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BATON ROUGE – LSU Materials Science and Engineering faculty in the departments of Physics and Astronomy, Chemistry and Chemical Engineering are leading a multi-million dollar statewide collaborative research initiative that will expand the fundamental understanding of advanced materials. The Louisiana Consortium for Neutron Scattering, or LaCNS, was granted $4.9 million of funding for three years from the U.S. Department of Energy’s Experimental Program to Stimulate Competitive Research, or EPSCoR, program through the Louisiana Board of Regents in August. The consortium includes faculty and graduate students from Tulane University, University of New Orleans, Louisiana Tech and LSU.

“This research promises to have a long-term impact on everything from the amount of memory available in your computer and the speed at which it can be accessed, the efficiency of power transmission lines and the cost and efficiency of devices that convert sunlight to electricity, as well as the discovery of new materials with unexpected properties. All of these aspects need fundamental discoveries to make advances toward new and better devices,” said John DiTusa, LaCNS principal investigator and LSU physics professor.

The grant will fund the research for faculty, graduate and undergraduate students at all four Louisiana universities. At LSU, it will fund 10 faculty, eight graduate students, six post-doctoral researchers and one visiting faculty member.

“Part of our mission is to excite and train the next generation of scientists who will be experts in both the science and neutron scattering techniques,” DiTusa said.
Neutron scattering is one of the few techniques available that can probe the structure and dynamics of materials over a broad range of time, length and energy scales. LaCNS researchers will use the equipment and facilities and collaborate with the scientific staff at Oak Ridge National Lab in Tennessee, where they will run their experiments.

The LaCNS research team includes experimentalists who have expertise in a wide variety of characterization techniques, spin dynamics, materials synthesis and characterization, neutron scattering and modeling.

“We bring together a diverse group of university faculty who work in concert from the synthesis of new materials to the characterization and understanding of them to the simulation of their properties using computational methods. We have all of that expertise under one roof working together,” DiTusa said.

Compared to universities in Europe, the U.S. has lagged in terms of providing opportunities for university students and faculty to use neutron scattering facilities. Most U.S. neutron scattering research occurs at national labs.

“We have to change this in the U.S. and start developing our own students who are experts in this field,” DiTusa said.

Within the U.S., there are few scientists in the South who conduct neutron scattering research. The U.S. Department of Energy’s EPSCoR grant aims to build the energy research capacity within 25 eligible states, the Commonwealth of Puerto Rico, Guam and the U.S. Virgin Islands. It requests an annual budget of about $8 million per year. This highly competitive grant is offered every one to two years. Three projects received funding in this latest round. LaCNS is the only project in Louisiana to receive this funding.

“For me, this grant allows me to put more of our ideas into action through the work of the post-docs and students who come to work with us. In that sense, it’s really rewarding,” DiTusa said.

Additional Link:
Louisiana Consortium for Neutron Scattering
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