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NNSS wins R&D 100 Award for silicon strip cosmic muon detectors

NORTH LAS VEGAS – The Nevada National Security Site (NNSS) received its sixth R&D 100 Award Nov. 16 in Orlando, Florida, for its silicon strip cosmic muon detectors project, led by NNSS Principal Scientist J. Andrew Green.

Co-developed with the Fermi National Accelerator Laboratory and Los Alamos National Laboratory (LANL), the project registers muon occurrences, enabling muon trackers to detect shielded nuclear materials, explosives and other threats. Muons are secondary particles that travel down to the Earth's surface and arrive at a wide variety of angles and energies when cosmic rays collide with the Earth's atmosphere. The identification process recognizes threats that could be concealed in concrete, lead and other materials.

The R&D 100 entry by NNSS is based on novel detection technology, which allows silicon strip muon detectors to be embedded into structures without extensive calibration software requirements or the risk of high voltage and flammable gas. Various implementation options make the silicon strip muon detectors a potentially paramount advantage to maritime safety and homeland security.

“All R&D 100 winners represent the best in forefront innovation, and the technologies they develop are the most likely to transition to mainstream commercialization,” said NNSS Distinguished Scientist and Site-Directed Research and Development Program Manager Howard Bender. “In this case, I think the R&D 100 will help us move forward to develop large-scale arrays for homeland security and potentially spin out the technology to commercial entities.”

NNSS previously won five R&D 100 awards for its 2017 Geometrically Enhanced Photocathodes, 2013 KiloPower with LANL, 2012 Multiplexed Photonic Doppler Velocimeter, 2010 Movies of eXtreme Imaging Experiments (MOXIE) LANL and 2009 High-Resolution Holography Lens entries. NNSS was also a finalist for its Argus Fisheye Probe in 2015.

The annual R&D conference and awards gala, sponsored by R&D Magazine, recognizes the 100 most technologically significant new products of the year.

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The NNSS is managed and operated by Mission Support and Test Services LLC (MSTS). MSTS is a limited liability company consisting of Honeywell International Inc., Jacobs Engineering Group Inc., and HII Nuclear. The NNSS falls under the jurisdiction of the National Nuclear Security Administration (NNSA), an agency within the U.S. Department of Energy. The Site's operations are government-controlled and contractor-operated, and are overseen by NNSA's Nevada Field Office, headquartered in North Las Vegas.

For more information on the NNSS, visit www.nnss.gov.