

New RFID technology tracks and monitors nuclear materials

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Argonne nuclear engineer Yung Liu examines data using the radio-frequency identification device developed at the laboratory. The technology allows users not only track nuclear materials, but also remotely monitor environmental and physical conditions such as temperature and humidity.

(PhysOrg.com) -- Radio frequency identification (RFID) devices have widely been used for tracking for years; recently, scientists from U.S. Department of Energy's Argonne National Laboratory have developed a unique tracking technology that also monitors the environmental and physical conditions of containers of nuclear materials in storage and transportation.

"[RFID](#) technology is ideally suited for management of [nuclear materials](#) during both storage and transportation," said Dr. Yung Liu, Argonne

senior nuclear engineer and RFID project manager. "Key information about the nuclear materials is acquired in real-time," he explained.

Data on the status and history of each individual container are available with a click of the mouse and can be used to augment and modernize DOE's existing management systems for nuclear materials.

"The Argonne system can simultaneously monitor thousands of drums 24 hours a day, seven days a week. Any abnormal situation, such a loss of seal, a sudden shock, a rise in temperature or humidity, can trigger an alarm for immediate action," Liu explained.

The monitoring of tens of thousands of radioactive and fissile material packages has been a challenge for DOE to ensure accountability, safety, security and worker and public health.

"The RFID system that Dr. Liu and his group developed with collaborators will help DOE overcome this challenge," said Dr. James Shuler, Manager of DOE Packaging Certification Program, Office of Environmental Management.

This RFID technology also has applications outside the nuclear field and may be used for other hazardous materials or any valued material, according to Liu.

"This new Argonne RFID technology, expected to be patented, has applications in many industries and as the technology is further developed, its usefulness is bound to grow."

An RFID video is online at www.media.anl.gov/TechnicalServices/DIS/RFID.wmv .

Source: Argonne National Laboratory

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