

2018-19 Neutrino



American Nuclear Society
Savannah River Section

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Chairman's Message

The ANS Savannah River Section has continued its exemplary performance this year in representing the Nuclear profession in our area. Our Section has some of the most dedicated professionals whose hard work and leadership was recognized by the National ANS Organization for its efforts in 2017-2018. In 2018-2019, we continued our community outreach activities including teaching our youth at local schools in nuclear science, provided outstanding technical programs for members and the community, and supported our scholarship programs. Our dedicated membership has devoted significant time and provided the leadership to host Probabilistic Safety Assessment 2019 Conference in Charleston this spring, which by all measures was an outstanding success. We have also recruited new members to the Section, but we need to do more in this area. Our focus for the future should include maintaining the ongoing Section activities with an emphasis on increasing new membership, particularly in the area of new engineers and operators to ensure a viable future for the Section and the nuclear profession.

Chip Lagdon



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Technical Meetings:

September

Chip Lagdon, Senior Project Director – Consulting Solutions, AECOM Nuclear & Environment Technical Services, LLC. and the ANS Savannah River Section Chair for 2018-2019. The presentation discussed the lessons learned from two contamination events at Hanford – The tunnel collapse and the demolition of PFP. The tunnel collapse at the Purex Plant occurred on May 9, 2017. During the demolition of PFP on December 17, 2017, a contamination event occurred that resulted in contamination of personal vehicles outside the controlled area. Both of these events were relatively minor in terms of radiological consequences, however there are lessons learned in emergency response and demolition. The meeting was held at Newberry Hall in Aiken, SC.



October

ANS did not have an regular meeting this month. The section sponsored the ANS table and booth at the Teller Lecture in during Engineering Week. Jose Reyes spoke on the NuScale's Small Modular Reactor design.

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November

Dr. Charles R. Martin is the Glenn T. Seaborg Science and Engineering Policy Fellow for the American Nuclear Society under the auspices of the American Association for the Advancement of Science. Dr. Martin spent 2018 working in the office of Rep. Marcy Kaptur (D-Ohio). Representative Kaptur serves on the House Appropriations Committee and is the ranking member of the Energy and Water Development Subcommittee of the Appropriations Committee. She also serves on the Defense and Homeland Security Subcommittees of the Appropriations Committee. Dr. Martin's overall goal as Congressional Fellow has been to connect science, especially nuclear science and technology, with policy and to foster a network of science policy contacts for future engagement. Chip discussed his experience as the Science and Engineering Policy Fellow. The meeting was held at Enterprise Mill Event Center in Augusta, GA.



December

December was the annual Holiday Celebration. ANS Members and guests had a wonderful six course dinner with fine wines. All shared and enjoyable time with friends, family, and colleagues. Thanks to all who made this event so wonderful. The celebration was held at the North Augusta Community Center in SC.



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January

Dr. John E. Kelly retired from the U.S. DOE and is the ANS President discussed the dozens of Light Water Reactors (LWRs) under construction around the world. Most experts expect LWR technology to be the primary source of nuclear power well into the latter half of this century. At the same time there continues to be strong interest in moving to more advanced LWR technology (such as Small Modular Reactors) and Generation IV systems. The presentation provide perspectives on the future of nuclear power in the United States and how the integration of LWR technology and Gen IV technology can lead to sustainable nuclear power. The meeting was held at Newberry Hall in Aiken, SC. In the March/April edition of the ANS News Dr. Kelly mentioned his visit to the Savannah River Site and Plant Vogtle. He also mentioned this dinner meeting and how impressed he was with the Section's knowledge and involvement in all things nuclear. Dr. Kelly did a plug for our cosponsorship of PSA 2019 Topical meeting later in April.



