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**Savannah River National Laboratory Researcher Holly Flynn Chosen as
Department of Energy Early Career Research Program Awardee
Will Receive \$2.5M to Advance Fusion Energy Research**

AIKEN, S.C. (Aug. 9, 2023) – Savannah River National Laboratory (SRNL) researcher Holly Flynn, Ph.D., was selected as a Department of Energy (DOE) Office of Science Early Career Research Program awardee and will receive \$2.5 million over five years to fund research associated with fusion energy.



*SRNL Researcher
Holly Flynn, Ph.D.*

According to the [Department of Energy \(DOE\) Office of Science](#), the Early Career Research Program awards are part of DOE’s long-standing efforts to develop the next generation of STEM leaders to solidify America’s role as the driver of science and innovation around the world. Flynn is one of 93 early career scientists chosen from across the country who will receive a combined \$135 million in funding for research covering a wide range of topics, from artificial intelligence to astrophysics to fusion energy.

“It feels amazing to receive an Early Career Research Program award,” said Flynn. “I am so excited that I get to focus my time on research that will have a big impact on the future of commercial fusion energy and SRNL. I am beyond humbled and ecstatic for this opportunity.”

Flynn’s research will ultimately develop a real-time accountancy open framework for fusion energy. Specifically, Flynn’s research will couple machine-learning methods currently used in self-driving cars and radar tracking with physical measurements of tritium in the fuel cycle to develop a framework for real-time accountancy of tritium gain and loss. Machine-learning algorithms take information from a virtual computational model of the fusion test system, and data from the tritium measurement sensors, to provide an integrated visualization of tritium inventory with incredible accuracy. The successful development of real-time accounting of tritium levels (an “accountancy open framework”) during fusion operation is critical to the success and efficient operation of commercial fusion energy.

Flynn received her Ph.D. in Energy, Science and Engineering from the University of Tennessee, Knoxville. As part of the Bredesen Center, she performed her doctoral research on the Prototype Material Plasma Exposure eXperiment (Proto-MPEX) in the Fusion Energy Division at Oak Ridge National Laboratory. After graduation, she accepted a postdoctoral position at SRNL in June 2020 where she began work in computational modeling, machine learning/artificial intelligence, and data science for fusion energy, additive manufacturing, and cybersecurity. In June 2022, she accepted a full-time position as a senior scientist at SRNL and began her role as the fusion energy science modeling lead. During the last three

years, she expanded her research experience into Bayesian fusion algorithms, the fusion fuel cycle and its components, sensor and time series analysis, and defect and anomaly detection.

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](#)) for the Department of Energy's Office of Environmental Management. 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/>).

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