VCU student section. ANS at VCU hosted this meeting on campus, and in addition to the exciting speaker, this meeting featured better food than just pizza, and most importantly provided a great networking opportunity for our students.

Our speaker was Andrew Paterson, who brings nearly three decades of experience to projects in the energy and environmental industries, focused on analysis of policy and commercial markets in energy

technology and finance. He is a board member and principal with Environmental Business International (since 1990), and a principal with its financing affiliate, Verdigris Capital, LLC. While at Econergy, a private equity developer of clean energy and carbon resource projects, he worked on energy project finance and carbon management projects focused in the Americas (acquired in December 2008 by GDF-Suez). From 1997-2006, he worked in the Policy Office of the U.S. Department of Energy analyzing and implementing many aspects of the Energy Policy Act of 2005. In 2013, he was selected Scholar of the Year at the George Mason University School of Public Policy and is now pursuing a PhD in Energy Policy at GMU. During 2015-16, he served on the ANS Committee to the States aimed at evaluating improvements to rate structures and policy measures for the current reactor fleet.

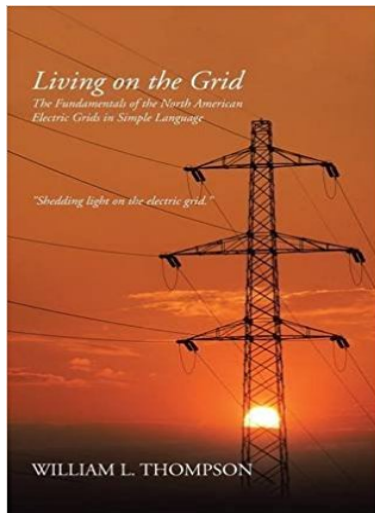
Mr. Paterson's talk is summarized here:

Expanding populations in Asia, high levels of economic growth, and increasing urbanization are combining to create demand for large amounts of reliable and affordable base-load electricity. Governments in Asia and some in the Middle East have recognized this need and have made nuclear power a major part of the energy mix they are developing to meet this demand. China alone is expected to have eight mega-cities (population over ten million) and more than 200 cities with over one million residents by 2030. Affordable baseload electricity is crucial for these countries to sustain the high level of economic growth they have experienced during the last decade. Government support, via regulations and financing, has been pivotal to the accelerated growth of nuclear energy. In China and India, as well as most of Asia and Europe, government enterprises are responsible for the construction and operation of nuclear power plants. The USA cannot idly let its leadership position wither away in the global nuclear energy landscape. In the nuclear arena, leadership cannot be simply "restored" based on the old "push" model of Supply-side dominance from the 20th Century. Urban demand-side factors outside Europe and North America now are pulling nuclear power construction forward in the 21st Century to satisfy burgeoning electric demand, primarily in Asian cities, and for growing populations and water needs in the Middle East and Africa. USA and allies must redefine leadership in nuclear energy via international partnerships and alliances that are unfolding now.



Formal ANS dinner hosted with VA ANS, where students have the opportunity to interact with professionals from the nuclear industry.

Nov. 9, 2017 - Bill Thompson - Retired from Dominion Energy, Electrical Engineer and Director of Grid Operations



Veteran electrical engineer Bill Thompson explained in lay terms how the electric grid actually works, what is needed for it to be reliable and stable, and how the price of electricity is set. This is yet another very important aspect of electricity production that we, as nuclear engineers, need to be knowledgeable about.

Mr. Thompson is an electrical engineer who has extensive experience working for Dominion Energy. He recently authored a book called [*Living on the Grid*](#) which presents an approachable explanation to how the electrical grid operates. Mr. Thompson's talk presented a high-level overview of the electrical grid and discussed several case studies that exemplify the challenges that must be overcome to ensure that our electricity flows constantly and consistently.

November 28, 2017 - Sam Brinton, Core Solutions Consulting and Trevor Project

Sam Brinton was invited to speak at VCU for two engagements. One of those engagements was with the Health Physics Society, who graciously invited ANS at VCU to join. Ten ANS members attended and spoke with Sam after the meeting. Sam discussed nuclear waste policy and options for nuclear waste disposal. The ANS students in attendance asked detailed questions and carried on a valuable discussion led by Sam.



ANS at VCU participation on the first weekly seminar of the health physics society at VCU.

January 18, 2018 - ANS Student Conference Summary Workshop

We hosted a workshop for those interested in submitting a summary to the 2018 ANS Student Conference at the University of Florida. At this meeting, professors and graduate students were available to review and help undergrads with their summaries. Students were able to get help with formatting, proof-reading, and the summary submission process. In addition, students were able to ask questions and get a feel for what is required of a project to be presented at a student conference.

