

# 2024 Neutrino Year End Edition



**American Nuclear Society**  
Savannah River Section

March 2024 to July 2024 Edition

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

## **Officers and Executive Committee**

Chair: Michelle Johnson

Vice Chair: Bob Sindelar

Secretaries: Rob Fundak

Co-Treasurers: Amanda Szasz and Christian Sifuentes

Membership: Vacant

Publications: Phil Cupp

Admin: Diane Shelton

Retiree Liaison: Carl Fields

Vogtle Liaison: Mike McCracken

CNTA Liaison: Aherial Polite

Outreach/Education: Graham Jones

Scholarship: Mukesh Gupta

Young Member and Webmaster: James Deaton

Programs Co-Chairs: Rebecca Rice and Kevin O’Kula

Past Chair: Kevin O’Kula

# 2024 Neutrino Year End Edition

## Chair and Vice Chair Messages

### Chair

Dear ANS- SRS,

It is hard to believe that my time as the Chair of the American Nuclear Society- Savannah River Section is over! Serving in this role has been a rewarding experience and I have especially enjoyed connecting with both the new and old Section members.

One of the primary missions of this origination is to empower a strong, connected, and engaged professional community that cultivates nuclear science and technology for the benefit of humanity. Thumbing through this newsletter its clear to me that we have fulfilled our mission through our participation in educational outreach events such as the DIG Program in Williston, SC; technical meetings, awarding scholarship to local students pursuing STEM degrees, and our networking events amongst the members.

The ongoing success of this section is the result of the dedicated members as well as contributions from numerous ANS-SR Section members and local corporations. The 2024-2025 Executive Committee will be stepping up under the leadership of Dr. Robert (Bob) Sindelar and I have no doubt that the section will continue to evolve and improve to best meet the needs of ANS-SR. I am grateful to my predecessor, Kevin O’Kula, for his encouragement and support during my terms as chair-elect and chair of the Executive Committee. The entire Executive Committee has been great leaders to work alongside.

I look forward to continuing my service as past chair of the Executive Committee. Please join me in welcoming Dr. Bob Sindelar as the new ANS-SR Section Chair!

Warm regards,

L. Michelle Johnson

Chair, ANS-SR Section 2023-24



# 2024 Neutrino Year End Edition

## Vice Chair

Dear ANS-SR Section Members and Friends of the ANS-SR Section,

It is an honor and a privilege to take the reins from Michelle Johnson and serve as your ANS-SR section chair for the upcoming 2024-2025 year. Our Savannah River Section celebrated our 60th Anniversary in the Fall of 2023. This “diamond jubilee” milestone achievement is a testament to the impactful and enduring role of nuclear science and technology in our lives. Our forebears gave us a baton to carry on. You and our immediate leadership team of the section landed us the 2023 “Best Local Section Meritorious Award” from national ANS, reflective of our stellar membership, programs, information & education, and section management. Let’s keep it going!

Since 1986, I have lived and worked in the CSRA after being hired at the then Savannah River Laboratory by - you didn’t guess it – our own Dr. Kevin R. O’Kula. I have had broad experiences over my career that involve nuclear technologies spanning the conventional nuclear fuel cycle, the next generation nuclear energy systems, and in the pursuit of commercial fusion energy plants. If you have questions, just ask me - I know it all, and I am right - I am Bob!

Seriously speaking, I look forward to serving as chair of our ANS-SR section, and I will take all your suggestions (under advisement!). Nuclear plants have gone from initial design lives to “life after 60” and beyond. Our SR section will be there with them too using your energy and enthusiasm in your participation and service. Over this past year, I have seen our young and a young-at-heart membership in action. I am certain we will continue to grow and thrive as a section!

Looking forward to the 2024-2025 year of our section.

