Evaluation of a lunar physical libration model based on LLR data

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Observations of physical librations and free librations made by Lunar Laser Ranging (LLR) for more than 25 years gave constraints upon a structure and a property of the lunar interior especialy of the Lunar core. It is, however, necesarry to evaluate the libration model, since the libration model based on only LLR data may possess systematic erros. LLR has no sensitivity in the Earth-moon lirection, it is affected by Earth rotation and orbitl motion, and the positions of the retro-reflectors are not well determined enough. We investigate how these phenomena affect the libration model.