February

Dr. Thomas D. Burns, Jr. the Senior Vice President/Deputy Project Manager/Director of Engineering for Parsons' Salt Waste Processing Facility (SWPF) design-build-operate project made a presentation of the Salt Waste Processing Facility (SWPF). It is the keystone for completion of the Liquid Waste Clean-up mission at the Savannah River Site. Dr. Burns updated the attendees on the significant progress being made in the Testing and Commissioning phase as the plant proceeds rapidly toward Hot Operations. He outlined some of the process enhancements that are made possible by the recently completed Next Generation Solvent upgrades. The meeting was held at Newberry Hall in Aiken, SC.



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March and April

No regular technical meetings were scheduled due to the organization's preparation for the PSA Topical 2019 at the end of April.

May

This meeting was held at the Vogtle Electric Generating Plant near Waynesboro, GA. Mike McCracken was the host and tour leader for Southern Company. He updated the attendees on Unit 3 and 4 expansion, the only new nuclear plants under construction in the United States. The group also did outside tours on operating Units 1 and 2 and a tour of the near all digital control room simulator for 3 and 4. Unit 3 will be commercial in 2021 and Unit 4 in 2022. A lunch was provided for the group on site.



July - Benjamin 2019 Scholarship Presentation

The Savannah River Section of the American Nuclear Society (ANS) awarded two Benjamin Memorial Scholarships to Central Savannah River Area students at its July 22nd dinner meeting at Newberry Hall in Aiken. The Benjamin Scholarships are given to help defray first-year college costs for the 2019-2020 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 sixth 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.

This year's \$2,500 Scholarship winners were Kenny Glaze of Harlem High School and Bryce Hopkins of South Aiken High School. 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. Mr. Glaze will begin his study in Civil Engineering at the Georgia Institute of Technology and Mr. Hopkins will begin his studies in Engineering at Clemson University.

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In addition to the Scholarship awards, Scholarship Chair Kevin O’Kula announced three additional students recognized as runner-up, or Benjamin Commendation awards. Students receiving the Commendation Awards were Reece Bostic (Aiken High School) attending Clemson a Biology major, Amelia Guerry (Aiken High School) attending the University of South Carolina in Biomedical Engineering, and Taylor Padgett (Evans High School) attending the Florida Institute of Technology as a Chemical Engineering Major.

Prior to award presentations, guest speaker Bill Wabbersen, incoming Vice-Chair of the ANS Savannah River Section, presented a talk entitled, “Development of the Interactive Nucleus App.” Bill outlined a new initiative that he is leading with ANS Savannah River Section and other local sections. The project is a collaborative effort with University of South Carolina Aiken Computer Engineering faculty and students to develop a smart device application that will allow students to create any isotope and discover the isotope’s physical properties and uses. USC Aiken students are developing the application platform and ANS members are developing the content for the app. The Interactive Nucleus App will greatly extend the elemental and isotopic range of its predecessor and the hands-on model available at the Ruth Patrick Science Education Center located at USC Aiken.

The Scholarship is named for Dick 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 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 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.



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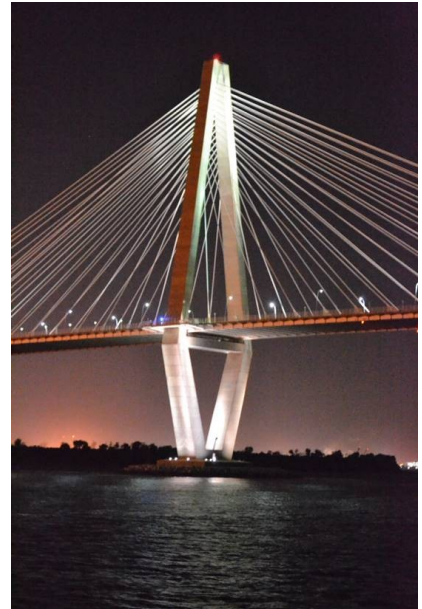


2019-20 Benjamin Memorial Scholarship Award Winners and parents (left to right): Victoria Christensen (parent of Bryce Hopkins), Bryce Hopkins (South Aiken High School graduate), Ken Glaze (parent of Kenny Glaze), Kenny Glaze (Harlem High School graduate) and Betsy Glaze (parent of Kenny Glaze). (ANS SR photo by Carl Fields)