January 25, 2018 - Dr. Rita Baranwal, Director of the Gateway for Advanced Innovation in Nuclear Program (GAIN), U.S. Department of Energy - Joint Meeting with VA ANS hosted at VCU



Dr. Baranwal addressed an audience comprised of both professionals from the VA ANS local section and students from the ANS at VCU section. This was another joint meeting whose purpose was to encourage networking between the two groups. Dr. Baranwal discussed the U.S. Department of Energy's Gateway for Accelerated Innovation in Nuclear (GAIN) initiative. GAIN's vision for 2030 is that the U.S. nuclear industry is equipped to lead the world in deployment of innovative nuclear technologies to supply urgently needed abundant clean energy both domestically and globally. GAIN's mission is to provide the nuclear energy industry with access to

technical, regulatory and financial support necessary to move innovative nuclear energy technologies toward commercialization in an accelerated and cost-effective fashion.

Dr. Rita Baranwal joined Idaho National Laboratory's (INL) Nuclear Science & Technology directorate in August 2016 as the Director for the Gateway for Accelerated Innovation in Nuclear (GAIN) initiative. She is responsible for providing the nuclear industry and other stakeholders access to the U.S. Department of Energy's (DOE) state-of-the-art research, development (R&D) expertise, capabilities, and infrastructure to achieve faster and cost-effective development, demonstration, and ultimate deployment of innovative nuclear energy technologies.

January 30, 2018 - Day at the Capitol Training - Marshall Cohen and April Wade from Virginia Nuclear Energy Consortium (VNEC)

At this meeting students learned how to talk about nuclear science and technology with state-level elected officials. This meeting was held the week prior to our second annual Day at the Virginia Capitol. Executive Director of VNEC, Marshall Cohen, and Communications Director of

VNEC, April Wade answered our questions and helped us prepare our policy statements and how we wanted to present these in our meetings with state-level officials.



February 22, 2018 - William Jaewoo Shim - Dankook University

Dr. William Jaewoo Shim is a professor at Dankook University in South Korea and visited VCU to sign an MOU for cooperation between our universities. He was able to make time to speak to ANS at VCU. He presented a method to predict CHF (Critical Heat Flux) in vertical round tubes with uniform and cosine heat flux distribution is presented. Initially a uniform correlation, based on local condition hypothesis, was developed from 9,366 CHF data points of uniform heat flux of water flowing in vertical upward tubes. The uniform CHF correlation that is developed can be utilized to provide a platform to predict CHF accurately in a non- uniform heat flux heater for wide flow conditions. The new correlation predicted CHF in tubes of cosine heat flux, which consisted 297 data points from 5 different published sources, within the root mean square error of 12.42% and average error of 1.06% using the heat balance method.

March 22, 2018 - David Weisz, Postdoc at Lawrence Livermore National Laboratory, Joint Meeting with INMM



Dr. David Weisz, a VCU alumnus, is currently a postdoctoral researcher at Lawrence Livermore National Laboratory (LLNL). He spoke to a joint audience of the newly formed chapter of the Institute of Nuclear Materials Management (INMM) at VCU and ANS at VCU. His talk was entitled, "Experimental Emission Spectroscopy for Understanding Fallout Formation and Uranium Chemistry." He gave an overview of the national laboratory system based on his experience at LLNL. He also discussed his research on emission spectra from uranium laser-ablation plasmas, which allows the observation of high-temperatures uranium oxidation chemistry in real-time. These results can then be used as input parameters to a kinetics-based, semi-empirical computation model.

March 29 - Student Presentation Practice Sessions for the 2018 ANS Student Conference

This meeting provided an opportunity for our members to practice their presentations for the 2018 ANS Student Conference at the University of Florida. Four students practiced their

presentations and received feedback from the audience. In addition to helping those who planned to present the following week at the conference, this was a chance for our members to learn about the research that is being conducted at VCU.

April 12 - 2018 ANS Student Conference Recap and Executive Board Candidate Speeches

This meeting gave those who attended the 2018 ANS Student Conference a chance to report back how exciting and fun the conference was. The purpose of this was to encourage even more participation in the national ANS conferences. Additionally, at this meeting those running for an executive board position gave their speeches and made the case for why they should be elected to office. Elections were held using an online voting system the following day and until voting ended the next week.

April 16 - Ambassador Thomas Graham, Jr. - Joint Meeting with INMM with Support from Department of Mechanical and Nuclear Engineering

This special meeting was the last of the 2017-2018 academic year. Ambassador Graham is a former senior U.S. diplomat. He was involved in the negotiation of every single international arms control and non-proliferation agreement from 1970 to 1997. This includes the SALT, START, ABM, INF, NPT, CFE, and CTBT treaties. Graham successfully led the U.S. government's efforts to achieve the permanent extension of the NPT in 1995. Ambassador Graham spent the entire day at VCU meeting with the students and faculty for the Wilder School of Government and Public Affairs in addition to students and faculty in Mechanical and Nuclear Engineering department. Our members enjoyed hearing his stories of getting treaties accomplished.



