

**FY2013 Joint High Energy Density Laboratory Plasma Program** – The Department of Energy’s Office of Science and the National Nuclear Security Administration (NNSA) have awarded 10 new research grants totaling \$4.7 million as part of the Joint High Energy Density Laboratory Plasmas (HEDLP) Program. Proposals were submitted under funding announcement DE-FOA-0000755.

These awards represent the wide range of research of HEDLP science, ranging from the study of magnetized astrophysical jets to large-scale simulation of kinetic laser-plasma interactions. Such activities include the areas of: hydrodynamics, nonlinear optics of plasmas, relativistic high energy density plasma, intense beam physics, magnetized high energy density plasma physics, radiation-dominated dynamics and materials properties and warm dense matter.

The projects receiving funding were selected through a rigorous peer review process from a total of 76 responsive proposals. The projects announced today are in addition to 29 ongoing projects currently funded through the program.

This relatively new field of study was made possible by contemporary advances in laser, particle beam and pulsed power technologies that allowed for the creation of increasingly high energy density states in the laboratory. Studies of such states of matter are providing insights into fields ranging from astrophysics to fusion energy. In recent years, several studies, including a 2009 report from the federal Fusion Energy Science Advisory Committee, have identified numerous basic research needs in HEDLP.

The principal investigators, their institutions, and project funding amounts are listed below:

*Investigation of current diffusion and heat transport in magnetically driven implosions*

Simon Bott, University of California, U.C. San Diego (\$720,000)

*Recreating Planet Cores in the Laboratory*

Raymond Jeanloz, University of California, Berkeley (\$360,000)

*Multi-dimensional Collective Instabilities of Laser and Particle Beams Relevant to High-Energy-Density Laboratory Plasma Science*

Gennady Shvetz, The University of Texas at Austin (\$345,000)

*Internal magnetic field, temperature and density measurements on magnetized HED plasmas using Pulsed Polarimetry*

Roger Smith, University of Washington (\$195,000)

*Vlasov-Fokker-Planck modeling of magnetized plasma*

Alexander Thomas, University of Michigan (\$360,000)

*Theoretical investigation of remote Magnetic Field generation with Laser Beatwaves for HEDLP*

Dale Welch, Voss Scientific, LLC (\$405,000)

*Experimental and numerical investigation of reactive shock-accelerated flows*

Riccardo Bonazza, University of Wisconsin-Madison (\$645,000)

*High-energy-density micro- and nano-plasma interaction with relativistic high-repetition-rate lasers*

Kiyong Kim, University of Maryland (\$699,000)

*Laboratory Measurements of Spectral Line Broadening in White Dwarf Photospheres*

Donald Winget, The University of Texas at Austin (\$675,000)

*Statistical Nonlinear Optics of High Energy Density Plasmas: The Physics of Multiple Crossing beams*

Bedros Afeyan, PolyMath Associates (\$340,000)