

2020 Neutrino



American Nuclear Society
Savannah River Section

August 2020 Edition

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

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Chair's Message

Dear ANS-Savannah River Section members and friends,

What an intense and unprecedented year. ANS-SR started out the 2019-2020 year as we usually do: We shared interesting technical dinners and enjoyed a successful evening at CSRA College Night. Volunteers from the section had a fun day at USCA's Science Education and Enrichment Day, and we shared a delightful holiday dinner. A team from ANS-SR also judged the "Best Energy Source" award at the regional Future City competition.

Then, as I know none of us need to be reminded, a major pandemic changed how we all do business. I am proud of the way our section membership has responded to all the change. Attendance at technical meetings has continued robustly, with the activity moving online. Support for the Richard Benjamin Memorial scholarship has also continued energetically. I would like to give particular recognition to our programs and scholarships chairperson Kevin O'Kula for his tireless efforts and leadership in these areas.

Even before 2020 began, a common refrain in the media and conversation has been the need we all have for community and the difficulty of maintaining connection in a rushed, modern life. Professional societies, including the American Nuclear Society, provide a unique response to that challenge. The ANS provides an excellent forum for learning and sharing ideas, and provides an invaluable service in publishing consensus technical standards. In the process of fulfilling those functions, it brings together a group of individuals with shared technical interests and who value education, safety culture, excellence and integrity. It has been my experience that all of that accompanies appreciation for humor and concern for others. The summation is a community that it is a privilege to be a part of, and to be grateful for in times of change.

It has been a privilege to be Chair of ANS-SR in 2019-2020 and to have an up-close view of the work of an excellent and selfless team. The 2020-2021 ANS-SR Executive Committee ballot features another outstanding group; a combination of experienced longtime members and some energetic new members. Plans are already in the works for member events and outreach efforts in the upcoming year. Between the dynamic incoming leadership team and each one of our members, I am confident that ANS-SR will continue to be a community that it is a privilege to be a part.

Thank you all for being part of this community, supporting each other, and continuing to learn and lead.

With gratitude,
Amanda (Mandy) Bryson
ANS-SR Section Chair, 2019-2020



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February

Celebrating 70 Years of SRS – A Heritage & A Treasure SRS Museum Nuclear Retiree Drop-In

This meeting was held on February 13th at the Savannah River Site museum. The SRS Museum became an extension of the Aiken County Historical Museum in 2015 when the SRS Heritage Foundation partnered with Aiken County to obtain the former Dibble Library on Laurens Street for the sole purpose of creating a museum for the interpretation and preservation of the history of the Savannah River Site and its role in the Cold War. The Foundation has responsibility for the museum's displays and activities. This was a celebration of the 70th anniversary year of the announcement of the Savannah River Plant.

The talks were as follows:

- Jim Marra, CNTA Executive Director
- Amanda Bryson, ANS SR Chair
- Walt Joseph, SRS Heritage Foundation Executive Director
- Lauren Miller, SRS Museum Director
- Holly Watson, ANS SR, (w/ Mel Buckner, Retirees Committee).

The objectives of this meeting were:

To enhance the role of retirees in preserving the history of SRS. to build financial and manpower support for the SRS Museum, and to increase the knowledge of ANS-SR members in the history and mission of SRS.



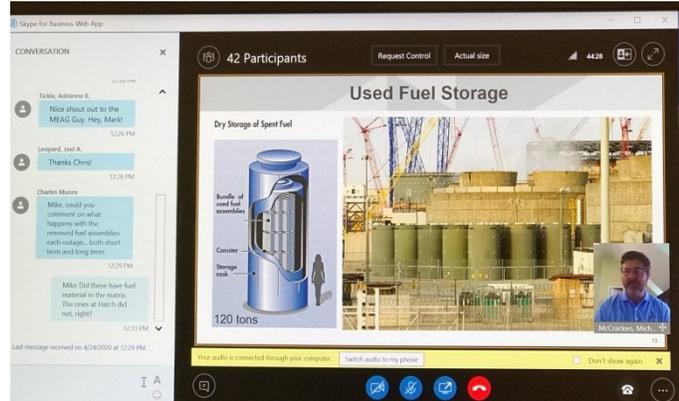
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Virtual Lunch & Learn Technical Meetings

