



## **ISA on the Moon: useful applications of accelerometers for planetary exploration**

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The last decade has seen a renewed interest for the exploration of our natural satellite, the Moon. This interest is expected to grow in the foreseeable future, also in view of new manned missions. The scientific reasons for lunar exploration are well-justified, in particular there is space for improved models of its gravitational field: these models will be useful in constraining its formation, evolution and present composition. All the main techniques to obtain information on the fine characteristics of the gravitational selenopotential imply the use of an orbiter in close Moon orbit. The data analysis requires complex models to take into account the dynamical environment the satellite moves in: their intrinsic limitations in describing the non-gravitational perturbations can be overcome measuring them directly by means of an on-board accelerometer like ISA (Italian Spring Accelerometer). The usefulness of this instrument goes beyond this basic application, and scenarios can be envisaged in which gradiometric and in-situ (seismological) measurements are performed. Each of these possible applications — extending to a wide range of conditions in Solar System exploration — will be shown and discussed.