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Probabilistic Safety Analysis Topical 2019 in Charleston, SC

The 16th International American Nuclear Society (ANS) Meeting on Probabilistic Safety Assessment and Analysis 2019 (PSA 2019), April 28 – May 4, 2019. PSA 2019 was planned and coordinated by an Organizing Committee drawn from the Savannah River and Columbia, South Carolina local sections of ANS. Nuclear safety professionals, educators, and retirees from the Savannah River Site, Plant Vogtle, Westinghouse Columbia, Summer Nuclear Power Station, and supporting consulting service organizations, along with the University of South Carolina and the University of Maryland faculty were key members of the PSA 2019 Organizing Committee. The venue for PSA 2019 was the Charleston Marriott (west side of the downtown Charleston area, near the Ashley River). The ANS Professional Division sponsor for this and other meetings in the PSA series was the Nuclear Installations Safety Division (NISD).



Conference statistics may be summarized as follows:

- 219 (Attendees/Guests) + 11 (Workshop + Organizing Committee Staff) = 230 participants
- 38 sessions over eight half-days (full-days Monday, Tuesday, and Thursday; Half-days on Wednesday and Friday mornings)
- 132 Presentations (Traditional Paper and Presentations)
- One Opening, Five Plenary and Nine Panel Sessions
- Three workshops sessions (46 attendees)
- 22 nations represented (~33% international participants) and
- Ten industry and national laboratory sponsors.

The key leadership team was spread among several organizations. Dr. Robert A. Bari, Senior Physicist Emeritus, Brookhaven National Laboratory was the Honorary Chair of the PSA 2019 Conference. Dr. Kevin O’Kula of AECOM Technical Services was the General Chair and Professor Mohammad Modarres of the University of Maryland was the Technical Program Chair. He was assisted by Ms. Bonnie Shapiro of Savannah River Nuclear Solutions as the Assistant Technical Program Chair.

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Outreach and Education:

Science Education Enrichment Day

The SEED day was held on October 6th. The students attending were energetic and responsive. There was one boy named Ben who was a natural. He was maybe 7 or 8 years old. Bob Eble discussed the chart of the nuclides and asked him to find uranium-238. He immediately went to the mass numbers, slid his finger across the chart from left to right and stopped at the actinides of mass 238. Then he went diagonally across to find U. Amazing. he went on to find more isotopes. We discussed each of them and their unique properties. Then he asked, can I find these in the ground? Yes, Bob said and showed him the uranium ore rock. Then he says, What can you do with this rock? Awesome. I turned to his mother after about 20 minutes of discussing nuclear power and she says, He likes science, What an understatement. He is our future Bob said to her. Thanks to all of the volunteers. We had eight join us this year. They did a great job. Only one uncontrolled criticality event and it was the last one of the day. Kurtis and Dan did a great job with the fission chamber. Steven, Kenneth, Michael and Nitant worked nonstop for several hours. We probably talked to over 300 students.



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Class Room Nuclear Blitz

Section volunteers talked to about 300 students and their parents during the October 2018 Nuclear Blitz.

On Friday, October 19th, Dan Thomas and Steve Pierson present to the USC Salkehatchie in Allendale. There were four classes of approximately 30 students each, two-10th grade classes and two-9th grade classes. A few had relatives or neighbors who worked at the Savannah River Site, but many were curious about what happens there.

On Tuesday, Oct 23rd, Bob and Michael Fendler presented to three classes each at Aiken HS; 150 students.

On Friday, Oct 26th, Steve Pierson presented to North Augusta HS six classes. 150 students.

Also on Oct 26nd, Dan Thomas presented to South Aiken HS in three classes; 75 students.

Thanks again to all who volunteered and to the teachers who allowed us to come into their classes.



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Outreach with Bill Wabbersen

November 10, 2018 - Supported the ANS Teachers Workshop at the ANS Winter Meeting in Orlando. SRS supported the development of the presentations and shipped the new Advanced Isotope Discovery Kit to Orlando for use in the workshop.

