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The Jovian Infrared Auroral Mapper (JIRAM)

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In this presentation we describe the main scientific objectives of JIRAM (Jovian InfraRed Auroral Mapper) and its technical development.
The JIRAM instrument has a twofold objective:
- To perform imaging of Jupiter, especially around the polar regions, in a 2-5 μm band, where most of the auroral emission occurs
- To perform co-located spectroscopy and imaging of selected regions of the Jupiter's atmosphere in the 2-5 μm band with medium spectral resolution

The JIRAM experiment heritage comes from Italian made VIS-NIR imaging spectrometers dedicated to planetary exploration (Cassini/VIMS-V, Rosetta and VenusExpress/VIRTIS, Dawn/VIR-MS). However JIRAM needed a new development, being the first of a new class of experiments. JIRAM is characterized by two channels : one devoted to spectroscopy and another devoted to imaging. The light entering from a common telescope is divided by a beam splitter. This configuration allows a great flexibility in the use of JIRAM. In fact, we can obtain simultaneous images in the L and M bands combined , when needed, with imaging spectroscopy of the planet in the 2.0-5.0 μm interval of wavelengths with a spectral resolution better than 10 nm. State of the art technical solutions were implemented. Particular attention has been paid to the calibration of the instrument: a newly designed calibration unit has been included in the instrument, that allows to perform the radiometric calibration "in-flight".