



**American Nuclear Society
Savannah River Section
60th Anniversary Program with
Special Guest:
Mr. Kenneth S. Petersen,
69th ANS President**

ANS Savannah River Section

November 29, 2023

ANS SR East Georgia-West South Carolina Coverage

Region contains

- Vogtle (PWRs) and Hatch (BWRs) Nuclear Power Plants
- Savannah River National Laboratory (SRNL)
- Savannah River Site (SRS)
- Medical College of Georgia
- Augusta University, University of South Carolina-Aiken and area technical colleges
- Nuclear community concentrated in Aiken, North Augusta, and Augusta

The American Nuclear Society – Savannah River Section covers 46 counties in Georgia and South Carolina.



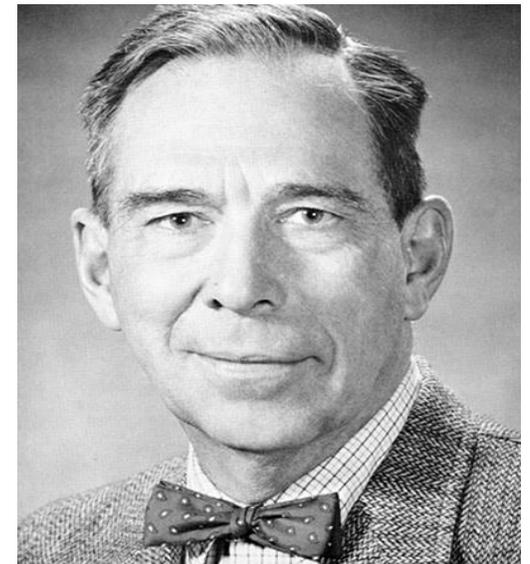
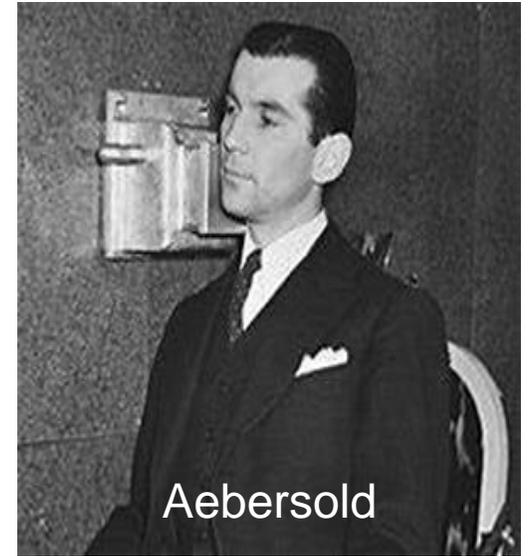
Celebrating our 60th Anniversary

- Organizing committee mostly centered in SRL began efforts in 1963 to form a local section
- Charter from ANS National dated November 21, 1963
- Not the oldest compared (e.g., Oak Ridge and Trinity) but arguably one of the most vibrant



Nation and Organization of ANS Savannah River did move on

- First meeting held in downtown Augusta at Town House hotel/restaurant (off Reynolds St.)
- Date: January 13, 1964, with an attendance of 107!
- Dr. Paul C. Aebersold, AEC Director of Isotopes Development was the speaker
- Topic: “The Local Nucleonics Society – Protection Against Nuclear Narrowness”
- March 1964 speaker in Aiken was Dr. Clarke Williams, 9th President of ANS
- Both had roles in Manhattan Project