All the Best,

Bob Sindelar

slr072@aol.com

2023-24 Vice Chair



# 2024 Neutrino Year End Edition

## Technical Meetings

### March 2024

On March 19<sup>th</sup> at Newberry Hall in Aiken, SC, Dr. Robert L. Sindelar of the Savannah River National Laboratory (SRNL) gave a presentation entitled, "Challenges and Solutions for Safe Management of Spent Nuclear Fuel." In his presentation, Dr. Sindelar highlighted various forms of spent nuclear fuel (SNF) and indicated that a key goal of SNF storage is to ensure general safety objectives are met throughout a desired storage period either in wet or dry storage systems. He noted that staff at SRNL in collaboration with partners at other national laboratories, industry research organizations, and the University of South Carolina, have performed materials aging testing and analyses, and have established nuclear materials aging management programs to support extended periods of safe storage of SNF. Examples of challenges to extended safe storage are from corrosion, hydrogen radiolysis, and chloride-induced stress corrosion cracking. The presentation described several challenges and the formulated solutions to support extended safe storage of SNF.



Dr. Sindelar, Laboratory Fellow at SRNL

Dr. Sindelar is a leading international expert in nuclear materials science & technology in the broad fields of aging effects and aging management of structures, and applications of materials in nuclear systems. Dr. Sindelar has 38 years of research, development, and deployment (RD&D) experience and a publication portfolio (175 external publications, and 200 internal reports at the Savannah River Site) in a broad range of materials disciplines for the nuclear fuel cycle; nuclear systems' structural integrity demonstrations; environmental degradation including mechanical and corrosion properties of ferrous materials and of aluminum alloys; irradiation effects; fracture analysis of metallic structures and components; and national codes & standards relevant to these areas.



Richard Loftin received his 50 year ANS membership certificate during the meeting. Richard is a retired Southern Company employee who worked at Vogtle from the first dirt dug in the 1970's until a few years ago. He spent sometime in Birmingham, AL in Southern Nuclear Fuel.

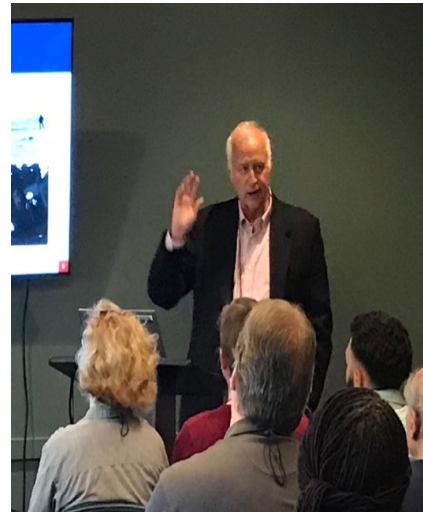
# 2024 Neutrino Year End Edition

## Technical Meetings (contd)

### May 2024

Dr. Fred Beranek, the Engineering Director and Manager of Fluor Fusion Program, for Fluor Nuclear Power, spoke to an audience of 30 at the Savannah River Section's May 9th dinner meeting. The meeting was held at Edgar's Above Broad restaurant in downtown Augusta. Beranek's presentation was entitled "Fusion Power – Now It's an Engineering Problem."

Fred covered key topics such as why fusion is being pursued as an energy source, magnetic versus inertial confinement (laser) fusion and specifically how laser fusion works. He discussed what's been achieved at the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory, and the engineering hurdles from a physics test facility to a power plant. He closed his remarks with a dynamic video of a Conceptual Laser Fusion Power Plant generating power (courtesy of Longview Fusion Energy Systems).



Dr. Beranek

He noted that on December 5, 2022, the path to providing fusion power to the grid was transformed from a 60-yearlong physics challenge to an incredibly interesting, but doable, engineering opportunity. The NIF provided the transformative event and serves as the foundation for the path to commercial fusion energy for Longview Fusion Energy Systems with whom Fluor is teamed. While NIF results were highly successful, they are from a state-of-the-art experimental science machine, and are not enough. Several significant engineering and technology advancements are required to go from NIF to a power plant, including but not limited to more efficient lasers, However, Fred concluded that overcoming these engineering challenges while not easy can be addressed over reasonable timescales.

