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Observation of Itokawa by a Small Surface Rover MINERVA

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Japanese asteroid mission HAYABUSA has a small rover MINERVA (Micro/Nano Experimental Robot Vehicle for Asteroid). It will be deployed onto Itokawa's surface immediately before the first surface sampling by the spacecraft this fall. After landing on the surface, MINERVA will autonomously move over the surface by hopping for a couple of days. On rotating a torquer inside the rover, a reaction force against the surface friction can hop the rover.
MINERVA is the first asteroid rover in the world. The rover has three CCD cameras (RGB color) to capture the surface images and six thermometers to measure the surface temperature. Two of the cameras consist of a stereo pair can observe nearby targets, and one has focal length to observe more distant targets. MINERVA has pins sticking out from the rover body to. Six of the pins are used as thermal probes, by which the temperature of the surface is directly measured.
The scientific objectives of MINERVA are as follows: (1) To obtain images of Itokawa's surface in visible wavelength. (2) To construct a detailed surface model especially using stereo images taken by short-focal length pair cameras. To discuss presence of surface regolith. (3) To obtain the brightness and color variation of the surface especially for discussing the ongoing space weathering. (4) To investigate the surface thermal properties from temperature history of the same place. (5) To measure local gravity direction and surface friction coefficient.