

2023 Neutrino



American Nuclear Society
Savannah River Section

February 2023 to July 2023 Edition

Web address: <http://local.ans.org/savriv/>

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Vice Chair: Michelle Johnson

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Chair and Vice Messages

Chair

It could not have been planned any better! What a fitting way to end our 2022-2023 ANS Savannah River Section year with the first of the two new units at Plant Vogtle, Unit 3, officially entering commercial operation on July 31, 2023. Plant Vogtle is in our “nuclear neighborhood” and is making history as the first nuclear reactor unit in the U.S. in more than 30 years. With Unit 4 authorized to begin loading fuel (July 28th) and then coming online in the first quarter of 2024, Plant Vogtle will surpass Palo Verde in Arizona as the top nuclear energy power producer in the country. The Savannah River Section local membership, over 400 strong, applaud the dedication and hard work to make this happen as a true sign that the U.S. is reemerging as a clean energy leader.

At the ANS SRS section level, the ANS SR was able to coordinate and host at least one or more monthly activities since the beginning of 2023. These included five technical dinner meetings, four to five networking activities, and the Tenth Benjamin Memorial Scholarship Awards. These activities (as chronicled elsewhere in this edition of the Neutrino) took considerable volunteer time to plan, coordinate and then execute. I am deeply appreciative of the many that came forward and pitched in to make these events highly successful in terms of quality and quantity (i.e., attendance).

Much of the 2023 year is still in front of us, so please find a way to volunteer and support your Section’s work to the degree that you’re comfortable and able. Later this year will mark the Savannah River Section’s 60th year and we are in the middle of planning that event. Feel free to reach out to let us know if you have ideas regarding this celebration or are willing to help.

I would like to acknowledge our members and friends in their offering of time, talent, and treasure over the past year to our Section’s work to further nuclear science and technology in this area as well as nationally. We are also deeply appreciative of corporate support from Southern Nuclear at Plant Vogtle (Gold Level supporter) and Battelle Savannah River Alliance, Savannah River National Laboratory (Silver Level supporter). We hope to continue and extend individual and corporate support in the years ahead.

Finally, I am extraordinarily happy to welcome Michelle Johnson as our incoming Section Chair. I worked with Michelle when she was a brand-new nuclear engineer in the early 2000s. She was inquisitive and energetic then and has remained that way to this day as evidenced by her untiring support as a vice-chair. After several career stops in Oak Ridge and elsewhere, Michelle has rejoined the nuclear community in the CSRA. I look forward to supporting her and our Section during the 2023-2024 year, and I ask that you find time to do the same.

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Chair and Vice Messages (contd)

Sincerely,

Kevin O’Kula

2022-2023 Chair, ANS SRS



Vice Chair

Dear ANS-SRS Member,

I am honored to be your incoming Chair and I want to acknowledge the leadership provided by Kevin O’Kula and the 2022-2023 board. The 2022-2023 year has been amazing and the ANS-SR section has continued to empower a strong, connected, and engaged professional community that cultivates nuclear science and technology for the benefit of humanity.

This past year, our section has been active in our community outreach, provided engaging technical programs for our members, and increased revenue streams to help expand our scholarship program. Later this fall, our local section is set to celebrate our 60th Anniversary. This is a major milestone for our section, as well as the local nuclear community. We need your help to make the celebration successful. Please consider paying it forward by volunteering some of your time to the Anniversary committee and other outreach events for next year.

I look forward to working with you over the coming year, as we continue to build upon the rich history of the ANS-SR section by promoting nuclear science and technology. Feel free to contact me if you would like to make suggestions, serve on committees, or just visit.

All the Best,

Michelle Johnson

Michelle_29206@yahoo.com

2022-23 Vice Chair



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Technical Meetings

February 2023

On February 23, Dr. Holly Flynn gave a presentation on Fusion research at Bobby's BBQ restaurant in Warrentville, SC. Dr. Flynn gave a brief history on Fusion history since the 1960's. Then she outlined the research and development at the Savannah River National Lab. The recent Fusion milestone at Lawrence Livermore National Laboratory in California was mentioned and what would be needed for the further development of the process for commercial needs. The future of Fusion as a power source is getting brighter.