Dr. Fred Beranek has been in the Aiken area for 46 years since coming to work for DuPont at the Savannah River Laboratory in 1978. He received his PhD in Nuclear Engineering from the University of Wisconsin doing thesis work on fusion. Over his career, Fred has worked at the Savannah River Site (Site Chief Engineer), Hanford Site in Richland, WA (Vice President of ESH&QA), Sellafield Site in the United Kingdom (Nuclear Safety Consultant) and the Canadian Nuclear Laboratories in Chalk River, Ontario (Associate Laboratory Director). He also assisted in spinning off his Safety Engineering Department at SRS to form Westinghouse Safety Management Solutions LLC company in 1998 where he served as its first Director of Operations. He has been with Fluor for almost nine years and currently serves as the Director of Engineering for Fluor's Mission Solutions Business Unit and is the Nuclear Fusion Program Manager for the fusion effort within Fluor.

# 2024 Neutrino Year End Edition

## Technical Meetings (contd)

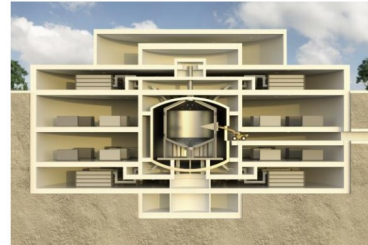
### Longview's First-to-Market strategy enables a Fleet of fusion power plants



Complete detailed plant design, licensing, IP, and supply chain development 2023 – 2029

Enable design, construction and delivery of a 440 MWe Fusion Pilot Power Plant 2028 - 2034

Worldwide fleet deployment of 1000 MWe+ Power Plants 2030 - 2050



- **Simplified regulatory pathway:** No risk of a nuclear accident, no criticality possible, no long-lived radioactive waste, non-proliferent technology
- **Cost-competitive** in terms of capital costs, O&M, and LCOE with existing sources of energy production
- **Maximizes use of readily available materials and technologies**, savings years of expensive R&D
- **Compact, highly modular, and grid-friendly** design enables rapid plant deployment, simple maintenance, and high availability operations

Fluor's teaming partner, Longview Fusion Energy Systems, has provided a First-to-Market strategy for deploying fusion power plants in the 2030-2050 time frame.

# 2024 Neutrino Year End Edition

## Technical Meetings (contd)

### July 2024

On July 25<sup>th</sup> Dr. Valerie Nwadeyi, Savannah River National Laboratory, Post-Doctoral Researcher, presented a "Non-destructive Assay Nuclear Measurements at the Savannah River National Laboratory" at Cafe' Scientifique in Aiken, SC.

Non-destructive assay (NDA) techniques are required to continue the efforts in monitoring and verifying safeguards for nuclear non-proliferation while ensuring the safe use of nuclear materials. Her presentation provided an overview of current technology used for NDA measurements, their key advantages, and challenges still faced in operation. Both gamma-ray and neutron detection methods were explained along with real world applications of NDA for nuclear material control and accountability (NMC&A) employed at SRNL. Lastly, current SRNL NDA efforts used in radiation contamination mitigation for the Savannah River Tritium Enterprise and hold-up measurements for the National Nuclear Security Administration Surplus Plutonium Disposition (SPD) program were discussed.



Dr. Nwadeyi

Dr. Nwadeyi is currently a post-doctoral researcher at the SRNL. Her areas of expertise include radiation detection, imaging, and simulation, specializing in CdZnTe semiconductor detectors, list-mode data analysis, and advanced imaging algorithms and processing. She has a MS and PhD in Nuclear Engineering and Radiological Sciences from the University of Michigan, and a BS in Nuclear Engineering from South Carolina State University.

# 2024 Neutrino Year End Edition

## Later in 2024 - Plant Hatch Collaboration:

Planning is in the beginning stages to make an ANS membership presentation to the employees of Plant Hatch. Hatch is a BWR power plant in Baxley, GA and is owned by Georgia Power. Savannah River Section members will travel to Hatch to present ANS and section membership. Plant Hatch is in the Savannah River Sections' membership area. A tour of the plant will be conducted at the conclusion of the meeting. Details to follow in emails and notices.



