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Mercury Sodium Atmospheric Spectral Imager (MSASI)

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The Mercury Sodium Atmospheric Spectral Imager (MSASI) onboard the Mercury Magnetospheric Orbiter (MMO) spacecraft of the Bepi-Colombo Mission will address a range of fundamental scientific questions pertaining to Mercury's exosphere. MSASI is a high-dispersion spectrometer for the sodium D2 emission (589 nm). A single high-resolution Fabry-Perot interferometer (fixed-gap etalon and interference filter) is used to achieve a compact and efficient instrument design. The etalon and filter are extremely stable with respect to temperature variation and long-term aging. Full disk image of Mercury can be obtained by using a single-axis scanning mirror in combination with the spin of the MMO spacecraft. The measurements will provide new information on regolith-exosphere-magnetosphere coupling as well as new understanding of the dynamics governing the exosphere bounded by the planetary surface, the solar wind and interplanetary space('surface-bounded exosphere').

Keywords: Mercury, sodium emission, Fabry-Perot interferometer, BepiColombo