Dr. Flynn



Aiken Tech Students in Attendance

March 2023

On March 23, retired Major General Perry Smith gave the section his perception of the year 2040 at the Red Lobster in Augusta. Major General Smith served 30 years in the US Air Force. During his military career, he commanded an F-15 fighter wing in Germany, served as the top Air Force planner, and was commandant of the National War College. During the Vietnam War, Smith flew 180 combat missions in F-4 aircraft over Laos and North Vietnam. He was inducted into the Georgia Aviation Hall of Fame in 2020. He graduated from the US Military in 1956. At West Point, he played intercollegiate lacrosse. After his senior year, he was named as a member of the second team All American lacrosse team. Smith later earned his Ph.D. in International Relations from Columbia University. His dissertation earned the Helen Dwight Reid award from the American Political Science Association in

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Technical Meetings (contd)

1968. He has written 6 books including Assignment Pentagon, Rules and Tools for Leaders (recently updated with co-author General Jeffrey Foley), and most recently Courage, Compassion, Marine: The Unique Story of Jimmy Dyess. Rules and Tools for Leaders, with over 300,000 copies in print, is Smith's most successful book. He served as CNN's military analyst from 1991 until he resigned in protest over CNN's 1998 bogus nerve gas special (The Valley of Death). He later served on contract with NBC, MSNBC, CBS TV, and radio. He is a frequent blogger and op-ed contributor to the Augusta Chronicle. Since moving to Augusta in 1990, he has been active in community activities, including raising funds for the river rooms of Saint Paul's Church, the new Fisher House, the Kroc Center, the Boy Scouts, the Heritage Academy, the Augusta Museum of History and as a former board member of the Augusta Kiwanis Club.

He discussed some of his flight adventures in and out of war. He gave his thoughts on the future of Nuclear and some other carbon free energies sources. He thought small modular reactors has a slight advantage over large reactors. He felt that solar and wind would be major players in the future. He was asked about the Ukraine war with Russia. In his option he thought the war will last another year. And help from NATO the Ukraine would prevail in defending their country.



General Smith



F15

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Technical Meetings (contd)

May 2023

On May 15, the local section met at Carolina Ale House in Augusta. The speaker was John Williams of Southern Nuclear at plant Vogtle. John is the Vice President of Business Operations for Vogtle 3 and 4. His presentation was entitled "Plant Vogtle Update - The Future is Here" He provided an update and shared his perspectives about the Westinghouse AP1000 technology, Vogtle 1 and 2, nuclear fuel, Southern Nuclear and our nuclear energy industry. John started with Southern Nuclear in 1998 as a co-op student at Plant Hatch and during his career has held positions of increasing responsibility with Southern Nuclear Company such as Nuclear Fuel and Analysis Director, Interim Vice President of Engineering, and Engineering Director at Plant Hatch. He is a graduate of the Georgia Institute of Technology with a degree in Nuclear Engineering. Vogtle unit 3 was at approximately 50% power in power ascension testing, and unit 4 was in Hot Functional testing at the time of the presentation. Unit 3 should be in commercial operation mid summer 2023 and unit 4 in the first quarter of 2024.

A question was asked if Southern was going to build any more nuclear units after unit 4 completion. His response was that We are going to rest for awhile. He mentioned letting TVA have the first shot at the Small Modular reactor development. Southern is involved with the Molten Reactor development.



John Williams with Vogtle in the background

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Technical Meetings (contd)

June 2023

Ben Cross, a former local section Chair and is the current president of NuSynergy Energy spoke on June 27 at Cafe Scientifique in Aiken SC. His presentation was entitled "A Central Facility Concept for Nuclear Microreactor Maintenance and Fuel Cycle management." He discussed the commercial deployment of nuclear microreactors and how this presents an opportunity for the industry to rethink its approach. This includes manufacturing, siting, operation and maintenance, and fuel cycle management as certain principles used in grid-scale nuclear projects are not applicable to a decentralized microreactor economy. A utility-like 'Central Facility' that consolidates the services required and responsibilities borne by vendors into one or a few centralized locations will be necessary to support the deployment of a fleet of microreactors. While there are many suitable locations for such capability across the U.S., this considers facilities co-located with sites like the Vogtle Nuclear Plant and the Savannah River Site to demonstrate how a Central Facility can leverage the existing infrastructure and stimulate a local ecosystem..

Ben is the Founder/Senior Advisor of NuSynergy Energy, LLC, a company focused on the synergistic integration of energy systems and is a member of the Resilient Infrastructure + Secure Energy Consortium (RISE). He has been involved in a broad range of energy related work activities: U.S. Navy nuclear propulsion, commercial nuclear power generation [LWR's and a high temperature gas reactor (HTGR)], nuclear weapon's materials production, advanced biofuels, fusion technology R&D, international nonproliferation, and the strategic development of DOE's Asset Revitalization Initiative.



