UNM Hosts International Conference on Pulsed Power and Plasma Science

Engineers and scientists from 40 countries have been in Albuquerque this week to share their latest research related to pulsed power and plasma science. Their work is enabling stockpile stewardship without nuclear testing, and it also promises to bring a new, cleaner source of electricity by harnessing the power of nuclear fusion.

Edl Schamiloglu, professor of Electrical & Computer Engineering in the School of Engineering, is chairing the conference. He and his team put together an intensive weeklong schedule of research presentations, panel discussions and networking events that began Monday for the 1,100 participants, many of whom are visiting New Mexico for the first time.

Engineers from Sandia National Laboratories are discussing their progress toward launching a new pulsed-power accelerator, known as the Z-R machine, later this summer. Researchers at Lawrence Livermore National Laboratory are describing the NIF (National Ignition Facility) that is nearing completion and that will allow experimental study of high-energy-density science.

There is a plenary session about the United States' role in the International Thermonuclear Experimental Reactor now under construction in France. Thermonuclear physics is a fundamental aspect of fusion energy, which many believe will provide a safe, clean alternative to the nuclear fission that currently fuels nuclear power generators.

Fusion is considered one of the “holy grails” of energy research and involves the fusing of atoms to generate enormous amounts of power, just as the sun does. The research examines the properties of matter under very high-density and high-pressure conditions. Engineers and scientists hope fusion will provide a source of energy without radioactive waste like that stored at the Waste Isolation Pilot Plant (WIPP) near Carlsbad.

In addition to the technical sessions, two evening forums were organized by Professor Schamiloglu. One featured professors Steven Cowley of UCLA and Mark Kushner of Iowa State University, both of whom played leading roles on the “National Academies Plasma 2010” report. Another forum addressed "High Power Microwaves: Where Do We Go From Here?" and was organized by doctors Jim Benford, President of Microwave Sciences, Inc., and John Swegle of Sandia National Labs.

UNM's Electrical & Computer Engineering Department has an active research and academic program in pulsed power and plasma science, and UNM has ongoing collaborations in this area with Los Alamos National Laboratory, Sandia National Laboratories and the Air Force Office of Scientific Research.

The 2007 International Pulsed Power and Plasma Science Conference is sponsored by the Institute of Electrical and