Abstract Submitted
for the APR08 Meeting of
The American Physical Society

LRO, LEND and the Search for Water on the Moon[1] JESUS CANTU, Undergraduate, New Mexico State University — This presentation is an overview of the Lunar Emitted Neutron Detector (LEND) mission aboard the Lunar Reconnaissance Orbiter (LRO), scheduled for launch by NASA in October 2008. Instruments aboard LRO will map the lunar surface in unprecedented detail. LEND is a collimated epithermal and thermal neutron detector developed in Russia under the direction of Igor Mitrofanov and will measure the lunar neutron albedo. A decrease in epithermal neutron count rates is associated with the presence of surface and subsurface hydrogen. It is postulated that at least some of the hydrogen present in permanently shadowed regions is in the form of water ice. The Moon's spin axis is inclined at 1.5 degrees to the ecliptic plane which can result in unusual lighting conditions at the lunar poles. Data from Lunar Prospector and Clementine indicate the presence of water ice in permanently shadowed areas at low elevations of impact craters near the poles. These regions provide an environment suitable for the storage of water ice due to their relatively low constant surface and subsurface temperatures. Estimates of permanent shadow areas range from 5300 km^2 to7500 km^2 for the north pole and 3300 km^2 to 6500 km^2 for the south pole.

[1]Research made possible by SPS and MU-SPIN

Jesus Cantu
Undergraduate, New Mexico State University

Date submitted: 11 Jan 2008 Electronic form version 1.4