

THEORY OF THE LIBRATION OF THE MOON

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ABSTRACT

The paper presents a new theory of the libration of the Moon, completely analytical with respect to the harmonic coefficients of the lunar gravity field. This field is represented through its fourth degree harmonics for the torque due to the Earth (the second degree for the torque due to the Sun). The Moon is assumed to be rigid and its orbital motion is described by the ELP 2000 solution (Chapront and Chapront-Touzé 1981) for the main problem of lunar theory with planetary perturbations and influence of the non-sphericity of the Earth. Comparisons with other theories (Migus 1980 and Eckhardt 1981) are also presented.