Ben Cross

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Outreach and Education

2023 Furman University Teachers Workshop

On July 12, 2023 Bill Wabbersen and Jon Guy conducted a Teachers Workshop at Furman University in Greenville, SC as part of a partnership with the Citizens for Nuclear Technology Awareness, the South Carolina Academy of Science, Furman University, and the Roper Mountain Science Center in Greenville. Support was also provided by USC Aiken's Ruth Patrick Science Education Center with the loan of an Isotope Discovery Kit.

The teachers workshop is a nuclear chemistry class for high school teachers. Bill and Jon have conducted this workshop for many summers. The workshop is part of the Science Plus Institute. The workshop is used as a professional development class for South Carolina science teachers. This year there were teachers in attendance from high schools all over South Carolina. Teachers from Title I or under served schools are given preference for the workshop. This year's workshop had many experienced science teachers who had been teaching nuclear science modules for many years. These teachers were excited to learn many of the ANS hands-on tools and the Isotope App provided by ANS-SRS. Each teacher was also given a radiation detector provided by ANS. In addition, teachers received printed materials to take back to their schools for use during the school year.

During the workshop the following topics were presented with a focus on hands-on activities:

- Atomic Fundamentals (hands-on using the marble gold-foil experiment)
- Journey to the Center of the Atom (hands-on using the Isotope Discovery Kit)
- Basics of Radiation (using the cookie analogy)
- Half-life (hands-on using m&ms)
- Radioactive Decay Chains (hands-on using the Advanced Isotope Discovery Kit)
- Fission, Fission fragments, and Spent Fuel discussion
- ALARA discussion (hands-on using sources, detectors, and shielding)
- Relative Risk discussion (hands-on activity using a risk ranking exercise)
- Energy discussion
- Nuclear Science in SC
- Savannah River Site introduction

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Outreach and Education (contd)

The workshop was a very full day, and the reception from the teachers was outstanding. During the workshop there were excellent discussions about the teachers understanding and misconceptions of nuclear. Teachers from the Lowcountry, the Midlands, and the Upstate expressed interest in receiving guest speakers on nuclear topics during the upcoming school year.

This is an annual event.



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Outreach and Education (contd)

Boy Scout Merit Badge Part 2

Since early January 2023, Bill Wabbersen has been conducting Boy Scout Nuclear Science Merit Badge Workshops every Tuesday for Boy Scout Troop 146 in Aiken. This six-week series of workshops was culminated with a tour of Plant Vogtle by the scouts in mid-February.



Here is Bill Wabbersen demonstrating the Isotope Application he was instrumental in developing. The Vogtle Energy Education Center has been converted into an interactive display. Also you can see below the Troop standing in front of Unit 2 Cooling Tower. Right lower is the group that participated in a trash clean up of the Vogtle public boat ramp.



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Other Events

PIC-NUKE

The third annual Pic-Nuke was held on April 29 at Brookfield park in Richmond County, Georgia. Twenty people attended this years event that included hamburgers, hot dogs, chips, sides, deserts and soft drinks. The fellowship was enjoyed by all. Several caught up with Ben Cross a long time ANS section member.



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Benjamin Memorial Scholarship

The ANS Savannah River Section sponsors a scholarship in memory of Dr. Richard Benjamin. The Benjamin Scholarships are given to help defray first-year college costs for an academic year of study and are provided in the memory of its long-time member, Dr. Richard (Dick) Benjamin (1925-2013). The award is now in its ninth year and is for students expressing academic and career interests in a STEM field, and particularly those wishing to major in a field associated with nuclear science and technology.

Dr. Benjamin was a mentor to many nuclear science and technology professionals in the Aiken-Augusta area for over four decades. He received his BA in Engineering from Lamar University, MS in Nuclear Engineering from Southern Methodist University, and earned his PhD in Nuclear Physics from the University of Texas in 1965. After a three-year post-doctoral study at the Swiss Federal

Institute of Technology, Dr. Benjamin came to the Aiken-Augusta area in 1968 with the acceptance of employment at the Savannah River Laboratory (now Savannah River National Laboratory). He worked in many technical areas during his Savannah River Site career, most notably the Reactor Physics, Atmospheric Technologies, and Advanced Planning Groups, followed by the Accelerator Production of Tritium Project.

