



Contributions of ISA accelerometer to BepiColombo exploration of planet Mercury: status

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To be launched in 2016, ESA mission BepiColombo will perform a thorough study of the planet Mercury and its environment. Among the wide range of its scientific objectives, an important set is constituted by the so-called Radio Science Experiments (RSE), which will study the gravitational field and rotation of the planet, and will perform very precise tests of general relativity theory. In order to reach the required level of accuracy in recovering the relevant parameters, the data coming from the high-sensitivity ISA (Italian Spring Accelerometer) instrument onboard the Mercury Planetary Orbiter (MPO) will be used — the first time for a deep-space probe — in the orbit determination and parameter estimation procedure. Following a brief description of the RSE in the context of the mission, the instrument and its wide capabilities will be reviewed. In particular the overall measurement procedure will be discussed, along with recent and current work on instrument calibration (both on-ground and in-orbit), operations planning, data handling and processing and archiving.