PROJECT SUMMARY

NAME OF INSTITUTION (INCLUDE BRANCH/CAMPUS AND SCHOOL OR DIVISION)

Louisiana State University and A&M College

ADDRESS (INCLUDE DEPARTMENT)
Dept. of Civil & Env. Engineering, 3505C CEBA Building
Louisiana State University and A&M College
Baton Rouge, LA 70803

PRINCIPAL INVESTIGATOR(S)
Dr. Khalid A. Alshibli

STUDENT RESEARCH ASSISTANTS
Carrie Ann Heffron

PROJECT TITLE
Shear Strength Properties of JSC-1A Lunar Regolith Simulant

ABSTRACT (DO NOT EXCEED 250 WORDS)

With the new vision for the space exploration program, NASA is preparing to send manned missions to the moon in the next decade which re-generated interest in conducting more research about the lunar regolith (soil). A limited quantity of Lunar regolith was brought to earth during Apollo missions. Few Lunar regolith simulants were developed in the last three decades to enable researchers to further investigate the behavior of the Lunar regolith. Such simulants closely match the chemical composition, morphology, grain size and mineralogy of the lunar regolith. Recently, Orbital Technologies Corporation developed a simulant called JSC-1A. The objective of the proposed research is to study strength properties of JSC-1A using the direct shear apparatus. The effects of specimen density and normal stress on friction angle, cohesion, and dilatancy will be investigated. Such measurements will be critical for other studies to answer key questions about future exploration activities which include construction, mining, mobility, habitat shielding, and excavation.

Carrie Heffron is a highly motivated student with a promising future. This project will stimulate her interest in conducting research that will support NASA mission and to prepare her as a "potential scientist/researcher" to support NASA future exploration programs.