During his long and illustrious ANS career, he was active with two of its divisions, the Fuel Cycle and Waste Management and Environmental Sciences Divisions, and served as a chair for each one at different times. In June 1992, Dr. Benjamin had the honor of representing ANS at the first United Nations Framework Convention on Climate Change held in Rio de Janeiro, Brazil. He served in many ways and held key offices with the Savannah River Section of ANS. Dr. Benjamin was co-director of the local Tasters Guild, a wine and food appreciation society, and was an avid supporter of the Augusta Opera and the Augusta Choral Society. He also enjoyed outdoor activities such as hunting and skiing, and helped found the Aiken Dove Club. He was a co-founder and proprietor of Wine World in North Augusta, where many ANS Savannah River Section Executive Committee meetings were held until its closing in 2019.



Dr. Richard (Dick) and his wife, Sally Benjamin, circa early 2000s.

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Savannah River Section, P.O. Box 7001, Aiken, SC 29804



<http://local.ans.org/savriv/>

2023 American Nuclear Society Savannah River Section TENTH ANNUAL BENJAMIN MEMORIAL SCHOLARSHIP



The Benjamin Scholarship is a competitive financial award given in memory of Dr. Richard W. Benjamin towards the first year of a four-year Science, Technology, Engineering and Mathematics STEM College/University, or either year of a two-year Technical College degree program.

- **Scholarship Award amounts will be based on number & quality of applications.**
- **Seeking students with STEM career goal, potentially interested in a Nuclear Science and Technology career.**
- **Current CSRA graduating high school seniors or first-year technical college students are eligible.**
- **Application window : January 23 - April 28, 2023**
- **Required Application Materials and Evaluation Criteria (%):**
 1. Cover letter including name, address, evening phone number, current school, home email address and name of college or technical school to which the Benjamin Memorial Scholarship would be applied. If the school is uncertain, then name the current top choice. Also, at the end of the cover letter, add a one-sentence non-school related fun fact about yourself (10%).
 2. A one-page essay (300 words or less) on why a career in science, technology, engineering, and mathematics, and educational is the goal of the student; Highlight what you plan to pursue in college & potential career goals (40%)
 3. High school transcripts (seven (7) semesters in the case of current high school seniors); plus first-semester transcripts for applicants who are first-year technical college students, along with their entire high school transcript; (20%)
 4. Two (2) letters of recommendation from education institution or community organization individuals (e.g., teachers, coaches, service or religious organization leaders, etc.). Each recommendation is weighted 15%. (30%)
- **Submit application materials by: 1) Email with attachments to: ans.savannahriver@gmail.com, or 2) U.S. mail to:
Benjamin Scholarship, ANS-Savannah River Section, P.O. Box 7001, Aiken, SC 29804**
- **Scholarship Award(s) will be announced in June 2023.**

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Benjamin Memorial Scholarship (contd)

Scholarship Winners for 2022-23

On July 27, the local section held a Celebration on Zoom with this years Scholarship winners. The following are the names and schools they attended and the projected schools for the coming year:



Joshua Horn attended Barnwell High School and will be attending Denmark Technical College



Alya Akhtar attended Lakeside High School and will be attending Georgia Institute of Technology



Ansley Pacheco attended Evans High School and will be attending the University of Georgia

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Benjamin Memorial Scholarship (contd)



Song Ting Tang attended Davidson fine Arts Magnet School and will be attending Princeton



Jace Wrightson attended Aiken Scholars Academy and will be attending University of South Carolina

And New this year:

Kaeleigh Seigler – Aiken Scholars Academy was selected as the Best Essay submitted.

These five winners were selected from a field of 37 Applicants which were 12 Women and 25 Men(25 SC/15 GA). This years judges were Ken Hofstetter, Tracy Stover, Selina Tavano, Maeley Brown, Madeleine Waller and Kevin O’Kula.

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Benjamin Memorial Scholarship (contd)

American Nuclear Society (ANS)

ANS is a professional and technical society of approximately 10,000 engineers, scientists, education professionals and students worldwide that work to promote the awareness and understanding of applications of nuclear science and technology for the benefit of humankind. The ANS Savannah River Section is a 501(c) 3 organization under IRS guidelines. Donations to ANS are tax deductible as allowed by law.

Donations can be sent to the following address and checks can be made out to ANS Savannah River Section.