ANS at VCU members and other VCU students pose for a picture with Ambassador Thomas Graham Jr.

Community Outreach

“Get to Know Nuclear” - Girl Scout Workshop

We held our annual Girl Scout Workshop on Saturday, October 7, 2017 at VCU. We had 42 Girl Scouts that participated. The Scouts learned about nuclear science and technology through some lectures and many hands-on activities. The Scouts built models of atoms using marshmallows and toothpicks, and then demonstrated their knowledge of isotopes by modifying their models, accordingly. The Scouts also learned about radiation detection and some shielding principles through a radiation detection lab using the Geiger-Mueller counters, and also directly observed radioactivity in their own, homemade cloud chambers. We had 12 VCU ANS members help with the event as well as one community member who is a non-student member of VCU ANS. Finally, Professor Jim Miller assisted with the workshop and worked with students using our interactive nuclear power plant simulator. He also served as our faculty member present while minors are on campus.



Girls scouts getting nuclear hands-on experience with Geiger-Mueller counters.

The New Fire Screening and Q&A with Director Dave Schumacher

In conjunction with VA-ANS and the School of Engineering, VCU ANS supported and attended this screening on Thursday, February 15th. The new fire is a film that shows the importance of nuclear within the environmental field. The documentary shows the journey of nuclear startups

and their new designs that will potentially change the way that nuclear industry is perceived by the general public. This film was shown in the 2018 Richmond Environmental Film Festival. We felt this was the perfect venue to show this film because of the environmental focus of the film, particularly how new nuclear technology can positively impact the environment.



David Schumacher addresses the crowd gathered at the Richmond premiere of The New Fire at the Richmond Environmental Film Festival.



Full theater at the premiere of The New Fire in Richmond, VA.

Boy Scout Merit Badge Workshop

In this event boy scouts from middle school and high school learn about the atom structure, the basic radiation measurements and different applications of nuclear energy. At the end of the seminar they receive the nuclear merit badge. In order to make possible this event ANS at VCU officers and volunteers planned ahead all the activities and presentations. Some of the boys did not know the concept of radiation, and they could not imagine that radioactivity is present in everyday objects such as fiestaware plates, lantern mantles and granite countertops. During the event ANS at VCU officers were in charge of encouraging the participants to become interested in nuclear science. Also, their mentors were excited about scientific seminars for teenagers.



Boys Scouts in the Nuclear Science Merit Badge Workshop, exploring the VCU nuclear simulator.

Socials

Beginning of the Year Kickoff at sweetFrog

This beginning of the year kickoff event was held at sweetFrog, a self-serve frozen yogurt place, on August 29, 2017. This ice cream social was intended to show off the planned events for the year and encourage new members to sign up. The day of this event, Richmond experienced a downpour, and was lightly attended. In all about twelve hardy people showed up for this event.

Softball Team - SCRAM

Members of ANS at VCU formed a team called SCRAM. The team played in the double elimination tournament. We lost the first game and second game, but they were both really close. Everyone had a lot of fun. This event was particularly successful because the different classes (freshman, sophomore, junior, senior, grad students) were able to interact with each other and build relationships.

Holiday Party and 1st Annual Gingerbread Nuclear Reactor Contest

We hosted a holiday party on Saturday, December 2. We had 23 people show up. We watched a Christmas movie, listened to Holiday music, drank eggnog, and held our first annual gingerbread nuclear reactor building contest. Tacky Christmas sweaters, Santa hats, and reindeer antlers were also worn. A festive time was had by all!



Let the gingerbread nuclear reactor building begin!



ANS at VCU members hard at work on their gingerbread nuclear reactor plants. Professor Miller looks on with holiday cheer.



The top four gingerbread nuclear reactor plants won bragging rights until next year.

Virginia Museum of Fine Arts Happy Hour and Gallery Tour

We enjoyed some fine art and happy hour at the VMFA on Friday, January 19, 2018. We had eight members in attendance and twelve total people attend the event. This was an opportunity to socialize and enjoy the finer things that Richmond, Virginia has to offer.



Dodgeball Team - SCRAM

With a team of eight ANS at VCU players, this team advanced to the final round of this championship in their league. Although, the team lost in the final game, they played well and built camaraderie. We are proud of their 4 and 1 record this year.

End of the Year Social

On Saturday, May 5, we will host an end of the year social and banquet to acknowledge our graduating members and celebrate our successive year. The social will be a potluck style event hosted by our faculty advisor, Dr. Sama Bilbao y León.

