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The SIMBIO-SYS Imaging System

Spectrometers and Imagers for MPO BepiColombo Integrated Observatory SYStem

E. Flamini (1), F. Capaccioni (2), L. Colangeli (3), G. Cremonese (4), S. Debei (5), A. Donessoundiram (6),

O. Forni(7)

(1) Agenzia Spaziale Italiana, (2) INAF- Roma, (3) INAF – Napoli, (4) INAF – Padova, (5) Università di Padova, (6) Obs. De Paris, (7) IAS-Orsay, (enrico.flamini@asi.it)

SIMBIO-SYS is an Italian PI instrument selected as part of the payload of the ESA BepiColombo mission to Mercury.

SIMBIO-SYS is an integrated instrument that incorporates the following capabilities:

- medium space resolution global mapping in stereo and colour imaging using two pan-chromatic and 3 broad-band filters, respectively;
- high space resolution imaging in a pan-chromatic and 3 broad-band filters;
- imaging spectroscopy in the spectral range $400 \div 2000$ nm;

In particular, the optical channels of SIMBIO-SYS shall guarantee full stereo imaging at spatial resolution of 50 m at 400 km altitude (Stereo Imaging Channel - STC) and high resolution imaging of selected areas at spatial resolution of 5 m pixel scale at 400 km altitude (High Resolution Imaging Channel - HRIC). The Vis-NIR spectrometer channel (Visual and Infrared Hyper-spectral Imager - VIHI) guarantees global mineralogical mapping of the planet at a spatial resolution better than 500 m and compositional characterization of selected areas at a maximum spatial resolution of 100

m; the spectral sampling of VIHI is 6.25 nm a factor of 2 better than the minimum requirement.

This work will provide a general overview of the scientific objectives and the technical aspects of SIMBIO-SYS.