January 18, 2019 - Presented a four-hour nuclear science workshop at Vogtle for the Plant Vogtle Core Group ambassadors. Approximately 15 Georgia Power employees attended the workshop which was designed to instruct them how to interact with schools and the general public. Jon Guy assisted in presenting. The session included how to use the ANS Isotope Discovery Kit and the new Advanced Isotope Discovery Kit.

March 30, 2019 - Presented the Journey to the Center of the Atom at the South Carolina Academy of Science Annual Meeting at Francis Marion University. Jon Guy assisted me in the presentation. Approximately 20 high school students from across the state of South Carolina attended.

May 2019 - Hand built an Advanced Isotope Discovery Kit for ANS National's Center for Nuclear Science and Technology Information. This advanced kit is used to demonstrate the decay chains of the three primordial heavy isotopes, U-235, U-238, and Th-232 utilizing a hands-on approach. The kit directly supports concepts in the national and state teaching standards. The kit can also be used to demonstrate the production of many useful isotopes such as Pu-238 and Cf-252.

June 8, 2019 - Supported the ANS Teachers Workshop at the ANS Meeting in Minneapolis. Although I was unable to attend, I supported the development of the presentations and shipped a new Advanced Isotope Discovery Kit to Orlando for use in the workshop.

June 21, 2019 - Kicked off a collaborative project with the University of South Carolina - Aiken's Applied Computer Science Program. As part of their senior project, two computer science students are developing a nuclear science application with my direct support. This app will be able to be used on smart phones and tablets. The app expands upon the concepts demonstrated in the ANS-SR Interactive Nucleus display. App users will be able to virtually create any isotope using their smart device by pairing protons and neutrons on the screen. The user will then be able to see the chemical structure, physical properties and uses of the isotope they have created. App development will continue over the next school year.

July 17, 2019 - Presenting a three-hour nuclear science course as part of a SC Science Teacher Professional Development workshop at Furman University. The session is for 19 high school chemistry teachers from schools in and around Greenville, SC. The session includes the use of the ANS Isotope Discovery Kit and the new Advanced Isotope Discovery Kit. Jon Guy is assisting in the workshop.

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Paul W. Dickson Jr. (1931 - 2019) - He will be missed



Paul W. Dickson, Jr., 87, much loved husband of Eleanor A. Dickson passed away at his home in Aiken, South Carolina on May14, 2019.

Paul was born in Sharon, PA, September 14, 1931 to Elizabeth Ella Trevethon and Paul Wesley Dickson. He grew up in Tucson, Arizona and attended Tucson Senior High School. He continued his education at the University of Arizona earning a BS in Metallurgical Engineering and an MS in Science in 1954. He later earned a Ph.D. in Nuclear Physics at North Carolina State.

He was proud to have been an Eagle Scout and served eight years in the Air Force reaching the rank of Captain. Paul had a very inquisitive mind, always asking why, always wanting to fully understand. He loved the Arizona desert and earned money for college by working in the copper mines.

Paul had a 35-year career with Westinghouse Electric Corp in Pittsburgh, Oak Ridge and Savannah River. Positions included Senior engineer at the Westinghouse Astro-nuclear Laboratory (1963-68), manager of weapons systems (1968-69) at WANL , manager of advanced projects (1969-72) at WANL, manager of reactor analysis and core design (1972-80) Westinghouse Advanced Energy Systems Division, technical director of the Clinch River Breeder Reactor Plant (1980-84).

After retiring, Paul played duplicate bridge reaching the level of Gold Life Master. He was dedicated to the game and became a bridge teacher and director for the Aiken Contract Bridge League. He was also Fellow in the American Nuclear Society for 58 years and a very active member in the American Nuclear Society-Savannah River section. He loved ANS-SR's Nuclear Trivia contests and monthly technical meetings.

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Nuclear Trivia

Nuclear Trivia was held at the Aiken Brewing Company on Thursday, November 29, 2019. Michael Fendler and Zachery Hein organized this event using a new format for assigning points. It was fun and well attended.