Plant Hatch Baxley, Georgia



# 2024 Neutrino Year End Edition

## Outreach

### **DIG STEM Festival**

On May 4, ANS-SRS volunteers showcased nuclear science to students and families of all ages at the annual Dreams, Imagination and Gift (DIG) STEM Festival in Williston, South Carolina. ANS-SRS was one of over 50 regional exhibitors who provided hands-on activities, live performances, interactive demonstrations and family-oriented STEM entertainment. Students who engaged with the exhibit explored the concept that radiation exists but is not something they can perceive with their own eyes, though it can be detected with specialized tools. They then used a Geiger counter to see how radioactive certain natural and manmade sources were, before being shown that distance and shielding could mitigate the amount of radiation they detect.



Graham Jones demonstrates a Geiger Counter



Michelle Johnson, Graham Jones and Aherial Polite

# 2024 Neutrino Year End Edition

## Outreach (contd)

### **Furman Teacher's Workshop**

On July 10th, Bill Wabbersen and Jon Guy conducted a nuclear science teachers workshop for South Carolina high school science teachers at Furman University. Bill and Jon have been invited to conduct the workshop at Furman for several years. Teachers learn about isotopes, radiation and its interaction with matter, half-life, fission, nuclear power, spent fuel management, and radiation management. The workshop participants use unique hands-on activities to reinforce each lesson. The workshop was once again well received by the high school teachers.

To the right is a photo of teachers conducting the ALARA radiation management activity. Groups of teachers are given a source (lantern mantle), and a detector. Teachers measure the change in radiation levels as the detector is moved away from the source.



### **USC Aiken Classes**

Bill Wabbersen also taught a class from January 16 to February 20, 2024, at USC Aiken at the Aiken Center for Lifelong Learning. During the spring semester Bill conducted a six session course called "Nuclear Science Fundamentals for Everyone". The course covered topics such as isotopes, radiation, decay chains, half-life, electrical power fundamentals, reactor basics, risk management, fission, and a broad view of nuclear technology uses. Most of the adult students had no prior experience in chemistry, physics, or nuclear science. They stayed engaged throughout the six-week course, and gave very positive reviews. The course will be offered again for the 2024 fall semester.

# 2024 Neutrino Year End Edition

## Benjamin Memorial Scholarship



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



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

### 2024 American Nuclear Society Savannah River Section ELEVENTH 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 22 - April 29, 2024**
- **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](mailto: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 July 2024.**

# 2024 Neutrino Year End Edition

## Benjamin Memorial Scholarship (contd)

### **11th Annual Benjamin Memorial Scholarships for the 2024-2025 Academic Year**

The Savannah River Section of the American Nuclear Society (ANS) awarded six Benjamin Memorial Awards on July 30, 2024, to Central Savannah River Area students for their first year of their college study in a science, technology, engineering and mathematics (STEM) course of study. Two awards are presented this year to technical college first-year students and four awards are presented to four-year college/university students. Distribution of this year's awards were three to women and three to men with an even split between those in South Carolina and in Georgia high schools.

### **Scholarship Winners**

The technical college Benjamin Scholarship recipients are Ms. Deonah Scurry of Lucy Laney High School in Augusta and Mr. Nolan Wilson of North Augusta High School. Benjamin Scholarship recipients at the four-year college/university level for this year are Mr. Glenn Graves of Evans High School, Mr. Jackson Griffin of Edmund Burke Academy, Ms. Kamdyn Neale of Silver Bluff High School, and Haruka Suri of Aiken Scholars Academy. The six students were recognized in a Zoom recognition ceremony on Tuesday evening, July 30, 2024.

The 2024 scholarship amounts for the top 4 applicants are:

Graves, Glenn - \$2000.00 – Evans High School will attend Harding University  
Neale, Kamdyn - \$1500.00 – Silver Bluff High School will attend USC Aiken  
Suri, Haroka - \$1500.00 – Aiken Scholars Academy will attend North Carolina State  
Griffin, Jackson - \$1000.00 - Edmund Burke Academy, Waynesboro will attend University of Georgia

The 2024 scholarship amounts for the two Technical College applicants are.

Scurry, Deonah - \$500.00 – Lucy Craft Laney High School will attend Augusta Technical College  
Wilson, Nolan - \$500.00 – North Augusta High will attend Aiken Technical College

The Benjamin Scholarships are given to help defray first-year college costs for the 2024-25 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 eleventh 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.

