

Four Minority Universities Selected for Fossil Energy Research Grants

College Students to Focus on Computational Modeling, High-Temperature Materials and Components

Washington, DC – Innovative fossil energy research projects will be investigated by students and faculty from four winning institutions in the Department of Energy's annual competition for fossil energy research ideas from the nation's Historically Black Colleges and Universities and Other Minority Institutions (HBCU/OMI).

Students and faculty from the chosen universities – the University of Texas, El Paso; Southern University and A&M College; Tennessee State University; and the University of Texas, San Antonio – will investigate projects dealing with computational energy sciences, material sciences, and sensors and controls for use in fossil fuel power systems.

Established in 1984, the HBCU/OMI program was designed to encourage cooperative fossil energy research and development projects between HBCU/OMI, U.S. industries, and federal agencies. Operated by the Office of Fossil Energy's National Energy Technology Laboratory (NETL), 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.

NETL issued the funding opportunity announcement in November 2009, beginning a new year of collaborative efforts between faculty-student teams and the commercial sector to develop and execute innovative research ideas.

- **University of Texas, El Paso** (El Paso, Texas) – The design, optimization and control of the processes in gas-solid fluidized bed technologies are critical for developing zero-emissions fossil energy power plants. Most past experimental and computational efforts have been focused on spherical particles; however, in most fossil-fuel processes such as gasification and pyrolysis, the particles are often non-spherical. The proposed project will provide experimental measurements of non-spherical particles. (DOE share: \$200,000; project duration: 36 months)
- **Southern University and A&M College** (Baton Rouge, La.) – The proposed research will use an integrated, novel, high-performance computer to explore the high-temperature properties and the oxidation and sulfate corrosion resistance capabilities of two new chromium-based, high-temperature alloys, chromium-yttrium and chromium-tantalum. The study will align with recent research at NETL showing that chromium-based alloys

have relatively low cost, low density and good temperature strength. (DOE share: \$199,596; project duration: 24 months)

- **Tennessee State University** (Nashville, Tenn.) — This project will incorporate computer-aided material design to study niobium-silicon-based refractory alloys for application in next-generation, high-temperature advanced energy systems. (DOE share: \$200,000; project duration: 24 months)
- **University of Texas, San Antonio** (San Antonio, Texas) — The aim of this project is to explore and use thin-film-based, high-temperature, chemical-resistive sensors to aid in the development of next-generation, highly efficient and near-zero-emission power generation technologies. To understand the thin film chemical behavior in the target high-temperature range ($>700^{\circ}\text{C}$), theoretical and modeling studies on the absorption, reactivity and stability of the thin films will be performed in various environments and temperatures. (DOE share: \$200,000; project duration: 24 months)