



## **New approach for the stereo camera on the ESA mission BepiColombo**

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The stereo camera is a channel of SIMBIOSYS, one of the payload instruments on board the Mercury Planetary Orbiter of the ESA mission BepiColombo.

The main scientific objective is the global mapping of the entire surface of Mercury in 3D and colors with a scale factor of 50 m/pixel at the perihelion. It will allow to generate the Digital Terrain Model of the entire surface improving the interpretation of morphological features at different scales and topographic relationships.

The harsh environment of Mercury will strongly affect the functionalities and performance of the instruments, and even for the stereo camera we had to find a new solution and a new technique of acquiring the stereo pairs for generating the Digital Terrain Model of the surface.

The instrument concept is based on an original optical design composed by two channels, looking at the surface at  $\pm 20^\circ$  from the nadir direction, converging on the same bidimensional focal plane assembly, with no mechanism. The configuration of the focal plane assembly allows to apply the push-frame technique to acquire the stereo images.

This work will show an overview of this new approach, even reporting some simulations.