

DOE - Fossil Energy Techline - Issued on: October 19, 2006

Four Minority Universities Selected for Fossil Energy Research Grants

Projects Advance Concepts in Fossil Fuel Conversion and Utilization

Washington, DC - The Department of Energy (DOE) today awarded grants to four institutions for energy research through the Historically Black Colleges and Universities and Other Minority Institutions (HBCU/OMI) program.

"It is indeed gratifying to see the creativity and technical expertise of our HBCU/OMI college students applied to the resolution of critical energy issues," said Assistant Secretary for Fossil Energy Jeffrey Jarrett. "The bright minds and enthusiasm that the students bring to the program are essential to fossil energy research in the 21st century."

The HBCU/OMI program is carried out under DOE's Office of Fossil Energy. The program gives minority students valuable hands-on experience in developing technologies to promote the efficient and environmentally safe use of coal, oil, and natural gas. The National Energy Technology Laboratory (NETL) will manage the projects.

The funding opportunity announcement, issued in April 2006, offered financial assistance grants in three technical topic areas. A grant was awarded in each of two topic areas, sensors and controls and computational energy sciences, and two were awarded under the advanced materials topic. The four awards totaled \$715,000.

The selected universities and their projects follow:

- **University of Puerto Rico at Mayaguez** - Researchers will design and fabricate wireless battery-free sensors for high temperature environments to measure temperature, pressure and CO₂ concentration. The approach will be to use tuned circuits that will receive power and respond to interrogation from a transmitter/receiver circuit located elsewhere in close proximity to the sensor. The researchers will evaluate design, materials, and initial performance of prototype sensors in a controlled laboratory environment. DOE share: \$192,797. Project duration: 36 months.
- **Florida International University** - The proposal submitted by Florida International University in Miami addresses an urgent need in computational fluid dynamics and will help better understand the gas-solids flow, especially cluster formation in gasifiers or combustors. Scientists intend to develop an experimental technique that will allow the determination of cluster size, void fraction within the cluster, cluster velocity, and gas velocities. These measurements will be accomplished using shadow sizing, particle

imaging velocimetry and laser-induced fluorescence.

DOE share: \$134,928. Project duration: 24 months.

- **Grambling State University of Louisiana** - Scientists at Grambling State University in Lincoln, La., will focus their research on membranes for hydrogen separation. Their overall objective is to produce a prototype reactor for hydrogen production and separation at extreme conditions (30 bar, 340 degrees Celsius to 440 degrees Celsius); the reactor would also integrate a CO₂ separation unit. To attain this goal, the applicant will carry out tasks including development of membranes for H₂ and CO₂ separation, design of a water gas shift (WGS) reactor, and evaluation of an integrated system of WGS reactor with gas separation.

DOE share: \$194,747. Project duration: 36 months.

- **University of Texas at San Antonio** - Researchers will fabricate low-temperature solid oxide fuel cells out of novel electrode and electrolyte materials and determine the structure-performance relationship of these materials. The new solid oxide fuel cell will operate at as low as 500 degrees Celsius. This would reduce operating cost and materials problems, and improve cell life. The proposed effort is also expected to benefit from collaboration with University of Houston's Texas Center for Superconductivity.

DOE share: \$192,528. Project duration: 36 months.