

# Spallation Neutron Source: America Regains Leadership with World Record

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The Spallation Neutron Source, the Department of Energy's \$1.4 billion research facility at Oak Ridge National Laboratory, has established a new record as the world's most powerful accelerator based source of neutrons for scientific research.

The SNS surpassed the previous record of 160 kilowatts for beam power, held by the United Kingdom's ISIS facility, while operating at 183 kilowatts. As the SNS ramps up toward an eventual 1.4 megawatts of power, the beams will produce up to 10 times more neutrons than any existing pulsed neutron source.

A trio of Tennessee lawmakers--Sen. Lamar Alexander (R-Maryville), Rep. Bart Gordon (D-Murfreesboro) and Rep. Zach Wamp (R-Chattanooga)--joined ORNL Director Thom Mason and laboratory staff in Oak Ridge for the announcement of the record.

Mason said ORNL's world record "will provide scientists with an unprecedented ability to analyze and understand the molecular structures and behaviors responsible for the properties of advanced materials. As we learn how to make materials stronger, lighter, or cheaper, we can help American industry develop an unlimited variety of new products."

As examples, Mason said new materials might make it possible to design lighter airplanes that fly with less fuel or bridges that are more resistant to stress and fracture.

Pat Dehmer, the Department of Energy's Associate Director of Science for Basic Energy Sciences, called the new record "another remarkable accomplishment by the SNS team, which completed the construction of this world-leading facility just over one year ago on time and within budget."

The field of neutron scattering science is one example of a technological edge lost and regained. Neutron scattering was developed in Oak Ridge in the wake of the Manhattan Project. In the following decades, larger and more powerful neutron sources were built in Europe and Asia, often forcing U.S. researchers to go abroad to perform their experiments.

The SNS's re-establishment of the United States' leadership in neutron scattering means that now many of the world's top researchers will be coming to Tennessee to conduct groundbreaking research.

Source: Oak Ridge National Laboratory

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