ANS SR Charter Leadership

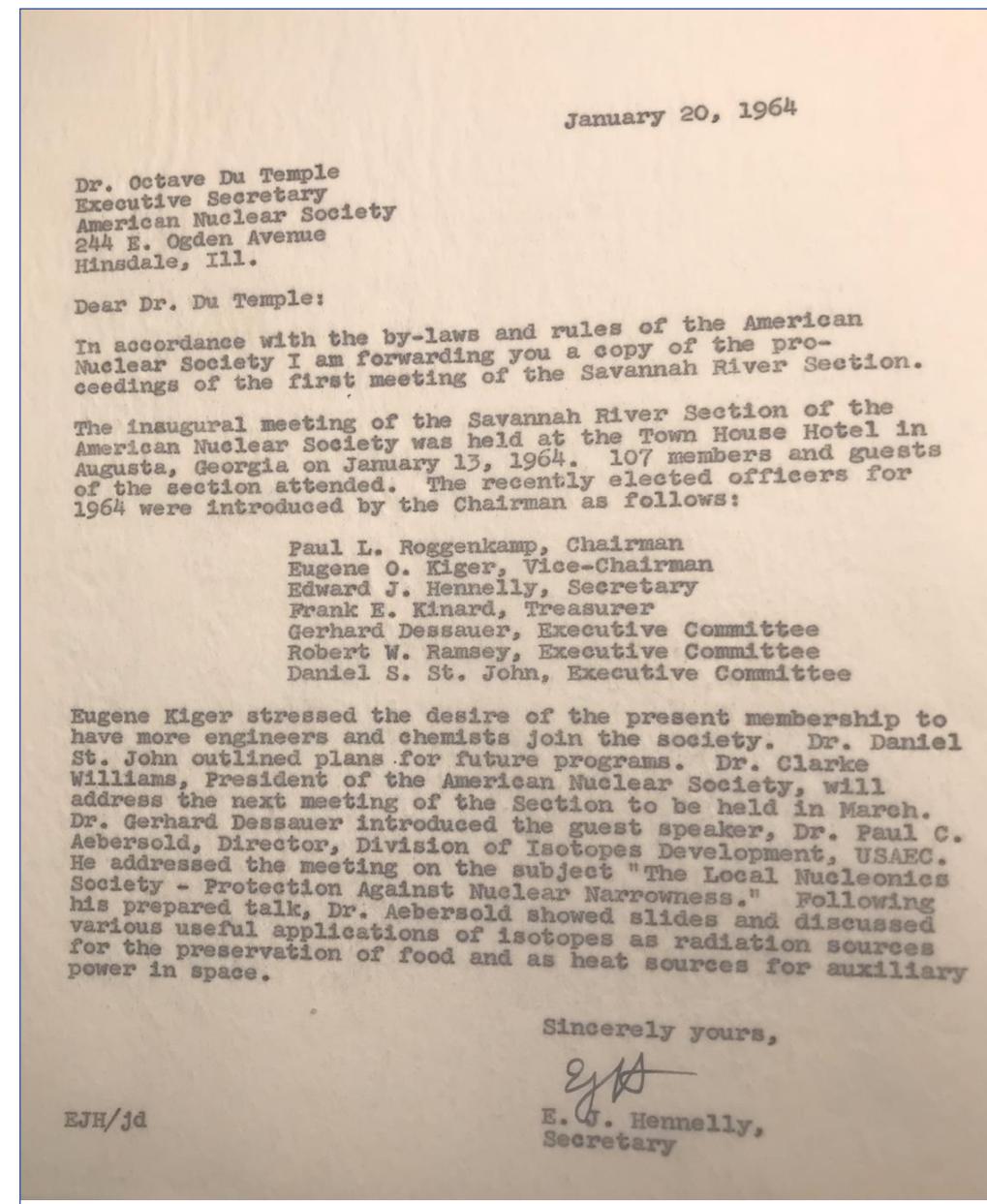
Slate of Officers and Executive Committee members - January 1964

- Paul Roggenkamp, Chairman
- Eugene Kiger, Vice Chairman
- Edward Hennelly, Secretary
- Frank Kinard, Treasurer

Executive Committee

- Gerhard Dessauer
- Robert Ramsey
- Daniel St. John

Charter members from SRP & SRL included Rick Benton (present tonight!)



2023-2024 ANS SR Executive Committee Officers and Committee Chairs/Liaisons

ANS-SR Officers:

- Michelle Johnson, Chair
- Bob Sindelar, Vice Chair
- Amanda Szasz, Co-Treasurer
- Christian Sifuentes, Co-Treasurer
- Rob Fundak, Secretary

