

Earth Orientation and Relativity Parameters Determined from LLR Data. Jürgen Müller^{1,2}, Liliane Biskupek¹, Franz Hofmann¹ and Enrico Mai¹, ¹Institut für Erdmessung (IfE), Leibniz Universität Hannover, Schneiderberg 50, 30167 Hannover, Germany, mueller@ife.uni-hannover.de; ²QUEST – Centre for Quantum Engineering and Space-Time Research, Leibniz Universität Hannover, Welfengarten 1, 30167 Hannover, Germany

Abstract: Lunar Laser Ranging (LLR) has provided distance measurements to the Moon for 45 years with steadily increasing accuracy. Using a highly accurate analysis model based on Einstein’s theory of gravity to describe these measurements, LLR is able to provide, among others, (long-periodic) Earth orientation parameters as well as quantities testing General Relativity (e.g. strong equivalence principle, Yukawa-like perturbations or time-variability of the gravitational constant).

We will briefly show the recent status of the measurement and analysis model developed at IfE [1]. We will present results for selected nutation parameters as well as for polar motion and UT0 purely derived from LLR data. We also give a few examples for relativistic quantities (including errors) and discuss their spectral behaviour.

References:

[1] Müller, J., Biskupek, L., Hofmann, F., Mai, E.: Lunar Laser Ranging and Relativity. Book chapter in “Frontiers of Relativistic Celestial Mechanics”, vol. 2 (ed. by S. Kopeikin), de Gruyter, p. 99-146, 2014.