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SRNL, NC State Appoint Robert B Hayes to Joint Faculty Position

AIKEN, S.C. (Aug. 1, 2022) – Savannah River National Laboratory (SRNL) and North Carolina State University (NC State) appointed Robert B Hayes, Ph.D., to a joint faculty position.

As an associate professor at NC State, Hayes' research explores the relationships among environmental management of nuclear facilities during operation through the decontamination and decommissioning process, national security through nonproliferation capabilities via ubiquitous radiation detection, and workforce development in SRNL needed skillsets.

"Dr. Hayes will help develop and execute SRNL's vision to advance nonproliferation and global security stewardship by expanding knowledge of and applications in sensing, characterizing, assessing and deterring nuclear proliferation," said Associate Laboratory Director, Global Security, Tammy Taylor. Taylor added that collaborative research with Hayes will address key gaps identified in NNSA's Defense Nuclear Nonproliferation's Strategic Vision while developing the workforce to support future NNSA and U.S. Government national security organization mission needs.

Hayes' current research focuses on several areas intersecting nuclear criticality, nuclear waste management, retrospective dosimetry, radiological air monitoring, health physics, radiation measurements, nuclear forensics, and nonproliferation. The larger encompassing term "health physics" includes radiological air monitoring, which would enable rapid, rigorous, and regulatory compliant off-site release assessments for nuclear facility operations extending all the way through to final decontamination and decommissioning. As airborne releases are the essential hazard of concern in nuclear accidents for the public, mitigating this can greatly assuage public concerns with nuclear waste management issues. This, along with research in nuclear criticality safety, exemplifies the useful partnership this workforce development can offer to SRNL.

According to Hayes, "the crazy cool research done at NC State is highly complementary to that being done at SNRL in so many ways. If we are successful, every proliferator will be convinced they cannot hide their efforts and will simply confess their attempts to weaponize nuclear material early enough that diplomats can address the problems long before military intervention can be realized. The partnership will enhance radiological monitoring research, nuclear safety and operational health physics."

The joint appointment will also help develop new strategic approaches and solutions for accelerating remediation, minimizing waste, and reducing risks in nuclear waste management for the entire fuel cycle. This would be in support of rapid, rigorous regulatory compliance assessments that would also support emergency response and environmental management for normal facility operations.

"Dr. Hayes will help establish programs with students to examine the potential growth in the fields of health physics, nuclear criticality safety and radiological engineering to support both normal operations

and all research efforts at SRNL,” said Taylor. “The expansion in radiation detection, retrospective dosimetry and radiological air monitoring all fold directly or indirectly to the core competencies of the lab. Research with Dr. Hayes will expand and strengthen our existing competencies in support of national security mission needs while strengthening our relationship with NC State and developing a pipeline for new talent in the future.”

SRNL’s Joint Appointment Program provides university faculty opportunities to engage in the lab’s research and development that addresses the nation’s challenges in energy, science, national security, and environmental stewardship. Together, SRNL staff and joint appointees are helping to ensure America’s security and prosperity through transformative science and technology solutions. Joint appointees serve as a bridge between SRNL researchers, their university and students.

About North Carolina State University

The Nuclear Engineering Department at NC State is steeped in tradition and rich history. In 1950, the idea of building the nation’s first university nuclear reactor and establishing the first university nuclear engineering educational curriculum was born at NC State. This began with constructing the R-1 reactor (the first academic research reactor in the world, later dismantled). Continuing such great vision, by 1951, approval was secured to offer doctoral, master’s and bachelor’s degrees. Its graduate school is currently ranked third in the nation with its online master’s in nuclear engineering ranked No. 1. The department now also offers a minor and an online graduate certificate in health physics, along with a graduate certificate in nuclear nonproliferation.

About Savannah River National Lab

Savannah River National Laboratory is a United States Department of Energy multi-program research and development center that’s managed and operated by Battelle Savannah River Alliance, LLC ([BSRA](https://bsra.com)). SRNL puts science to work to protect the nation by providing practical, cost-effective solutions to the nation’s environmental, nuclear security, nuclear materials management, and energy manufacturing challenges (<https://srnl.doe.gov/>).



Robert B. Hayes, PhD, SRNL Joint Appointee and NC State Associate Professor, Nuclear Engineering

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