Tours

Plant Vogtle and Savannah River National Laboratory

Over spring break, March 4-8, several of our members along with other nuclear engineering students traveled to Augusta, Georgia. They visited two nuclear-related sites, Southern Nuclear's Plant Vogtle in Waynesboro, Georgia and Savannah River National Laboratory near Aiken, South Carolina. Thirteen students and two professors toured Plant Vogtle's units 1 and 2 as well units 3 and 4 which are under construction. Those on the trip were able to touch the reactor vessel of unit 3 only days before access was closed to that area as construction progress continued. At the Savannah River National Laboratory, students toured the research lab areas, drove around in a windshield tour of waste disposal areas and chemical separations facilities. Although this wasn't the tropical spring break that college students often dream of, those who went really enjoyed the experience and were excited to have the opportunity to get up close and personal with a nuclear reactor under construction.

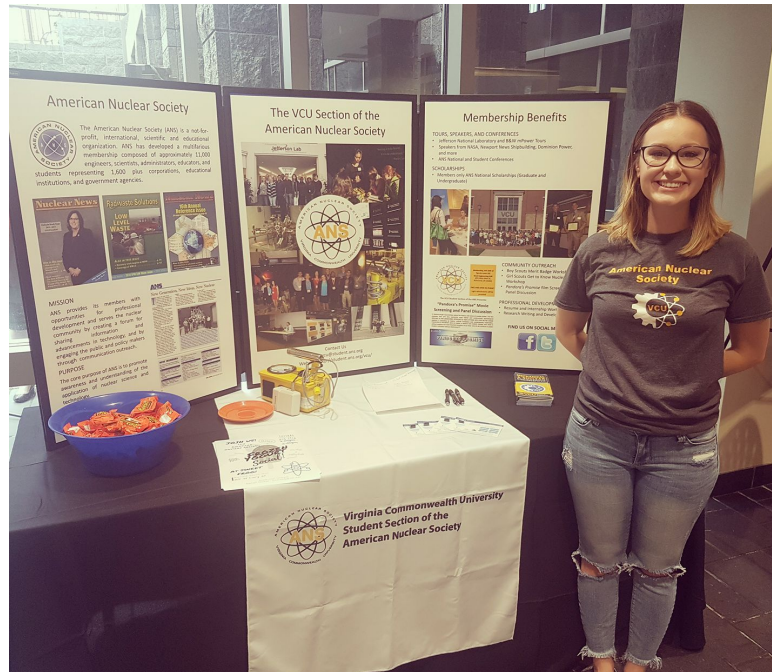


ANS at VCU members attend the Mechanical and Nuclear Engineering Department's Annual Spring Break Nuclear Facilities Tour. This year, they toured Plant Vogtle and Savannah River National Laboratory.

Member Recruitment

School of Engineering Orientation Cookout - August 23, 2017

Each year, the School of Engineering hosts a cookout for incoming freshmen. Engineering student organizations can set up a table to talk to prospective members. ANS at VCU held a table and recruited several new members.



Vice President Brooke Bates recruits new members at the School of Engineering's Orientation Cookout.

Fall Student Organization and Volunteer Opportunities Fair - August 25, 2017

This annual event is an opportunity for student organizations across the university to recruit new members. ANS at VCU hosted a booth and successfully recruited four members for our student section.



The VCU pep band "The Peppas" play at the SOVO fair.

Awards

Raymond DiSalvo Memorial Scholarship - Sarah Strickler

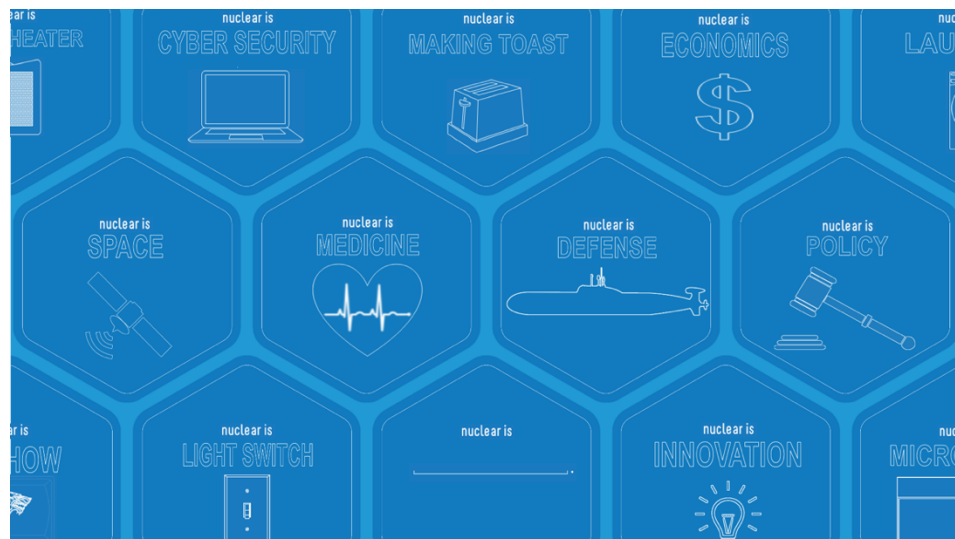
ANS at VCU member, Sarah Strickler, was awarded the Raymond DiSalvo Memorial Scholarship at a meeting of the VA ANS section on September 21, 2017.



