



ANS Washington DC Section

Spring/Summer 2019 Newsletter

Opening Welcome from the Past, Present, and Future Chairs of DC-ANS

By Jeff Gorman, Amber Johnson, and Jim Behrens

An issue of main concern to the American Nuclear Society (ANS), and to the local Washington DC section (hereafter DC-ANS), is that much of the American public and its political leaders have limited understanding of the importance and value of nuclear technology and nuclear power. As a result, nuclear power plants are being shutdown, resulting in less resiliency and reliability of the nation's electric grid, and more carbon dioxide is being released to the atmosphere. Nuclear professionals need to work to fill this information gap. To address this need, we urge you to join both ANS National and DC-ANS and help support their important educational and advocacy activities.

Benefits of joining ANS include free online resources, a complimentary subscription to Nuclear News magazine, access to other publications and journals, and significant discounts for industry meetings. Visit www.ans.org to join ANS and learn more about the organization. For more information about DC-ANS, including meetings and activities in the D.C. metropolitan area, northern Virginia, and Maryland, visit <http://local.ans.org/dc/>.

DC-ANS is an active group of people interested in nuclear technology in its many aspects, including power production, defense issues, non-proliferation, medical uses, radiation effects, nuclear science, and agriculture. DC-ANS holds periodic dinner meetings and talks related to nuclear topics. It also participates in educational outreach activities such as science fairs and giving talks at local schools.

The above information informs the readership of our quarterly newsletter about the American Nuclear Society, a professional society established in 1954 following the famous "Atoms for Peace" speech delivered by President Dwight D. Eisenhower to the United Nations in 1953. The rest of this newsletter covers some of the recent activities of DC-ANS. We hope that they are of interest to you. Please let us know of topics that you would like to see covered in subsequent issues of the newsletter and at dinner meetings or other DC-ANS activities.

Summary of Local Science Fairs

By Amber Johnson

Each year the DC ANS section sends volunteer judges to area science fairs. Our volunteers spend a Saturday visiting with students in Prince George's County and Montgomery County in Maryland, Fairfax County and the Northern Virginia Regional Science and Engineering Fair in Virginia, and the DC STEM Fair in our nation's capital. Winners are selected based upon their project's relevancy to nuclear science and engineering.

Monetary prizes, certificates, and an invitation to our annual dinner held in May are given to 1st, 2nd, and 3rd place winners. This year's winners will be joining us at MPR Associates, Inc. on May 14 to enjoy a talk by ANS President-Elect Marilyn C. Kray. This is an effort that relies on the wonderful volunteers of DC ANS section.

DC-ANS Undergraduate Scholarship for 2019

By Amber Johnson

The DC Local Section is pleased to offer a \$2500 scholarship to an area undergraduate studying nuclear science/engineering. This year's winner is John Lathrop, an undergraduate studying mechanical engineering and applied mathematics at the University of Maryland, anticipated degree date is May 2021. This summer John Lathrop will be working to develop a radiation detector for placement on the LUVMI lunar rover at the Technical University in Munich. John is also involved with operations at the Maryland University Training Reactor.



ANS Washington DC Section

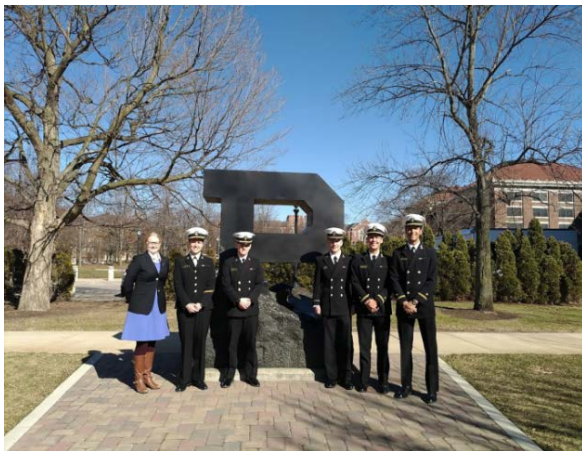
News from U.S. Naval Academy (USNA) Student Chapter of ANS

*U.S. Naval Academy Student Chapter Activity
CDR Travis Chapman, USN Contributor*

Spring is always a busy time at the Naval Academy. The Nuclear Engineering major and ANS Student Chapter had several events in March and April that allowed midshipmen the opportunity to demonstrate their leadership and nuclear knowledge.

On Thursday, March 21st, the USNA ANS student chapter jointly hosted an outreach event with the Washington D.C. local section at Buddy's Crabs and Ribs in downtown Annapolis. The Honorable Ms. Joyce Connery and Jesse Roberson, members of the Defense Nuclear Facilities Safety Board, spoke to the audience about the U.S. weapons complex and nuclear safety. During the meeting, two midshipmen became Behrens Family Scholars to pursue research and professional development opportunities.

From March 22-23, 2019, several USNA midshipmen traveled to Purdue University to participate in the Institute of Nuclear Materials Management conference on Active Nonproliferation. From April 4-6, 2019, midshipmen and faculty participated in the 2019 ANS Student Conference hosted by Virginia Commonwealth University in Richmond, VA. Midshipmen presented multiple podium and poster session presentations on nuclear materials and radiation detection/characterization research.



