Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

GM=tc^3 Cosmology and the Moon LOUISE RIOFRIO — Relativity suggests an expanding cosmology of scale R = ct, where t is age of the Universe. Gravitation would then require that c be further related to t by: GM = tc^3. Where G and M are mass and gravitational constant, this simple expression predicts data from the microwave background, including 4.507034% baryonic matter and a stable density $\Omega = 1$. The non-linear increase in Type 1a supernova redshifts may be precisely predicted without repulsive energies. (Riofrio, 2004) Prediction of a changing c may be tested with modern lanterns and the distant hilltop of the Moon. Our Lunar Laser Ranging Experiment has measured the Moon's semimajor axis increasing at 3.82 ± .07 cm/yr, anomalously high. The Mansfield sediment (Bills, Ray 2000) measures lunar recession at 2.9 ± 0.6 cm/yr. More recent work accurately measures a recession rate of 2.88 ± 0.05 cm/yr. LLRE differs from independent experiments by 10σ. If the speed of laser light were decaying, the Moon's apparent distance is predicted to increase by 0.935 cm/yr. An anomaly in the Moon's orbit is precisely accounted for. This interesting result may have importance for cosmology, shedding light on puzzles of "dark energy." In Planck units, this may be summarised as: M = R = t.

Louise Riofrio

Date submitted: 01 Oct 2010 Electronic form version 1.4