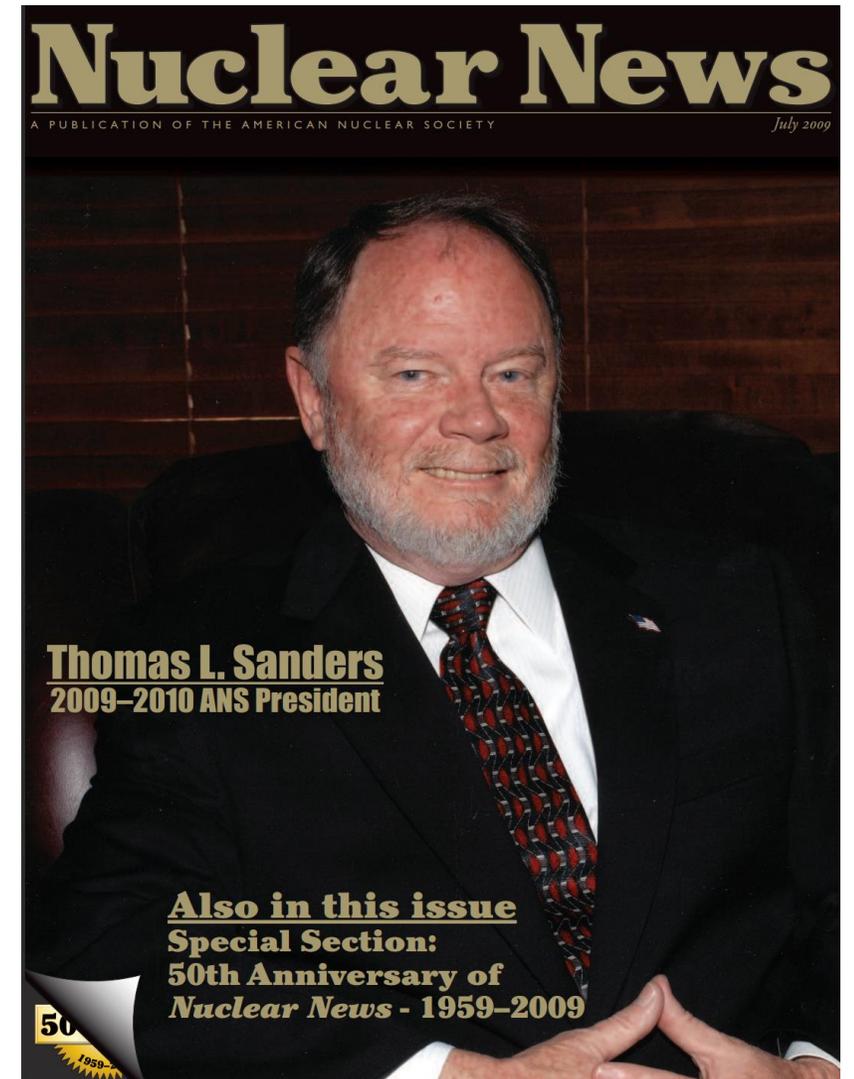
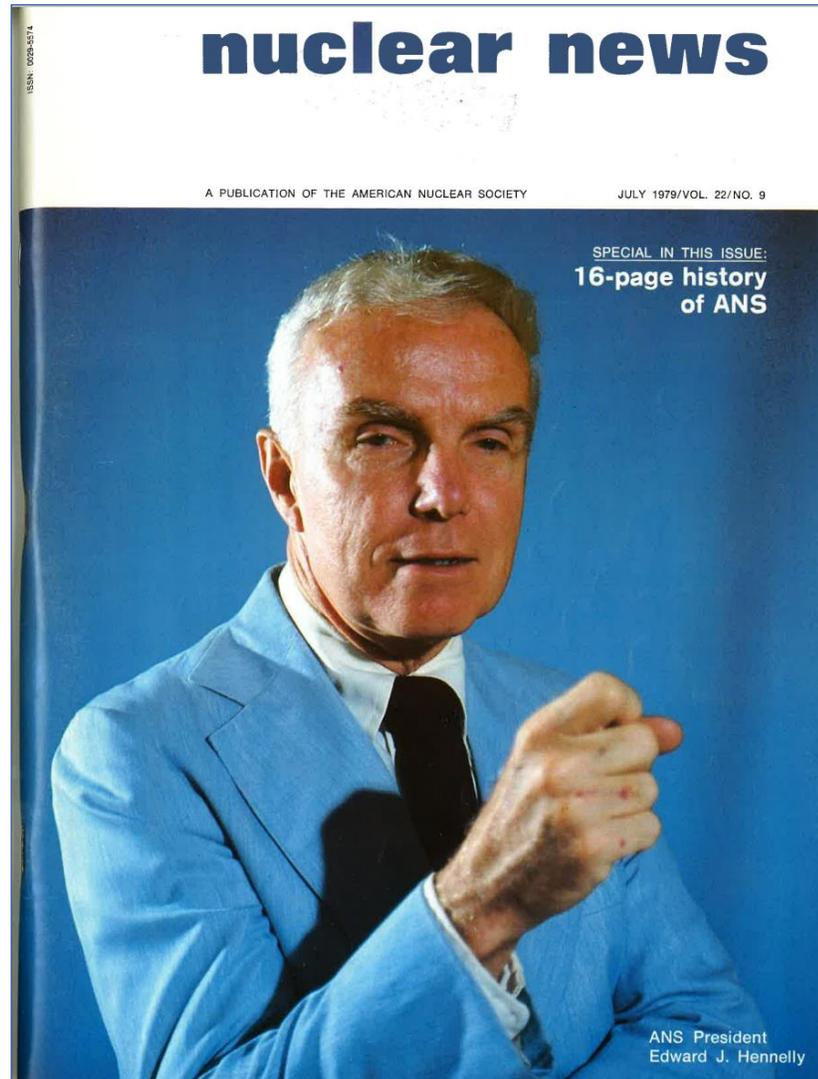
- Kevin O’Kula, Immediate Past Chair