From April 4-6, 2019, midshipmen and faculty participated in the 2019 ANS Student Conference hosted by Virginia Commonwealth University in Richmond, VA. Midshipmen presented two podium and two poster session presentations on nuclear materials research. Former midshipman (now Ensign) Dakota Allen, a class of 2018 nuclear engineering major studying at MIT, won best presentation in the Operations and Power track.



ANS Washington DC Section

The Behrens Family Scholars Program at USNA

By Jim Behrens and Mark Murray

The United States Navy has had a longstanding relationship with the nuclear industry. Because of this relationship, it is natural that the American Nuclear Society has been affiliated with the U.S. Naval Academy for over 40 years. The initial ANS student chapter at USNA was founded under the leadership of Professor Martin Nelson, a long time teacher of several nuclear elective courses. In the fall of 2012, after extensive research, the Mechanical Engineering department faculty established a committee, chaired by Professor Mark Murray, tasked with developing of the curriculum for a Nuclear Engineering major.

student experience In January of 2014 Nuclear Engineering was officially added as a major at USNA, with the first class graduating in 2016 and ABET accreditation occurring in 2018. In 2013 VADM Joe Leidig (Ret.) accepted a four year endowed chair position primarily tasked to investigate ways to enhance the in nuclear engineering.

Jim Behrens, a long-time member of ANS and a retired Navy scientific technical advisor, joined this effort and a partnership was created involving the Behrens Family Philanthropic Efforts and the Naval Academy. The resulting Behrens Family Scholars Program was established in 2016 wherein midshipmen were selected to receive financial assistance to support their individual research efforts while they pursued their studies to satisfy the newly created engineering major.

The first Behrens Scholar was commissioned in May 2018, with the second scholar to be commissioned in May 2019. Midshipmen selected for the Behrens Scholars Program are announced during the co-sponsored ANS Student Chapter & DC--ANS Dinner-Meetings in Annapolis in March of each year. Two new scholars were named during the recent Dinner-Meeting at Buddy's Restaurant in Annapolis on March 21st. A total of five midshipmen are now part of this program. The ANS takes great pride in joining the Naval Academy and the Behrens Family in supporting efforts to provide future leaders in support the nuclear enterprise.



*Pictured from left to right:
Jim Behrens, MIDN Second
Class Chris Jellen, MIDN First
Class Andrew Lee, MIDN Second
Class Erin Walker, MIDN Third
Class Maddie Prince, and
Professor Mark Murray*



ANS Washington DC Section

Women in Nuclear (WiN) and DC-ANS at Smithsonian Event

By Jeff Gorman

On March 9, 2019, the Smithsonian's Udvar-Hazy Air and Space Museum hosted a family day event titled "Women in Aviation and Space". The event had many exhibits and booths providing information on a range of scientific and aerospace topics. The DC chapter of WIN sponsored four tables exhibiting various topics related to nuclear science and technology. DC-ANS assisted WIN by providing an exhibitor for the event and by providing Geiger-Mueller tubes, various items with radioactive sources (e.g., a uranium bearing rock, Fiesta ware with uranium based coating, a thorium gal lantern mantle, and potassium-40 containing banana), and documents describing radioactivity. WIN had many other interesting exhibits, including one that had toy windmills (operated by wind from a fan) that generated enough electricity to light up a small light bulb. Many guests visited the WIN tables and expressed great interest in the nuclear science and technology exhibits.

Tour of Nuclear Ship (N.S.) Savannah

By Jim Behrens and Jeff Gorman

DC--ANS and its two embedded student chapters (University of Maryland and U.S. Naval Academy) toured the N.S. Savannah located in Baltimore Harbor on April 1st 2019. We had twelve signed up for a 1 pm tour. An excellent tour of this ship was given by Tom Osborne, a member of the Savannah's staff. We should consider a Savannah tour (Thursday Technical Tour) during our ANS Winter Meeting to be held in Washington, D.C. in November. The ship's keepers/caretakers appear to be very open to this possibility.

Please check in the 2019 DC-ANS Winter Newsletter for informative links to a wealth of interesting background information about the N.S. Savannah. Here are a few additional details from a May 1964 brochure entitled,

N.S. SAVANNAH --- Illustrated with Deck Plans

A Joint Project of the United States Atomic Energy Commission and the Maritime Administration of the United States Department of Commerce

- Ship Construction – New York Shipbuilding Corp., Camden, New Jersey
- Nuclear Plant – The Babcock and Wilcox Company, New York, New York
- Interiors – Jack Heaney and Associates, Wilton, Connecticut
- Maintenance and Repairs – Todd Shipyards Corp., New York, New York
- General Operating Agent – American Export Isbrandtsen Lines

The N.S. Savannah was operational from 1962 to 1970 as a passenger and cargo ship. It is currently docked in Baltimore Harbor.

Continued



ANS Washington DC Section

We encourage you to learn more about the fascinating history of this ship and its nuclear power plant, as well as about the current activities, by checking out some of the references below.