# 2024 Neutrino Year End Edition

## Benjamin Memorial Scholarship (contd)

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. The award is now in its 11th 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.

# 2024 Neutrino Year End Edition

## 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

# 2024 Neutrino Year End Edition

## Corporate Sponsorship

The section would like to thank the following companies their support of our endeavors:



# 2024 Neutrino Year End Edition

## Plant Vogtle Status

The new construction at Plant Vogtle in Burke county is now complete. Unit 4 entered commercial operation on April 28, 2024. With Unit 4 now in operation this makes Plant Vogtle the biggest Nuclear based electrical generating site in the US. Plant Vogtle now has 4,664 Megawatts of electric capacity. Unit 1 has been in commercial operation since 1987, Unit 2 since 1989 and Unit 3 since 2023.

On May 28th through 31st, a week long celebration was held at Vogtle to commemorate this milestone in Georgia Power Corporation (GPC) history. Local, state and national leaders, including Georgia Governor Brian Kemp and US Secretary of Energy Jennifer Granholm, congratulated and celebrated alongside Southern Company, Georgia Power and other partners over several days recently to mark the opening of Units 3 and 4 at the Vogtle Nuclear Plant. The celebrations capped years of work and determination – from early planning, permitting and licensing, to construction, testing and now operating – that resulted in the largest generator of clean energy in the US.

With all four nuclear units now in operation, Vogtle is expected to produce more than 30 million megawatt hours of electricity each year, enough to power two million homes and businesses. The plant is operated by Southern Nuclear on behalf of the co-owners including Georgia Power, Oglethorpe Power, MEAG Power and Dalton Utilities. Nuclear energy is the only zero-carbon emission baseload energy source available today – offering high reliability and efficient operations around the clock – and, for 2023, provided more than 25% of Georgia Power's generation, including Plant Vogtle in Waynesboro, Georgia, and Plant Hatch in Baxley, Georgia.

“This is history being made right before our very eyes,” Governor Kemp said to a standing-room crowd of dignitaries, company leaders, customers and plant workers. “Vogtle 3 and 4 doesn’t just represent an incredible economic asset for our state and a milestone for our entire country, they also stand as physical examples of something that I remind myself of every day: Tough times don’t last, tough people do.”



Joel Leopard, Bill Wabbersen, Allison Hamilton, Kevin O’Kula & Mike McCracken



GPC Kim Greene welcomes Georgia Governor Brian Kemp



# 2024 Neutrino Year End Edition

## Other Events

### PicNuke

The fourth annual PicNuke was held on April 20<sup>th</sup> at the Brookfield Park in Augusta. The picnic started around noon and ended at 3 PM. Hamburger and hot dogs were provided by the section and sides were brought by the attendees. Around 11 members and guests attended this fun event.



# 2024 Neutrino Year End Edition

## Other Events (contd)

### **ANS Savannah River Section Plays Ball with the Augusta GreenJackets**



ANS Savannah River Section members and their guests returned to SRP Park and the Lawn Ace Lounge in North Augusta on Friday, June 7, 2024, at 7:00 PM for their annual networking event to see the Augusta GreenJackets take on the Myrtle Beach Pelicans. The GreenJackets won the game 3 to 2. The Lawn Ace Lounge is a covered, reserved space behind the GreenJackets dugout on the third base side at the concourse level of SRP Park and features an excellent view of the field and the Augusta skyline. The Augusta GreenJackets are a minor league baseball team in the South Division of the Carolina League and a

Single-A affiliate of the Atlanta Braves. The section enjoyed a buffet of baseball food as well as the game.



Future ANS member: Asher Corder



GreenJackets at bat



Bob Sindelar throws out first pitch



Baseball Fans in Attendance

# 2024 Neutrino Year End Edition

## Future Events

### **CSRA College Night**

The Savannah River Section will setup a booth at the annual College Night held in Augusta, GA. This years edition will be held September 12, 2024 at the Augusta Convention Center. This is a different location from normal since the James Brown Arena is under a renovation. Students from local high schools will attend this event to get insight into what college and maybe career they want to pursue.

