

## Subsurface Structure of Mercury — Expected Results from the Gravity/Topography Analysis

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Of the Solar System terrestrial planets the innermost one – Mercury – is also the least known one. However in the upcoming years two missions will be dedicated to the exploration of this body: Messenger and BepiColombo. Unfortunately none of them will have on board a lander equipped with a seismometer to get direct measurements of the internal structure of the planet. Therefore, indirect methods making use of the measured gravity field and topography will be employed. Since the Hermian mantle is thin in comparison to the Earth and Mars, there exists some chance to observe the gravity signal not only from the planetary crust but also from the core-mantle boundary (CMB) [Spohn et al., 2001]. We analyze the possibility of resolving such a signal based on the expected resolution of the obtained global gravity field with respect to the plausible range of the physical parameters such as densities and topography variations. In addition, we study the means to obtain some more detailed information on the CMB (e.g. its shape) if its gravity signal could be resolved. Complementary to this problem is an analysis of possible methods applicable for the Hermian crust modeling based on the gravity/topography analysis. Reference: Spohn, T. et al., (2001): The interior structure of Mercury: what we know, what we expect from BepiColombo. *Planetary and Space Science* 49, 1561–1570.