ANS at VCU member, Sarah Strickler, accepts an award from VA-ANS Chair, Eric Duvekot.

2019 ANS Student Conference

At the 2017 ANS Winter Meeting, it was announced that ANS at VCU had been awarded the 2019 ANS Student Conference. Our two co-chairs for the VCU bid, Sarah Morgan and Hunter Kobrinetz, worked tirelessly along with their team to complete our first ever bid to host the ANS student conference. We are proud and honored to have the winning bid for the 2019 ANS Student Conference.



With the theme "Nuclear is _____", ANS at VCU won the 2019 Student Conference.

Outstanding Graduate and Professional Student Organization

This year, ANS at VCU was awarded the Outstanding Graduate and Professional Student Organization. This honor is awarded the graduate or professional student organization that demonstrated excellence in activities related to the organization's mission and purpose, professional and academic development, and participation and recognition in regional and national organizations, as well as provide opportunities for students to develop leadership skills.



ANS at VCU was honored as the Outstanding Graduate and Professional Student Organization by the VCU SGA.

Advocacy

ANS Storm the Hill at the 2017 Winter Meeting



Daniell Tincher and Brandon Dodd participate in the Storm the Hill event at the ANS Winter Meeting.

Two ANS at VCU members participated in the annual Storm the Hill event at the end of the ANS Winter Meeting. Brandon Dodd and Daniell Tincher met with senators and representatives from both Virginia and Maryland to discuss policy related to nuclear science and technology.

Second Annual Day at the Virginia Capitol

Eight VCU ANS students, one post-doc, and two professors from VCU participated in this advocacy campaign. The group visited with four members of the Virginia General Assembly on Wednesday, January 31, 2018. We met with Senator Peake, Delegate Garrett, Delegate Yancey, and Senator Mason. The highlight of the day, however, was our meeting with the newly-elected Governor of Virginia, Ralph Northam. Governor Northam sat down with the VCU ANS group to listen to our concerns regarding nuclear science and technology in the Commonwealth of Virginia as well as requesting support for a new Energy Workforce Cluster that would establish a pipeline for Virginia students interested in the energy sector.



Governor Ralph Northam discusses policy with ANS at VCU.



Governor Ralph Northam poses for a picture with members of ANS at VCU.



ANS at VCU members discuss state-level policies to promote research and education initiatives in nuclear science and technology with Virginia Governor, Ralph Northam.