[A virtual tour of the ship](#)

[Nuke Power Talk](#)

[ANS Nuclear Cafe- What Next for Savannah](#)

[ANS Nuclear Cafe-A Savannah Story](#)

[Aboard the NS Savannah, America's first \(and last\) nuclear merchant ship](#)

A Newsletter Contribution The Army's SM-1 Nuclear Reactor at Fort Belvoir

By Peter Ewing

The SM-1 reactor on Fort Belvoir was built as part of the Army Nuclear Power Program (ANPP). ANPP was intended to develop small reactors to generate electrical and space-heating energy at remote sites. The focus of ANPP was on power production facilities while the [Naval Reactors Program](#) (NRP) concentrated on propulsion for ships. The Army Engineer Reactors Group (AERG) managed this program and was headquartered at Fort Belvoir, with these missions:

- Conduct R&D, with the Atomic Energy Commission (AEC), on power plant development.
- Operate the Corps of Engineers nuclear power plants.
- Carry out training in support of these plants.

[SM-1](#) was a 2 MW reactor with Initial criticality in April 1957. It was the first US nuclear plant to be [connected](#) to an electrical grid, but was used primarily for training and testing. It was a tri-service training facility, both the Navy and Air Force sending personnel to be trained on shore-based facilities. The plant cooled its condensers using water from the Potomac River. The instrumentation in the SM-1 initially used vacuum tubes as the plant pre-dated the development of solid-state devices.



A view of the SM-1 reactor on Fort Belvoir

Plant operators continued to be trained at Fort Belvoir until 1977, however cutbacks in military funding for long-range research and development because of the Vietnam War led the AEC to phase out its support of ANPP. Work continued for some time thereafter either for decommissioning of ANPP plants or placing them into [SAFSTOR \(long term storage and monitoring before decommissioning\)](#). The current development of [small modular reactors](#) has led to a renewed interest in military applications.



ANS Washington DC Section

A video on current status of the SM-1 decommissioning and demolition effort may be found here:

<http://www.fox5dc.com/news/local-news/nuclear-reactor-at-fort-belvoir-to-be-decommissioned>

Other links regarding the history of SM-1, AERG, and the ANPP in general are:

<https://en.wikipedia.org/wiki/SM-1>

https://en.wikipedia.org/wiki/Army_Nuclear_Power_Program

Closing Remarks

By Jim Behrens

The 2018-2019 Annual Season for the DC-ANS began on July 1st 2018 and within the months of January through April, it held three dinner meetings, with one in Washington, D.C., one in Annapolis, MD, and one in Reston, Virginia. The Annual Meeting was held on May 14th at MPR Associates, Alexandria, VA.

February 6th 2019

“The Race for Global Nuclear Leadership”

Alyse Huffman, Staff on U.S. House Science, Space, and Technology Committee’s Energy Subcommittee and 2019 AAAS/ANS Congressional Fellow and
Dr. Benjamin C. Reinke, Staff on Senate Committee on Energy and Natural Resources
And 2016 AAAS/ANS Congressional Fellow

DC-ANS and Women In Nuclear (WiN) co-sponsored this meeting with the Nuclear Energy Institute (NEI), Washington, D.C. serving as the host.

March 21st 2019

“Defense Nuclear Facilities Safety Board (DNFSB): Functions and Activities”

The Honorable Joyce L. Connery and the Honorable Jessie H. Robertson

The DC-ANS Local Section and ANS Student Chapter at USNA held this meeting at Buddy’s Restaurant, 100 Main Street, Annapolis, MD. During this joint meeting, two midshipmen, Midn. Second-class Erin Walker and Midn. Third-class Maddie Prince, were presented with Behrens Family Scholarships to pursue research and professional development opportunities. Midn. First-class Andrew Lee, one of the two 2018 Behrens Family Scholarship winners, spoke of the opportunities available to those studying nuclear engineering. Midn. Lee will be graduating from the Naval Academy in May 2019 (Class of 2019).

April 24th 2019

“The Future of Nuclear Power Plant Chemistry Monitoring and Control”

Dr. Chuck Marks, Principal Engineer, Dominion Engineering, Reston, VA.
Hosted by Dominion Engineering, Reston, VA.

Continued



ANS Washington DC Section

May 14th 2019

The DC-ANS Annual Meeting will be on May 14th.

The guest speaker will be Marilyn Kray, Incoming ANS President.

Hosted by MPR Associates, Alexandria, VA

Please visit our website often to learn about both past and upcoming events and meetings.

We are at www.local.ans.org/dc/

A List of ExCom Officers 2018 - 2019

Chair Amber Johnson
Vice Chair Jim Behrens
Secretary Peter Ewing
Treasurer Jeff Gorman

Communications Committee
Peter Ewing
Brian Hallee
Jim Behrens

Program Committee
Jeff Gorman
Jim Behrens

Outreach Committee
Amber Johnson

Membership Committee
Neal Mann

Program Committee
Amber Johnson

At Large Members
Marshall Millett
Gene Carpenter
Jane LeClair

Newsletter Editor James W. "Jim" Behrens

If you have stories or ideas for future newsletters please email us at
<mailto:ans.dc.section@gmail.com>