ANS Savannah River Section
PO BOX 7001
Aiken, SC 29804

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Future Events

Greenjackets Game

On August 4, the local section will meet at the SRP Park in North Augusta, SC. The Lawn Ace Lounge will be reserved for the section to meet in fellowship and enjoy a baseball game. The Greenjackets will be playing the Columbia Fireflies. Game will start at 7:05 PM.



The section will have exclusive access to the Lawn Ace Lounge. The Lawn Ace Lounge offers the perfect view of SRP Park and is where ANS SR had its first night at SRP Park last year. The open-air suite is located on the SRP Park main concourse, above the 3rd base side and home dugout, which provides great shade and protection from the elements. A complete food package is included.

Menu: The All-Star Menu includes: all-beef hot dogs, hamburgers, pulled pork, coleslaw, baked beans, chips, watermelon, cookies, Coca-Cola drinks, sweet tea, and water. Other food and beverages available throughout the ballpark.

Cost: (Includes gratuity and tax): Everyone: \$37.00 (\$13.00 ticket + \$24 buffet; Payment via card/PayPal/check accepted. Checks must be received by August 2 (payable to ANS SR, P.O. Box 7001, Aiken, SC 29804).

Reservation Deadline: All Tickets Must be bought in advance. The deadline is 12:00 PM, Wednesday August 2, 2023.

Make all reservations by using the link below. Just complete the "survey" and click on the "Done" button on the bottom as indicated.

Reservation Link: <https://www.surveymonkey.com/r/MJX5JJQ>

To receive a reservation confirmation, provide an email address in the indicated space on the survey.

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Future Events (contd)

60th ANS Savannah River Section Celebration

In November 2023, the local section will celebrate the section founding in 1963. The planning committee is being formed and volunteers are welcome. Please contact Michael Johnson at michelle_29206@yahoo.com. Notification will be made in the near future.



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Corporate Sponsorship

The Section would like to thank the following for support during the year 2022-23.

Southern Nuclear has generously supported ANS Savannah River Section with a \$2,500 gift in support of the 2023 Benjamin Memorial Scholarship.

Battelle Savannah River Alliance has also generously provided ANS-SRS with a \$1,000 gift for general nuclear science and engineering educational outreach.

Significant additional gifts to support the Benjamin Scholarship and other section activities have been donated from individual section members. “

Individual donors:

Kevin O’Kula and Holly Shoaf-O’Kula

Ken and Marilyn Hofstetter

Phil and Leigh Cupp

L. Michelle Johnson

Carl Fields

There were also donations at cash bars from technical meetings.



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Plant Vogtle Status

Unit 3

Unit 3 has loaded fuel and produced power on the electrical grid of Georgia in the last couple of months. The unit has completed testing during power ascension for full power operations. On July 31, Georgia Power declared the unit to be in commercial operations. This is a historic moment for not just the company, but the state and the country. This is first brand new nuclear unit built in more than 30 years is serving Georgia with reliable, emissions-free energy, right now, and will serve this state for the next 60 to 80 years. It's possible this unit will run beyond the year 2100.

Unit 4

On July 21, Georgia Power announced that all 364 inspections, tests and analyses have been performed and all acceptance criteria, known as Inspections, Tests, Analyses, and Acceptance Criteria (ITAACs), have been met on Unit 4 and the documentation was submitted to the US Nuclear Regulatory Commission (NRC). On July 28, Georgia Power was notified that Unit 4 has received the 103(g) Letter approval from the NRC and therefore "no further NRC findings are necessary in order for Southern Nuclear to load fuel and begin start-up testing". Initial fuel load should start in the 3rd or 4th quarter of this year.

Units 3 and 4 are the first Westinghouse AP1000's in the US. The new units are an essential part of Georgia Power's commitment to delivering clean, safe, reliable and affordable energy to its 2.7 million customers. Once operating, each of the new units can produce enough electricity to power an estimated 500,000 homes and businesses. Southern Nuclear will operate the new units on behalf of the co-owners: Georgia Power, Oglethorpe Power, MEAG Power and Dalton Utilities.



Vogtle Units 3 and 4

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Other Events

Oliver Stone's Documentary

The National ANS shared a link for our section to view the Oliver Stone Documentary "Nuclear Now". This link was good for the months of May and June for device viewing. The link was made available to the local section members for viewing on their devices. The movie reveals how and Anti-Nuke director has changed his mind and became Pro Nuke in light that Nuclear based electricity can help in the efforts of Carbon reduction in a major way that renewables can not.