ANS-SR Committee Chairs/Liaisons:

- Mukesh Gupta, Scholarship Chair
- Phil Cupp, Publications Chair
- Rebecca Rice, Co-Program/Arrangements Chair
- Kevin O’Kula, Co-Program/Arrangements Chair
- Graham Jones, Outreach Chair
- Aherial Polite, CNTA Liaison
- Carl Fields, Retiree Liaison
- Mike McCracken, Plant Vogtle Liaison
- James Deaton, Young Members & Webmaster
- Diane Shelton, Executive Administrator
- Entire Executive Committee, Membership

ANS Presidents from SR

- 25th ANS President
Ed Hennelly
- 55th ANS President
Thomas Sanders
 - At our 50th anniversary (2013) was Associate Lab Director for Clean Energy Initiatives at Savannah River National Laboratory (until 2015)
 - Died earlier this month



ANS conferences – SR Organizing and Hosting

Standalone Topical Conferences over last 35 years:

- 16th International Probabilistic Safety Assessment & Analysis (PSA), Charleston, SC (2019)
- Tritium Technology and Safety, Charleston, SC (2016)
- 13th PSA, Columbia, SC, co-hosted with the Columbia Section (2013)
- 5th Topical Meeting on SNF and Fissile Material Management (2002)
- 3rd Topical Meeting on SNF and Fissile Material Management (1998)
- 7th Topical Meeting on Robotics and Remote Systems (1997)
- 5th Topical Meeting on Emergency Preparedness and Response (1995)
- SPECTRUM 94, Atlanta, GA (1994)
- Topical Meeting on Environmental Transport and Dosimetry (1993)
- 1992 Topical Meeting on Advances in Reactor Physics (1992)
- 3rd Topical Meeting on Robotics and Remote Systems (1989)
- ANS Topical Meeting on Emergency Response: Planning, Technologies, and Implementation (1988)



ANS SR Dinner & Technical Exchange Meetings - I

- ANS SR organizes in-person dinner meetings in the Aiken-North Augusta-Augusta region
- During Covid era, arranged virtual meetings with speakers locally, nationally and worldwide



John Dewes's Presentation via Internet and the attendees

- Virtual meetings
 - John Dewes – IAEA (SNF programs)
 - Greg Piefer – SHINE (medical isotopes)
 - Mike McCracken – Progress on VEGP 3 & 4

ANS SR Dinner & Technical Exchange Meetings - II

- Upcoming In-Person Events - 2024
 - January - Dr. Cathy Ramsey, SRNL
 - “Management and Disposition of DOE Nuclear Materials”
 - February – Professor Steven Biegalski, Georgia Tech (to be confirmed)
 - March – Dr. Robert Sindelar, SRNL
 - “Challenges and Solutions for Safe Management of SNF”

ANS SR Dinner & Nuclear Trivia - III



Jeopardy Format

- Renewed Trivia Night after several-year lapse
- Sample Question: Film released on July 21st of this year, follows this titular character, and revolves around a product that was first made in the U.S. in the mid-20th century that had a lasting impact on the world.