### **SEED STEM Festival**

Science Education Enrichment Day (SEED) is a family-themed festival celebrating science, technology, engineering, and math. The SEED event for 2024 will be on October 26. The festival will be held at the USC Aiken. Further information will be available at a later date.



### **SWORDS TO PLOWSHARES...Tiny Bubbles**

An Innovative Material Opens New Opportunities in Security, Energy, Environmental Remediation and Medicine

Save the Date!

6:00 PM Thursday, September 19, 2024

Venue, Dinner Menu, and other event information to be published soon!

George Wicks, PhD

CTO, Applied Research Center, Aiken SC

VP/CTO SpheroFill, LLC

Adjunct Prof., Medical College of GA/ Augusta Univ./ VA Tech

Consulting Scientist, Savannah River National Laboratory, retired

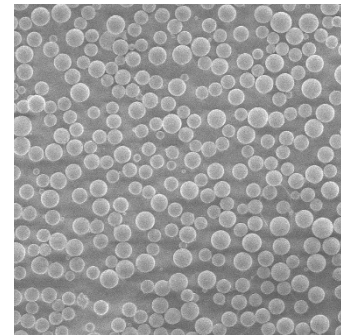
Tiny Bubbles or Porous Wall Hollow Glass Microspheres (PWHGMs), represent an example of Multi-use Technology. The technology was originally developed for nuclear applications at the Savannah River National Laboratory and now is being further advanced and tailored for a multitude of new uses in other fields and disciplines. This work is currently being conducted primarily at the Applied Research Center (ARC) in Aiken SC, and involving a new biotech spin off company, SpheroFill, LLC ([www.Spherofill.net](http://www.Spherofill.net)).

# 2024 Neutrino Year End Edition

## Future Events (contd)

Among the interesting initiatives are applications of tailored PWHGMs in medicine (ex. drug delivery platforms, contrast agents, tissue augmentation, laryngeal use), security (ex. non-proliferation, anti-counterfeiting), energy (ex. hydrogen storage, batteries), and environmental remediation (ex. CO<sub>2</sub> sequestration). In previous years the PWHGM technology has received an R&D 100 Award as well as being NNSA's Top Technology Winner in the Symposium on Discovery and Innovation. Most recently, the technology was awarded South Carolina's 2023 Winner in the category of Technology Integration and Application, as an exciting new and innovative drug delivery system.

The PWHGMs are tiny hollow glass microspheres or micro-balloons about 1/3 the diameter of a human hair. They range in size from a few to 100 microns in diameter and have thin outer shells approximately 1-2 microns thick. The most unique feature that distinguishes these microspheres from others, is that a continuous, through-wall porosity is induced via phase separation and subsequently controlled on a scale of 100 to 1,000 angstroms. This provides pathways from the outside of the microspheres to their interior and allows the tiny glass cocoons to be filled with cargos of interest, including solids, liquids and gases. The cargos or payloads can then later be released on demand. An overview of these one-of-a-kind materials along with recent research advances as a unique drug delivery platform, will be discussed.



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## Executive Administrator Wanted

Qualifications:

- 1 to 2 years of administrative experience strongly preferred, preferably in development or at a nonprofit organization
- Proficiency in Microsoft Office required
- Detail-oriented, strong sensitivity to deadlines, multitasking ability, strong organizational and problem-solving skills a must
- Ability to work collaboratively with a team

Duties and Responsibilities:

- Prepare notices for distribution regarding monthly technical meeting and section information
- Draft notice(s) are sent to specific chair for review before distribution
- Database management (e.g. updating new contact information)
- Preparing, transmitting, registration surveys (surveymonkey.com)
- Collecting surveys and sending reservation confirmations
- Resolving questions/problems with reservations
- Provides as-needed assistance with various events and meetings throughout the year including monthly technical dinners
- Prepare roster with specific information for each meeting
- Prepare name badges
- Work with the Treasurer and Chair as needed
- Assist other Section Program Chairs on an as-needed basis
- Performs other administrative, general clerical tasks, and project duties as needed

\*\* **Note** the ANS-SRS Executive Administrator is a paid volunteer position. The overall time commitment is approximately 5-10 hours per month and mostly work from home. Physical presence/ support is requested at in-person evening meetings.