April

Plant Vogtle: Clean Safe Reliable, Affordable Electrical Energy and Carbon Free

Beginning in April and due to the COVID-19 pandemic, ANS SR technical meetings changed from their traditional in-person format to a virtual platform during the lunch hour on selected Fridays. The first one was a virtual meeting presenting a Plant Vogtle update led by Mike McCracken and Joel Leopard of Southern Nuclear on April 24, 2020. Mike and Joel had Subject Matter Expert support from Jad Hudaib, Karen Bobkowski, TJ Corder, and Catherine Prat.



Mike McCracken led a team presentation on the status of Plant Vogtle on April 24, 2020 in an ANS SR virtual

Mike and Joel presented information and slides on the Vogtle Unit 1 outage in the spring, construction status of Vogtle Units 3 and 4 in Waynesboro, GA, and the COVID-19 response on the site. They discussed the present operating Units and how Used Nuclear Fuel is handled and stored at the plant. Information on the Electrical Production makeup in the Southern Company was shown on the screen and they answered questions from the attendees, which included SR members and guests participating from as far away as Utah. The presentation concluded with an opportunity for a “Group Photo”, where attendees were encouraged to take a selfie with their screen showing a picture of the normal end-of-tour photo location and post that to social media. The event was free, but viewers were asked to make a free-will gift donation to the Benjamin Scholarship Fund, COVID-19 relief, or other charitable cause.

For additional photos and videos, the following links were shared to attendees:

Georgia Power's YouTube Page - Vogtle playlist

<https://www.youtube.com/playlist?list=PLHS8z9CYkZokSqMkFq-l0DHh9St4MRqNO>

Georgia Power's Website for Vogtle 3 & 4 Construction Photos

<https://www.georgiapower.com/company/plant-vogtle/showcase/construction-photos.html>



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May

No technical meeting was held in May.

June

SHINE Medical: Our Technology, Applications and Progress



Greg Piefer, Founder and CEO of SHINE Medical

The second ANS SR Virtual Lunch and Learn event was conducted on June 12, 2020 and featured Dr. Greg Piefer, founder and CEO of SHINE Medical Technologies. Greg discussed the physics, the overall technology, applications, and the status and schedule for the Subcritical Hybrid Intense Neutron Emitter (SHINE) facility, being constructed in Janesville, Wisconsin. Greg noted that the isotope production facility will use a patented, proprietary manufacturing process to produce medical isotopes such as ^{99}Mo , the essential component in medical imaging procedures used to diagnose heart disease and other conditions, and to stage cancer. Dr. Piefer, a graduate of the University of Wisconsin, emphasized that SHINE technology offers major advantages over other production technologies because it does not require a nuclear reactor, uses less electricity, and generates less waste.

While the primary interest for SHINE isotope production will be Mo-99, SHINE is also interested in others. The Therapeutics Division is focusing initially on the development and commercialization of lutetium-177, or Lu-177, a therapeutic isotope that is combined with a disease-specific targeting molecule to treat cancer. About 30 participated in this virtual event. The event was free, but viewers were once again asked to consider making a charitable donation to a cause of their choice or contributing their time to a needy organization.



Groundbreaking for the SHINE Production Facility was in May 2019.

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Outreach and Education:

Future City

This year Future City event occurred on January 25th, 2020.

Dear American Nuclear Society,

Thank you again for sponsoring a Special Award for the 2020 SC Regional Future City Competition. We truly appreciate you supporting the students and this competition.

We would like to thank you for recognizing Kennedy Middle School's team, "Karoda" for their city's *Best Energy System*. Below you will find a picture of the team that won the award. The team member's names from left to right are Dylan Enlund, Sid Keener (ANS), Cameron Finklin, Peyton King, Margo Gore (Educator).

