Laboratory adds a sixth R&D 100 award to its 2009 count

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Awards honor the top 100 proven technological advances of the past year

Los Alamos, New Mexico, November 4, 2009—Los Alamos National Laboratory recently learned that codevelopment of a high-resolution UV holography lens with National Security Technologies (NSTec) earned the Lab a sixth R&D Magazine 2009 R&D 100 Award.

A joint NSTec team developed the lens for use in experiments conducted by LANL at the Nevada Test Site and elsewhere. The lens will help scientists measure the size and velocity of particles ejected from a piece of metal after it is hit by a shock wave. Lab scientists are exploring the physics of these particles to develop a theoretical model for nonnuclear experiments that safely simulate atomic experiments.

The new UV lens will improve current resolution capability significantly, potentially allowing particles down to 0.5 microns in diameter (a human hair measures 80 to 100 microns) to be measured. There are no other UV holography systems on the market capable of measuring ejected particles of this size.

“While NSTec designed the lens itself, from the LANL side it was the science that we needed to perform that drove the development of this lens. In addition, the lens alone does not make the complete experiment,” said Gus Sinnis, leader of the Laboratory’s Neutron Science and Technology Group.

“The LANL side of the team developed a high-power laser system needed to illuminate the region under study for the brief microseconds over which the experiment occurs and the recording system to record this data for further analysis. This type of teaming with NSTec has been a cornerstone of the experimental weapons program at LANL. With this lens, laser, and recording system, we now have a new capability that is important to the Weapons Program to aid in the science-based Stockpile Stewardship Program.”

R&D 100 Awards honor the top 100 proven technological advances of the past year. The Laboratory’s five other awards this year include MagViz, the SIMTECHE CO2 Capture Process, Lasonix, TeraOps Software Radio, and the Artificial Retina Project. This year’s awards bring the Los Alamos total to 113 since the Laboratory first entered the competition in 1978.

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