

# Salt could cool cores of advanced nuclear reactors

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The water in a conventional nuclear reactor cools the core, but a graduate student at the University of Missouri-Rolla says salt would be a better alternative in some advanced reactor designs.

Brandon Distler, a graduate student in nuclear engineering from Eldon, Mo., was recently awarded a fellowship from the U.S. Department of Energy to pursue his research related to using salts as coolant in nuclear reactors.

All commercial reactors in the United States currently employ water as the coolant, but Distler says salts are being considered at Oak Ridge National Laboratory in Tennessee. Distler had an internship at Oak Ridge last summer.

Using salts as the coolant, according to Distler, would allow reactors to operate at close to 1,000 degrees Celsius. Water-based reactors typically operate at about 330 degrees Celsius.

“Water wouldn’t work at the extreme temperatures we propose, but the salt would melt into a clear liquid that would provide stability,” Distler says. “The process for turning heat into electricity is more efficient at higher temperatures and it would be more efficient in the production of hydrogen.”

Distler is one of 12 graduate students to receive the fellowship this year through the DOE’s Advanced Fuel Cycle Initiative. In addition to a

monthly stipend of \$1,600, Distler will receive funds to cover tuition and textbooks while he pursues a master's degree.

At UMR, Distler is developing a modification to the Oak Ridge model. He hopes to improve the proposed design for a salt-based reactor and make it even more efficient.

Source: University of Missouri-Rolla

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