Taylor Rice
SC Regional Future City Co-Coordinator
Savannah River Nuclear Solutions (SRNS), LLC
Education Outreach Programs



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Mel Buckner's Letter to the Editor - Augusta Chronicle May 2020

I would like to commend the 2020 winners of the Citizens For Nuclear Technology Awareness (CNTA) Educators' Grant Program for their excellent plans to promote science and technology experiences in their classrooms.

These educators include Dr. Antonino Carnevali, 12th-grade physics, Governor's School for Science and Math; David Kassner, Susan Rutt and Hannah Wingrove, 10th-grade chemistry, Lakeside High School; Kristina Istre, eighth-grade science, A.R. Johnson Health Science and Engineering Magnet School; Donita Legoas, sixth-grade science, A.R. Johnson; Trina Stidem and Alvina Jackson, middle-level intro to coding, Langley Bath Clearwater Middle School; and Angela Virella, sixth-grade social studies, Jackson STEM Middle School.

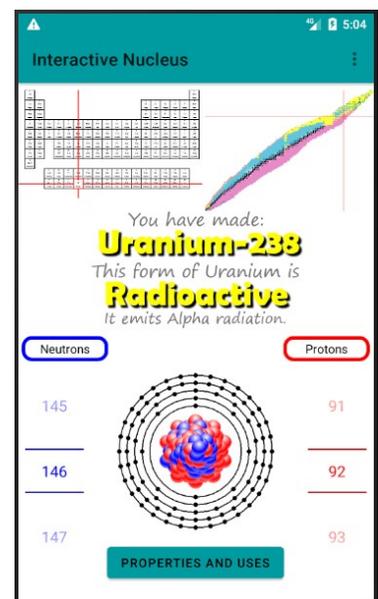
I would also like to thank the other organizations and companies who helped CNTA fund this program. These include the American Nuclear Society-Savannah River, Huntington Ingalls Industries, Savannah River National Laboratory and the Savannah River Site Community Reuse Organization. Together they help teachers to develop projects and enhance their students' experiences with science and technology.

CNTA and its partners also provide other educational activities including Lifelong Learning Opportunities at the University of South Carolina Aiken, Nuclear Blitz to High Schools, High School Essay Program and College and Tech School Scholarships.

Students and teachers in the Augusta area have many opportunities to benefit from these educational offerings. They can be found at the CNTA website (www.cntaware.org).

Interactive Nucleus App

The Interactive Nucleus App has grown from an idea to a testable app in the past year. It was produced by a team of senior computer science students at University of South Carolina at Aiken with faculty support under the leadership of Bill Wabbersen. The app allows a user to select a number of protons and a number of neutrons to create an isotope. The display shows a visualization of the resulting atom and where it would lie on the periodic table and the chart of the nuclides. The app also provides information on stability, modes of decay, and the practical uses of the isotope. The formal launch of the app was delayed because of the pandemic. The app will continue to be developed along with its tremendous potential as a teaching tool!



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ANS Savannah River Awards Benjamin Memorial Scholarships for the 2020-2021 Academic Year

The Savannah River Section of the American Nuclear Society (ANS) is awarding two 2020-2021 Benjamin Memorial Scholarships to Central Savannah River Area students. The Benjamin Scholarship students for this year are Nancy Kye of Evans High School and Kendall Leigh of South Aiken High School. Each student received a \$2,000 Scholarship Award during a July 23, 2020, virtual presentation ceremony of the ANS Savannah River Section.

The Benjamin Scholarships are given to help defray first-year college costs for the 2020-2021 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 seventh year and is for students expressing academic and career interests in science, technology, engineering, and mathematics (STEM) fields, and particularly those wishing to major in a field associated with nuclear science and technology.

The near-term plans of the two Scholarship winners are in keeping with the STEM core areas intended for support through the Benjamin Memorial awards. This August, Ms. Kye will begin her studies in the Honors Program at the Georgia Institute of Technology and plans to major in Biomedical Engineering. Ms. Leigh also plans to major in Biomedical Engineering and will begin her studies at the Honors College at the University of South Carolina.

