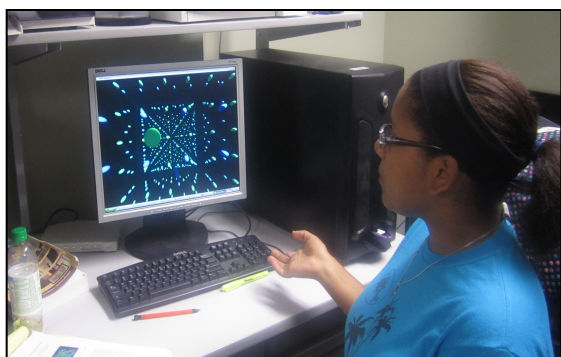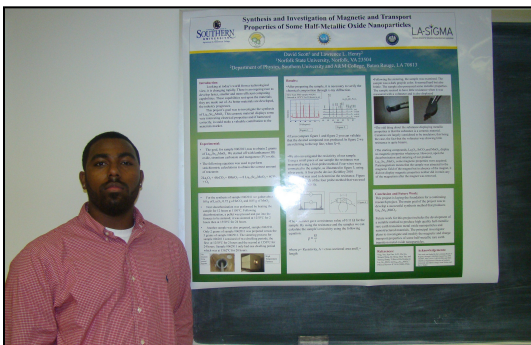The Alliance pushes the scientific frontiers in computational materials science, and prepares Louisiana researchers to use the next generation of heterogeneous, multicore and hyperparallel computers effectively. LA-SiGMA builds statewide interdisciplinary research collaborations involving computational scientists, computer scientists and engineers, applied mathematicians, theorists and experimentalists.

Most significantly, the Alliance builds an inter-institutional computational materials science graduate program that is unique in its statewide reach and impact, and may be the only one of its kind in the nation.

For more information, visit:
http://lasigma.loni.org/

Alliance members are:

LA-SiGMA
Louisiana Alliance for Simulation-Guided Materials Applications

REU Program

An alliance for transformative and sustainable change in computational materials research, education, outreach, and industrial partnerships throughout the State of Louisiana.

The Alliance - Louisiana State University, Grambling State University, Louisiana Tech University, University of New Orleans, Southern University at Baton Rouge, Tulane University, and Xavier University – has three major research focus in areas of current strength in the State, and of great technological and economic importance:

(1) **Electronic Materials**: development of multiscale methods for strongly correlated electronic and magnetic systems; studies of correlated organic, ferroelectric, and superconducting materials.

(2) **Energy Materials**: study electrochemical cells and capacitors that store and deliver electrical energy, advanced materials for the storage and release of hydrogen, and catalytic reactions that generate hydrogen gas.

(3) **Biomolecular Materials**: development of novel biomolecular material systems for the encapsulation, delivery, and release of drugs to targeted tissues.

The "glue" that holds the three areas together are the formalisms, algorithms, and codes for tackling multiple length and time scales and multiscale interactions and correlations, among those are the next generation Monte Carlo algorithm, massively parallel density functional theory and force field methods, and large-scale molecular dynamics.

LA-SiGMA will host 30 REU students at 6 different sites (5 students at each campus).

Requirements:

• Be a science or engineering major, with an interest in materials science

• Have at least a 2.75 GPA

• Be a US citizen or permanent resident

Important Dates:

March 1 - All forms due

Programs begin late May (varies by site), then programs last 9-10 weeks

For more information, visit our website at:

http://reu.lasigma.loni.org/

About the Program:

• REU students participate in summer research

• Each site holds weekly seminars to expose participants to many different areas of research

• Full list of sample research projects available on website

• Participants receive free housing (type depends of location), a $4,500 stipend, and up to $400 for travel expenses.

• Each site holds events through the summer, such as social events and events to encourage students to attend graduate school; schedules and activities vary by site.