

SPACE EXPLORATION SYMPOSIUM (A3)
Small Bodies Missions and Technologies (4)

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MICROMEGA: A NIR HYPERSPECTRAL MICROSCOPE TO CHARACTERIZE THE
COMPOSITION OF THE HAYABUSA 2 ASTEROID TARGET

Abstract

The JAXA Hayabusa 2 mission, planned to rendez-vous a C-type asteroid for remote and in situ analyses, as well as for collection of samples to be returned to Earth, will embark a small DLR/CNES Lander "MASCOT": after soft landing, it will enable MicrOmega and a few other instruments to operate on the surface, at several locations, during a few hours.

MicrOmega is a highly miniaturized hyperspectral microscope, acquiring images of surface samples a few mm², with a sampling of 20 m: on each pixel, it will acquire the spectrum, from 0.9 to 3.6 m, in up to 400 contiguous spectral channels, enabling to retrieve the composition of all major and minor constituents present at this grain scale: minerals, both pristine and altered, in particular through water; ices and frosts, if present; and organics.

This would constitute the first ever performed in situ characterization at this microscopic scale of the surface of a primitive body. Major outcomes are expected, with respect to the formation and evolution of the solar system, with in particular the role water and carbon played.