Commendation Award Winners

In addition to the Scholarship awards, three additional students are being recognized at the runners-up level through Benjamin Commendation awards. Students receiving the Commendation Award are Anna Burnett (Harlem High School) attending the University of Georgia with an intended major in Pharmaceutical Sciences, Kelley Tran (Aquinas High School) attending the Georgia Tech in Biomedical Engineering, and Kyler Worthington (Lakeside High School) attending Yale University intending to major in Nuclear Physics.

Scholarship in Memory of Dr. Richard Benjamin

The ANS Savannah River Scholarship is named for Dr. Richard Benjamin, who was a mentor to many nuclear science and technology professionals in the Aiken-Augusta area for over four decades. He received his B.A. in Engineering from Lamar University, M.S. 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, Dick came to the 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 being the Reactor Physics, Atmospheric Technologies, and Advanced Planning Groups, and the Accelerator Production of Tritium Project. During his long and illustrious ANS career, he was active with the Fuel Cycle and Waste Management and Environmental Sciences

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Divisions, and was a chair for each division. In June 1992, Dick represented ANS at the first United Nations Framework Convention on Climate Change held in Rio de Janeiro, Brazil. 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 hunting, and helped found the Aiken Dove Club. In 1972, he became a co-founder of Wine World in North Augusta.

Sponsors and Contributors

Contributors to the Benjamin Scholarship this year included the Southern Nuclear Company – Plant Vogtle, Aiken businesses including Aiken2Escape, The Alley Taproom/Whiskey Alley, Spago, Epona, and Plum Pudding, and Augusta businesses including Partridge Inn, La Bonbonniere, and Carriage House Inn. Support also included many individual charitable gifts made by members and friends of the Savannah River Section of ANS.

The American Nuclear Society is 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.

Scholarship Fund Raiser

Dear Members and Friends of ANS SR:

We have procured a limited number of black ANS-SR polo shirts to support our Outreach and Scholarship events. These are high-end, "Dri-Fit" technology Adidas shirts, identical to the ones given the ANS President in her visit to the Savannah River Section in October 2019. The iconic lithium atom Savannah River Section symbol with three peach electrons is over the left front.

Shirts are available in women's sizes (S, M, L, and XL) and men's sizes (S, M, L, XL, and XXL) at a cost of \$50 per shirt. All funds collected will be directed to the Scholarship & Outreach activities.

Check payments: Send to ANS SR, P.O. Box 7001, Aiken, SC 29804. Include size & address. Make payable to "ANS Savannah River".



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Credit card payments: Email ans.savannahriver@gmail.com your daytime phone & address, and we'll contact you to receive card information (\$5 convenience fee for credit card transactions).
Support our Outreach and Scholarship efforts for the coming year!

ANS-Savannah River
P.O. Box 7001
Aiken, SC 29804
Email: ans.savannahriver@gmail.com
Mobile: 706.394.0999

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Past Local Section Chair on ANS Board

The local Savannah River Section 2018-2019 Chair, Richard “Chip” Lagdon has been elected to the ANS Board of Directors. Chip has been an ANS member since 1983. He is the chief engineer nuclear operations and safety for the Bechtel Corporation. He is also a Nuclear Engineering professor at the University of Tennessee, Knoxville. While on the board, Chip wants to help advance the goals of the ANS and improve its position in the nuclear industry. He has been married to Victoria for 38 years and they have two sons also in engineering.



Future Events

Savannah River Section Hosts ANS Topical Meeting - Technology of Fusion Energy (TOFE 2020)

Organized in conjunction with the Savannah River Local Section, the 24th Topical Meeting on Technology of Fusion Energy (TOFE 2020), was to be held in Charleston, South Carolina on April 20-23, 2020. The event, held every 2 years, provides a global forum to highlight the latest advances in the many facets of nuclear fusion. Approximately 200 abstracts were accepted from researchers, scientists, students and other proponents for the advancement of fusion energy. Considerable efforts were made obtaining Final Acceptance by the ANS National Program Committee: the hotel contract was placed, meeting budget and publication plans were approved, vendors, sponsors, and exhibitors were recruited, and abstracts coherently organized into three parallel sessions.