Nuclear Science Week

Pandora's Promise Viewing

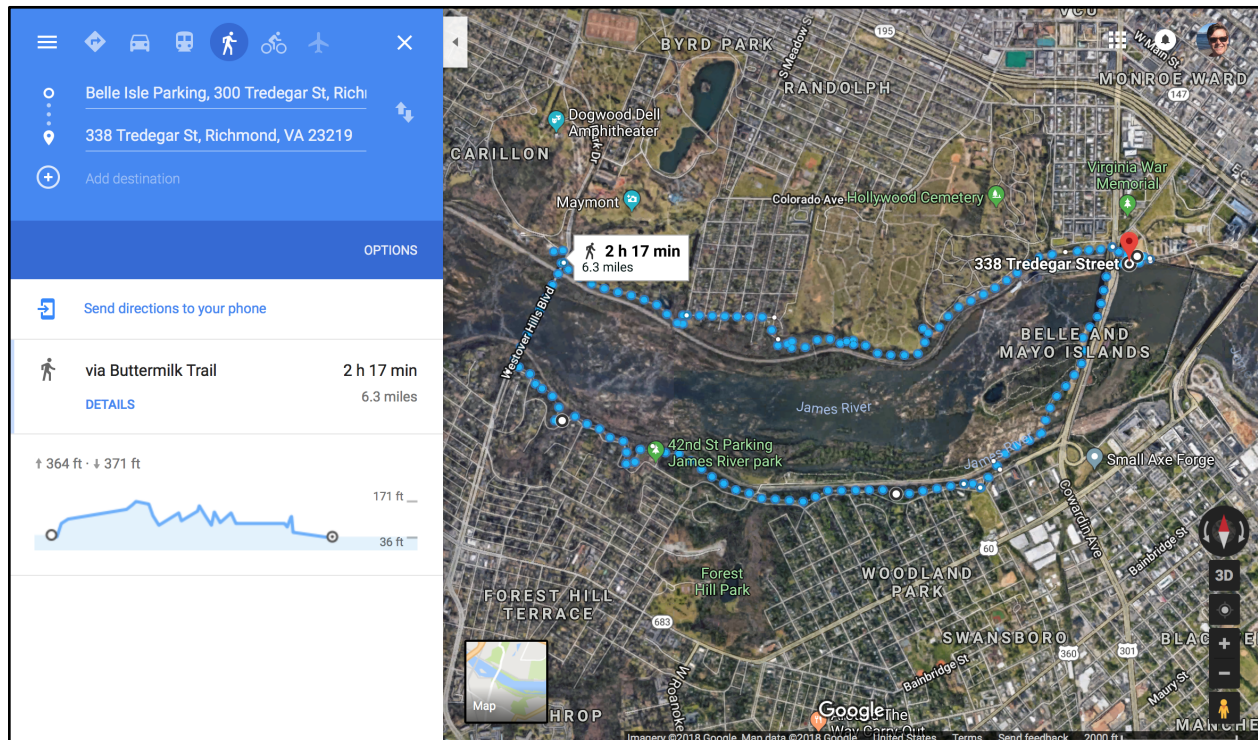
We showed *Pandora's Promise* on Tuesday, October 17. We hosted an event with our favorite Thai food, movie candy, and give-away coffee mugs. We then showed *Pandora's Promise*. After viewing the movie, those gathered discussed what we had seen in the film. There was a lively discussion of the film, and particularly interesting was the discussion regarding some of the dated details in this film.



*ANS at VCU members enjoy Thai food and movie candy prior to a screening of *Pandora's Promise*.*

Hiking in Richmond, Virginia

We hiked the Northern Trail and the Buttermilk Trail that are part of the James River Park system. The James River Park system is a shining example of nature preservation in an urban setting. It is one the best river parks in the U.S. Don't believe us? Check out this [short documentary \(3 min\)](#) about the park system. As one of our members put it, "We are pro-nuclear because we are pro-environment." Therefore, we took the opportunity during Nuclear Science week to get out and enjoy nature.



ANS at VCU participated in a 6.3 mile hike around the James River Park System as part of Nuclear Science Week.

Participation in National ANS Conferences

2017 Annual Meeting

Three graduate students and two professors (Dalsung Yoon, Michael Woods, Hunter Andrews, Dr. Supathorn Phongikaroon, and Dr. Sama Bilbao y Leon) attended the 2017 ANS Annual Meeting in San Francisco, California. All three graduate students participated in podium presentations and attended technical workshops and panels.



ANS at VCU members and students at the 2017 ANS Annual Meeting.

2017 Winter Meeting

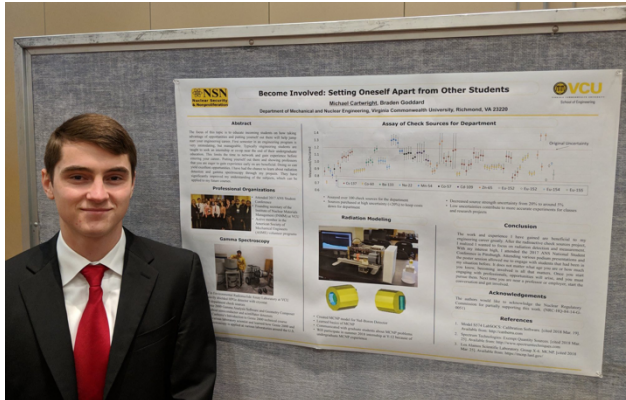
ANS at VCU was heavily involved in the 2017 ANS Winter Meeting. Our very own Maria Molina served as the Student Program Co-Chair. Five students presented their research during the poster session, with Maria Molina and Miguel Gonzalez winning 2nd and 3rd for best graduate student posters. Four students gave podium presentations about their research and VCU Mechanical and Nuclear Engineering held a reception for its 10th anniversary. ANS at VCU won its first Certificate of Distinction and we also learned that VCU would be the host for the 2019 ANS Student Conference!



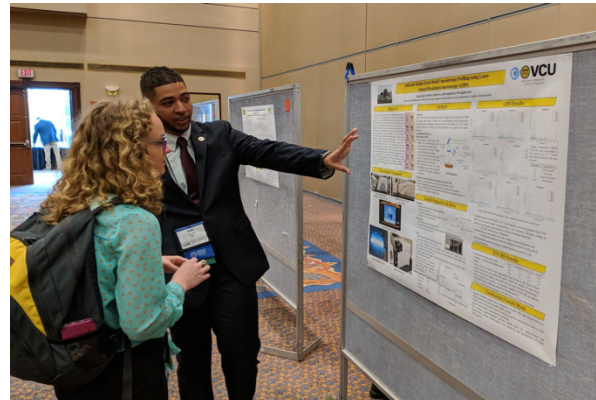
ANS at VCU members at the Tech Expo at the 2018 ANS Winter Meeting.