# 2024 Neutrino Year End Edition

## Question and Answer with Tracy Stover

The following is a beginning to a new interview feature in the Neutrino, a “Q&A” with a Savannah River Section member that you may know, know somewhat, or have never met and don’t know anything about. We’ll ask a question and the interviewee will respond as appropriate. This edition’s ANS SR member that is featured is Dr. Tracy E. Stover, P.E., Criticality Safety Program Manager at SRS.



Dr. Tracy Stover

**1. Many of our Savannah River Section (SRS) community know you from your work at the Savannah River Site, as an North Carolina State University grad, a Scholarship judge, or as an Executive Committee member, but many newcomers or those that work outside of SRS may not. Can you provide us with a little background on where you grew up, went to school, what you’ve done professionally after NC State, and what your current position is at SRS?**

I grew up in a small, rural community in West Virginia called Smoot. As a kid I liked taking things apart and understanding how they worked. My dad had an uncanny skill with electricity and small engines, so it seemed we tinkered with something every weekend. Academically, my interest in science was first fueled by my 4th grade teacher and classroom experiments, then later my by 8th - 9th grade science teacher. Thanks to Mrs. Thompson and Mrs. Reed, by high school I already knew I wanted to go into engineering and nuclear and aerospace were both very appealing when I graduated in 2002. Oddly enough I actually ended up doing my undergraduate in engineering physics at a small university in Kentucky – Murray State, graduating in 2005. I had a professor there, Dr. Pallone, who helped me get a summer internship at NIST working in non-destructive assay at their research reactor. I was hooked on nuke and went on to graduate school. I applied to several grad schools and actually had a hard choice to make between NC State and Texas A&M. Opting for closer to home, I spent 2005-2011 as a graduate student at NC State, actually taking several months off for personal reasons and also working full time at Westinghouse my last year of grad school. Eventually I got both my M.S. and Ph.D. in nuclear engineering. At Westinghouse I was in core design for the existing reactor fleet – highly important work, but neither interesting nor well paying. I kept looking for new challenges and they eventually let me start training on spent fuel pool criticality safety in 2014. By that time, I was looking for a new career path and that initial criticality safety work got me an “in” at Savannah River Site. I came to SRS in 2015 and, aside from 6 months on rotation in SRNL and 9 months away from the company at GE, I have been here in criticality safety in roles of increasing responsibility to where I am now the criticality safety program manager for the site.

# 2024 Neutrino Year End Edition

## Question and Answer with Tracy Stover (contd)

### **2. How long have you been an ANS member and what attracted you to ANS in particular?**

I joined ANS national my second year of grad school (2006) basically because my advisor told me it was essential to my professional development. He wasn't wrong. I joined the local chapter in Charlotte, NC while I was with Westinghouse but that chapter was not very active, meeting only twice per year at the time. When I came to SRNS in 2015, I sought out the local chapter here, figuring I could give it another try. I found our section very active and quickly got involved, thanks mainly to Tinh Tran who had me up for secretary by basically my second meeting. Nationally – it's the conferences and publications that keep me in, locally – it's the technical dinners. ANS = networking in my mind.

### **3. What are the benefits of belonging to ANS for you professionally and does it help you in your day-to-day job?**

As I mentioned above, for me ANS is about networking. I've managed to build a large network of professionals that I interact with regularly. I know many of my counterparts in criticality safety at other DOE and NRC sites. That does help me, perhaps not day to day, but it keeps me involved in national level developments which makes me better at my job. I've also managed to rack up a strong list of publications thanks in part to my involvement with ANS.

### **4. What attracted you to nuclear criticality safety as your technical specialty?**

I got into it by chance at Westinghouse and ended in that group when I first came to SRNS. I figured it was something I could do for a few years until I changed jobs again. Less than a year into though, a number of the more senior criticality safety experts at site opened my eyes to this broad, but small niche community and all the various missions they supported across the nation. I got involved with multiple facilities at SRS and had the opportunity to meet many other criticality safety engineers from across the country through ANS. It is one of the few niches where I think I can really apply my degrees daily and it's a great community of people to work with – we're all a little odd.