Answer:
Barbie or
Oppenheimer

Outreach - College Night Sessions

- Post-COVID: back to an in-person event with ~4,000 junior & senior students, parents, and college representatives
- Discuss regional STEM schools and opportunities in Nuclear Science & Technology



Graham Jones and Brent Barnett talking to students

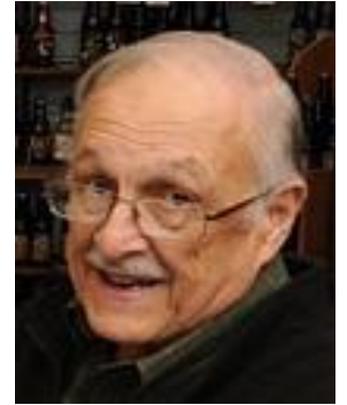
Outreach – S.E.E.D.

- Science Education Enrichment Day targets elementary and middle school students
- ANS SR booth demonstrates how radiation is part of everyday life, beneficial, and safe
- About 3,000 – 4,000 participants
- Hands-on exhibits with detectors, sources, and shielding
- Crowd favorite: mouse-trap fission chamber



Educational Outreach: Benjamin Memorial Scholarship

- Named for long-time SR section member and officer, Richard Benjamin
- 30+ years at the Savannah River Laboratory as researcher and manager
- Dr. Benjamin represented ANS and was one of the first to sign the first United Nations Framework Convention on Climate Change held in Rio de Janeiro. (28th COP begins this week)
- The Benjamin Scholarship in 2024 will be in its 11th year
- Over 50 students supported in their first year of STEM university and technical college programs



Bill Wabbersen lives here – Interactive Apps to benefit students of all ages

Interactive Isotopes App launches on ANS website



In the summer of 2019, three students from the University of South Carolina–Aiken had an idea to digitize the isotope. Wei Zheng, Drake Jones, and Joseph Taylor set out to design an app that would be an interactive one-stop shop for information about any isotope—number of protons and neutrons, whether it is stable or radioactive, its natural abundance on earth, and even its uses. From these ideas, the Interactive Isotopes App began to take shape.

The app's launch was disrupted by the COVID-19 pandemic; although it was complete after three years of work and development, the creators sat on it. On October 12, the app at long last went live on the ANS website.

"The process gave us a lot of development experience, despite all the obstacles we had to overcome," said Taylor. "We started the project right before the pandemic, and some of us were still trying to get through classes while working on the project."

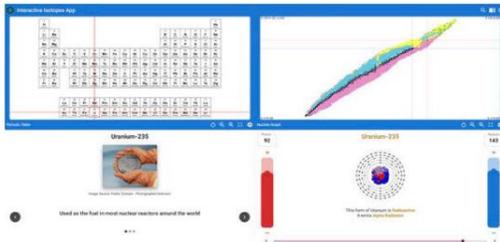
The student team worked under Bill Wabbersen, at the time a nuclear engineer at the National Nuclear Security Administration. (Wabbersen retired in September.) "Bill had a goal to create an application that would reach

as many users as possible while teaching them about isotopes," said Taylor. "Together with Bill, we were able to achieve that goal."

Isotopes are two or more forms of the same element. They contain the same number of protons and so have the same atomic number and position on the periodic table, but they have different numbers of neutrons.

The app features an interactive periodic table. Clicking on an element pulls up specific information in a window that opens, including images (or in some instances, photos of the person who made the discovery) and facts about the uses for that element's different isotopes. In the absence of known uses, readers are treated to a quip and a bit of history about the element. A nuclide graph that displays all the isotopes of the chemical element is also shown on the "line of stability," where isotopes have the most balanced ratios of protons to neutrons. Radioactive isotopes emit radiation as they rearrange their nucleus in order to become more stable, getting closer to the line of stability over time.