2018 Student Conference

ANS at VCU broke several personal records at the 2018 ANS Student Conference at the University of Florida. We took 24 students, 13 of them presented research during the poster session and technical sessions, and 3 of them won awards! Dimitris Killinger was announced best presentation in the Materials Science and Technology division, Sarah Morgan won best presentation in the Thermal-Hydraulics and Fluids division, and Hunter Andrews won best presentation in the Fuel Cycle and Waste Management Division. Hunter Andrews also won one of three awards for best paper by a graduate student, meaning his paper will be published in a special edition of Nuclear Technology.



Michael Cartwright presents his poster at the 2018 ANS Student Conference.



Ivan Cano explains his poster to VCU alumnus Jessica Bishop.



The ANS at VCU Delegation at the 2018 ANS Student Conference.

Conclusion

The 2017-2018 academic year was a great one for ANS at VCU. We increased our membership, made a dedicated effort to improve our website and social media presence, and experienced some of our best participation at ANS national conferences. Additionally, we carried out a well-rounded program that included public policy advocacy, socials, community outreach, and an excellent lineup of distinguished speakers that enriched our members nuclear engineering education. The recognition of our hard work at the university level by the Outstanding Graduate and Professional Student Organization award and at the national level through the award of the 2019 ANS student conference has encouraged our membership and honored the work to establish our vibrant and enthusiastic student section at VCU. We recognize that our successes this year were not only the result of our hard work, but we owe much gratitude to those who charted our section in 2012 and slowly but surely guided its growth to where we are today. Lastly, we cannot let this year pass without recognizing our faculty advisor, Dr. Sama Bilbao y León. Her endless enthusiasm for ANS and her students is truly an inspiration. She is tirelessly dedicated to continuously improving the nuclear engineering program at VCU and the ANS student section. We could not have been so successful without her advice and guidance. ANS at VCU is excited about the coming academic year, and we cannot wait to host all of the ANS student sections in Richmond for the 2019 ANS Student Conference.

Appendix A – Example Flyers from ANS at VCU Events

JOIN US!

The
American
Nuclear Society

Wow!

TUESDAY

AUG 29TH

4:00pm

~
- 5:00pm

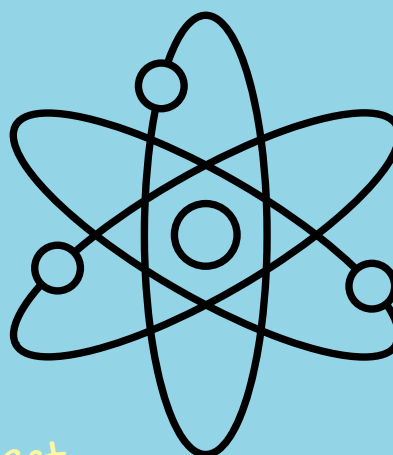
GOOD
TIMES

**FROZEN
YOGURT
Social!**

Cornhole
&
Volleyball

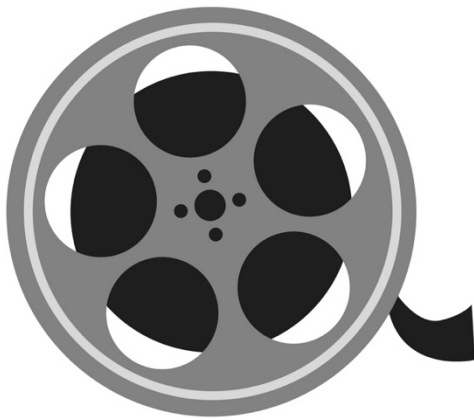
**AT SWEET
FROG!**

{ Behind West Hall
{ 815 W Cary St



Questions? Contact
Daniell Tincher - tincherdj@vcu.edu

TUESDAY, OCTOBER 17TH
**PANDORA'S
PROMISE**



7PM

**SOCIAL HOUR &
DOCUMENTARY SHOWING**
everyone & anyone is welcome!

DOCUMENTARY • THAI FOOD • CANDY • FUN

✿ **ENGINEERING WEST HALL ROOM 101**

WE WILL BE SERVING THAI FOOD, BEVERAGES,
AND CANDY FOR EVERYONE. THE
DOCUMENTARY IS BASED ON NUCLEAR AND
RENEWABLE ENERGY

