

The 2002 selected universities and their projects include the following:

- Morehouse College - The objectives of this project are to characterize the phase and emulsion behavior, and surfactant retention and condensate recovery for cosurfactants such as ethanol. Perform salinity scans with a condensate to obtain optimal salinity. Perform temperature experiments for various concentrations of the cosurfactant. Perform emulsion morphology experiments to obtain electrical conductivity vs. phase volume fraction data for top/bottom, top/middle, and middle/bottom phases that form the sides of the tie triangle diagram. DOE share: \$184,684. Project duration: 36 months.
- Hampton University - The scope of this work is the improvement of the absorption process of alkaline salt solution for the separation of CO₂. Current absorption processes with alkaline salt solution operate at both ambient temperature and elevated temperature; however, the major drawbacks of the process are the low efficiency of CO₂ recovery because of the low absorption rate. Phase enhanced absorption seeks to select a proper transportation phase that meets the requirement of both increase of absorption rate and transportation of CO₂ into the carrying phase. DOE share: \$28,000. Project duration: 24 months.
- North Carolina A&T State University - Proposes to develop CO- and H₂S-tolerant electrocatalysts for PEMFC anode by combining platinum with additional metallic components. Ruthenium, a noble metal catalyst, is the preferred choice for providing CO tolerance. The sulfur tolerance may be imparted by a number of transition metals with molybdenum, cobalt, and tungsten as the leading candidates. DOE share: \$199,996. Project duration: 36 months.
- University of Texas, Pan American - The overall objective is to conduct simulation modeling to develop simple, low-cost burner technology that would significantly reduce emission of pollutants without energy efficiency penalty. The Principal Investigator proposes to use CFD-CHEMKIN simulation modeling to numerically investigate the effects of key variables on the combustion and emission characteristics and obtain optimal performance for swirl-cascade burner technology. DOE share: \$20,000. Project duration: 12 months.
- Clark Atlanta University - The purpose of this project is to improve the catalyst performance of zeolite Y. The successful accomplishment of the project goals would significantly advance the mild hydrocracking technology and can lead to the significant lowering of petroleum processing costs. DOE Share: \$199,701. Project duration: 36 months.
- Morgan State University - The project will design and test a novel temperature measurement system using a thermocouple coated with a protective inter-metallic ceramic coating (NiAl-40A1203). The thermocouple assembly will also be uniquely equipped with high-pressure cleaning and ultrasonic dirt peeling capabilities. A cold gasifier model will be designed and fabricated and used to determine the feasibility of the instrumentation. DOE Share: \$200,000. Project duration: 36 months.