When an element is selected, two vertical bars appear in a window that allow a user to change the number of protons and neutrons. Adding or subtracting neutrons moves only the nuclide graph, since the atomic number remains the same. Adding or subtracting protons shifts both the nuclide graph and the position on the periodic table. If the isotope selected is radioactive, the decay chain is visible in the nuclide graph. U-235, for example, is the highly radioactive fissile isotope used in nuclear reactors. Over hundreds of millions of years, the U-235 found on Earth



A screenshot of the Interactive Isotopes App from the ANS website depicting U-235 and its decay chain. (Graphic: ANS)

Continued on page 24

- Moving from hands-on initiatives of 20+ years ago to today's platform-independent apps
- Launched by Bill Wabbersen, Jay Bilyeu and others
- Isotopes App (<= see Dec. 2022 Nuclear News) is available at <https://isotopes.ans.org>
- Isotope Discovery Activity (IDA) app demonstrated at Teachers Workshop at UMD on November 11th
- Target ANS Webinar in January 2024 for release of IDA

Networking – Picnic with the Nukes (PicNuke)

- Annual Networking Picnic (PicNuke!)
- Intergenerational and family-friendly
- Interaction with newcomers to the workforce with old-timers in the Aiken-Augusta area



The PicNuke Cake and The Grill Masters



The gathering of members, families and friends

Networking - Nukes vs. GreenJackets (at the Ballpark)

- Annual ANS SR Group Event at SRP Park in North Augusta
- GreenJackets – Single-A Minor League affiliate of the Atlanta Braves



“60 in 61”: Section Recruiting Challenge in 2023-2024

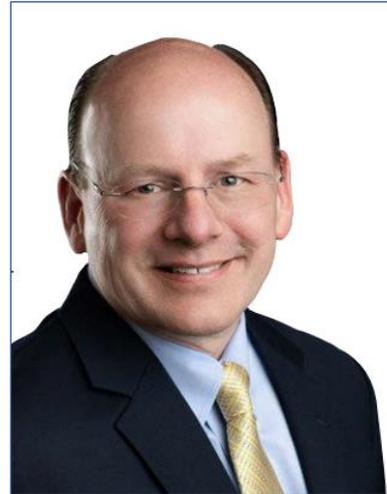
- Goal: Add 60 national members in our 61st year
- Still working out initiative & program
- All categories, e.g., active professionals, educators, retirees, & students are sought



Just in: Poll Results for Most Popular University of Wisconsin Graduate to visit Plant Vogtle this year



**1. Miss America 2023
Grace Stanke**



**2. ANS President
Kenneth Petersen**



Vogtle Units 1, 2, 3, and 4

**60th Savannah River Section
Anniversary Speaker:
69th ANS President
Mr. Kenneth S. Petersen**

**Presentation:
“Update on nuclear &
the American Nuclear
Society”**



Backup 1 – Sample Nuclear Trivia Question

Measure of a Man (9 points)

- Write the unit (name or symbol) that measures the following (1 point each):
 1. One decay per second
 2. The same as above, but $3.7E10$ more of them per second; the decay of $\sim 1\text{g}$ of Ra-226
 3. Exposure to 5 or more of these usually leads to death within weeks; a touch dark
 4. Applies a weighting factor to determine the radiological dose applied to tissue; factor applied to unit above
 5. Photon flux to measure light emitted in the sky; a relative named effect for blue sky
 6. $1/12$ the mass of C-12; developed atomic theory that atoms are identical size
 7. SI length on par with nucleus; prefix was chosen due to similarity with his name, and the symbols are the same
 8. Legacy unit of charge freed in a mass of air; now this name is applied to the mass of an “equivalent man”
 9. The smallest possible mass, time, temperature, or length; far less than a $2''\times 4''$

Backup 2 - Nuclear Trivia Answers

Measure of a Man (9 points)

- Write the unit (name or symbol) that measures the following (1 point each):
 1. Becquerel (Bq)
 2. Curie (Ci)
 3. Gray (Gy)
 4. Sievert (Sv)
 5. Rayleigh (R)- fourth baron Robert Strutt; third baron, John William Strutt bears name for Rayleigh scattering
 6. Dalton (Da)
 7. fermi (fm); would accept equivalent, femtometer (fm)
 8. Roentgen or Röntgen (R)
 9. Planck, Planck units, etc. (m_P , t_P , T_P , I_P)