Due to the spread of COVID-19, TOFE 2020 was rescheduled as an embedded topical in the ANS Winter Meeting to be held in Chicago this November. A decision is expected in early August as to whether the Winter Meeting will be held in person or virtually. The venue shift and uncertainties associated with COVID-19 have required flexible planning. Fortunately, a large number of authors have elected to present their work in November.

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Obituary

James Malvyn (Mal) McKibben, 86, entered into rest on June 17, 2020.

Born in Buena Vista, Georgia in 1934, Mr. McKibben spent his childhood moving around to various cities in South Georgia, as his father served as a United Methodist minister in the South Georgia Conference. Reverend McKibben shared his love of fishing and bird watching with his son, something that Mal McKibben passed on to his own family.



After graduating high school in Jesup, Georgia a year early, Mr. McKibben attended Emory University, graduating with a bachelor's degree in Chemistry. Mr. McKibben moved to North Augusta in 1955 and worked at the Savannah River Plant (SRP) as a nuclear chemist for 44 years. As a vocal nuclear technology expert and nuclear energy activist, Mr. McKibben also traveled extensively, spending three years in California as the Senior Project Manager for the design of the Defense Waste Processing Facility (DWPF); to Russia to participate in an exchange of Plutonium production data; and France, to participate in reactor design meetings. He published extensively during his career, contributing to multiple books and more than 50 published papers during his career. His contributions to his field were recognized by the American Nuclear Society (ANS) where he was named an ANS Fellow.

Upon retirement from SRS, Mal McKibben served as the Director of Citizens for Nuclear Technology Awareness (CNTA), an organization he was a founding member of, turning it into the largest nuclear advocacy citizen-centered group in the country. Upon retiring from CNTA in 2007, Mr. McKibben served on the the board of the SRS Heritage Foundation and was board chair from 2009 - 2012. In 2000, a joint proclamation from both the South Carolina House and Senate was issued, recognizing and commending Mr. McKibben for his service to not only his community but his country.

Mr. McKibben was an active member of Grace United Methodist Church, serving in numerous roles in his 64 years as a member. Leadership roles included Sunday School teacher, pastor parish relations committee member and chairman, and Tenor in the Chancel Choir. He and his wife taught the 6th grade confirmation class together for many years, and later Mr. McKibben was also a teacher of his peers in the Stillwell class.

To Mal McKibben, being a good citizen meant being a lifelong student of current events, government and engagement in ensuring well-run elections. Mr. McKibben was the first chairman of the Aiken County Republican Party when this alternative political party was introduced.

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Mal and Sally McKibben's coffee table was always stacked with reading materials, which included the North Augusta Star, Nuclear News, The Methodist Advocate, Scientific American magazine, US News and World Report, National Geographic, South Carolina Wildlife, and Saltwater Fishing magazine. Dinnertime conversations with the three daughters were expected to cover the full range of topics.

As one who loved language and words almost as much as he loved science, it was no surprise when Mal playfully named his beloved Grady White offshore fishing boat Mal-Content. He believed that Jesus was preparing a heavenly version of the Gulf Stream, stocked with fish, for his heavenly reunions. Mal-Content² is floating there today, father and son catching up on long-missed conversations.

Mr. McKibben is preceded in death by his parents (Rev. Charles Roy McKibben and Allie Mae Conners McKibben) and his brother (Charles Roy McKibben, Jr).

Survivors include his wife Sarah Williams McKibben, three daughters Margaret McKibben Key (Buddy), Kathleen McKibben Harper (Scott), and Elizabeth McKibben Owens (Ed); sister, Edyth McKibben Snow, nine grandchildren, James Patrick Harper (Ksenia), Emma Harper Indendi (Dustin), Claire Harper Ledford (Philip), Andrew McKibben Key, Samuel Aaron Key, Jackson Owens, Julia Maryniak, Anna Maryniak, and Ana Grace Owens; as well as three great-grandchildren.

He will be missed by the section.