### **5. You are a strong supporter of the Nuclear Engineering Professional Engineer license. Why is this a benefit to an engineer?**

I got my P.E. license in 2013 and feel it was a positive move for my career so I enjoy helping maintain the exam and encourage other people to pursue licensure. I am currently vice chair of that committee. P.E. licensure provides a national recognized credential that is a benchmark of one's competency, ethics, and knowledge as an engineer. It sets you apart from your peers in a way that an MS or an MBA or some other degree or credential won't because so many people have those. It also opens some doors into setting up your own company if you wish to ever do that.

# 2024 Neutrino Year End Edition

## Question and Answer with Tracy Stover (contd)

### **6. What were the major factors that encouraged you to become the 2023-2024 NCSD chair? As chair, what are your major responsibilities and duties?**

The people. One thing I have had in plenty for this part of my career that was scarce in my previous job are great mentors. When I first came to SRS and to criticality safety, I was introduced to a number of the “gray beards” who for some reason saw something in me and helped guide me. James Baker, David Erickson, Joye Brotherton, and John Lint from SRS, as well as numerous experts from other sites, Doug Bowen, Andy Prichard, Deb Hill, John Miller, Lon Paulson, and Kristan Wessels, just to name were both “big names” in crit safety and were very active in NCSD and the ANS 8 standards. It was under their guidance (and recommendation) that I first got involved in NCSD, then shortly thereafter ANS 8 and onto the executive committee of NCSD. Chair just seemed like the natural progression.

### **7. What’s coming up for NCSD that you would like to make folks aware of in 2024-2025?**

The biggest thing in NCSD for 2024-25 is that we will be hosting a topical conference in September 14-18, 2025 in Austin, TX. It is a standalone topical (which is rare now) and in a vibrant, exciting location that ANS rarely visits.

### **8. SRS and many nuclear firms and contractors in the area are attempting to draw many new professionals into the Nuclear Science and Technology positions over the next 5 to 10 years, including Nuclear Criticality and Safety. Are there specific programs and training that are available to help address the staffing needs?**

For SRNS, we’ve been approaching this problem from various angles. For more than 15 years SRNS criticality safety has had a very clear and detailed training and qualification program to get new hires with no criticality safety background up to doing independent work within a few years. Criticality safety has also hosted more than a dozen interns over the last 8 years, with a number of them returning to us full time after graduation already familiar with our field. Finally, our newest initiative, is a dedicated Nuclear Criticality and Safety college course at NC State, taught by me and a nuclear safety analyst friend and colleague, Victoria Schluszas, offered for the first time this fall and from which we hope to recruit both criticality safety and accident analysis engineers.

### **9. Is there anything you want to tell young professionals about the value of ANS both at the National and local levels?**

I like to think I understand how to do 85% of my day-to-day job. When I don’t understand or when I need something beyond my day-to-day I do not just have the other criticality safety engineers at SRS. Thanks to ANS I have a network of experts in many different facets of the nuclear industry all across the U.S. (and a handful in the U.K.) that I can call on. I have found that if I don’t know something



# 2024 Neutrino Year End Edition

## Question and Answer with Tracy Stover (contd)

they do, or they know someone who does. So the value of ANS is building your network. Some young professionals have said the cost of ANS is a deterrent or that ANS is just for Ph.D. and publications. I would say no, it is worth the cost and it is for everyone in nuclear.

**10. Let's end with a "fun-fact": What is one non-work, non-professional fact about Tracy Stover that not too many people know about?**

I enjoy going to Renaissance Festivals, and try to get to the West Virginia and Carolina ones at least once per year. You'll find me either dressed as a monk or a wizard. Luckily, I've managed to get my wife and kids interested enough to go along too.



Tracy Stover while "off the grid", as a wizard at a renaissance festival

# 2024 Neutrino Year End Edition

## Awards

Here is the award that was presented to our local section for 2023. Many thanks to the section leadership for 2023 – 24.

