Georgia Tech Awarded $6 Million to Improve Safety of Nuclear Reactors

Georgia Institute of Technology

The Georgia Institute of Technology has won a $6 million federal grant to design improvements that strengthen the performance and safety of nuclear systems beyond today's capabilities.

The award was announced Sept. 27 by the U.S. Department of Energy as part of its Nuclear Energy University Programs.

Georgia Tech's three-year project will engage universities, industry partners and international organizations to develop a novel concept of a light water reactor with inherent safety features.

Bojan Petrovic, Georgia Tech professor of nuclear and radiological engineering, will lead the research team using a "safety-by-design" approach to eliminate the potential for accidents, together with passive safety systems to ensure the plant's continued safe operation even under hypothetical emergency conditions. The design will also incorporate lessons learned from events at Fukushima Daiichi plant following the earthquake and tsunami in Japan in March 2011. The new reactor will be designed to safely withstand such events.

"This research will strengthen the technical basis to support deployment of novel reactors with inherent safety and improved economics and provide long-term energy security and independence," Petrovic said.

Specifically, the team aims to improve safety features using integral system configuration, a novel decay heat removal system, robust fuel with increased accident resilience and seismic isolators in earthquake-prone areas. Researchers will also design instrumentation and monitoring that will ensure the plant status is reliably known in normal and emergency situations, including post-accident conditions.

The research team includes University of Michigan, Virginia Polytechnic Institute and State University, University of Tennessee, University of Idaho, Morehouse College, Idaho National Laboratory, Westinghouse Electric Company, Polytechnic of Milan, University of Cambridge, Southern Nuclear Company and an independent consultant.

In total, the U.S. Department of Energy announced it is investing $13 million for university-led nuclear innovation projects at Georgia Tech as well as the University of Tennessee and the University of Illinois at Urbana-Champaign. The goal of the projects is to support nuclear energy research and development and student investment at universities across the country, ensuring that secure, safe and

efficient nuclear energy is part of the nation's energy portfolio.

Related Links

- Dept. of Energy press release [1]
- U.S. Department of Energy, Nuclear Energy University Programs [2]
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