WWW.STUDENT.ANS.ORG/VCU/



JOIN US
THE
AMERICAN NUCLEAR
SOCIETY
for our
HOLIDAY SOCIAL
THIS
SATURDAY!
DECEMBER 2ND
FROM 3:00 TO 5:00PM
East Hall Room E2221

- *Gingerbread reactor making competition!*
- *Eggnog*
- *Christmas Movie*

All gingerbread making materials will be provided.
Feel free to wear something festive (tacky sweater, santa hat, etc)
Questions? Contact
Daniell Tincher - tincherdj@vcu.edu

RICHMOND ENVIRONMENTAL FILM FESTIVAL

presents

THE NEW FIRE

A FILM BY EMMY-WINNING DIRECTOR
DAVID SCHUMACHER

PREMIERES THURSDAY, FEBRUARY 15 6:30PM
GRACE STREET THEATER

934 W Grace St, Richmond, VA 23220

FOLLOWED BY AUDIENCE Q&A WITH
DIRECTOR

WHAT IF THE SOLUTION TO CLIMATE CHANGE WAS HIDING IN PLAIN SIGHT?

Nuclear power has been vilified in popular culture and among much of the environmental community. Yet the next-generation reactors currently in development may actually be key to avoiding global catastrophe.

The young entrepreneurs heading this energy revolution realize they're up against more than the climate clock – they need to convince all of us that the new nuclear is safe and achievable.

Filmed across four continents over the course of twenty two months, Emmy-winning director David Schumacher's film focuses on how the generation facing the most severe impact of climate change is fighting back with ingenuity and hope. THE NEW FIRE tells a provocative and startlingly positive story about a planet in crisis and the young heroes who are trying to save it.

NEWFIREMOVIE.COM
RVAEFF.ORG




JOIN THE
**AMERICAN NUCLEAR
SOCIETY &
INSTITUTE OF NUCLEAR
MATERIALS MANAGEMENT**

CHINESE FOOD WILL BE PROVIDED

**THURSDAY
03.22.2018
6:30PM**

**ENGINEERING EAST HALL
ROOM E3229**

**DR. DAVID
WEISZ**



**EXPERIMENTAL
EMISSION
SPECTROSCOPY
FOR
UNDERSTANDING
FALLOUT
FORMATION AND
URANIUM
CHEMISTRY**

Dr. David Weisz is a VCU alumni and current Postdoc at Lawrence Livermore National Laboratory. He will give an overview of the U.S. National Lab system based on his experience at LLNL. He will also discuss his research on emission spectra from uranium laser-ablation plasmas, which allows the observation of high-temperature uranium oxidation chemistry in real-time. These results can then be used as input parameters to a kinetics-based, semi-empirical computational model.

JOIN ANS & INMM TO WELCOME

AMBASSADOR THOMAS GRAHAM JR.

Monday April 16th DINNER WILL BE SERVED AT 6:15PM
ROOM E3229 PRESENTATION BEGINS AT 7:00PM

CATERED BY GOODRICH GOURMET



Speaking on Arms Control and Nonproliferation

Ambassador Thomas Graham Jr. is a former senior U.S. diplomat. Graham was involved in the negotiation of every single international arms control and non-proliferation agreement from 1970 to 1997. This includes the Strategic Arms Limitation Talks (SALT Treaties), the Strategic Arms Reduction Treaties (START Treaties), the Anti-ballistic missile (ABM) Treaty, Intermediate-Range Nuclear Forces Treaty (INF) Treaty, Treaty on the Non-Proliferation of Nuclear Weapons Treaty (NPT), Treaty on Conventional Armed Forces in Europe (CFE) Treaty and Comprehensive

Nuclear-Test-Ban Treaty (CTBT). In 1993, Ambassador Graham served as Acting Director of the Arms Control and Disarmament Agency (ACDA) from January to November, 1993 and Acting Deputy Director from November, 1993 to July, 1994. From 1994 through 1997, he was president Bill Clinton's special representative for Arms Control, Non-Proliferation, and Disarmament. Graham successfully led the U.S. government efforts to achieve the permanent extension of the NPT in 1995. Graham also served for 15 years as the general counsel of ACDA.

ACCOMPLISHMENTS

GRADUATE OF
PRINCETON UNIVERSITY
AND HARVARD LAW
SCHOOL

INVOLVED IN EVERY
SINGLE INTERNATIONAL
ARMS CONTROL AND
NONPROLIFERATION
AGREEMENT FROM
1970 - 1997

INVOLVED IN THE FOLLOWING TREATIES:

SALT
START
ABM
INF
NPT
CFE
CTBT
ACDA

WORKED UNDER 6 US PRESIDENTS INCLUDING:

NIXON
FORD
CARTER
REAGAN
H. W. BUSH
CLINTON