



Juno/JIRAM infrared observations of Jupiter Aurorae

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The Jovian Infrared Auroral Mapper (JIRAM) is an imager/spectrometer to study the jovian aurorae on board the NASA mission Juno. Jupiter's aurorae, the most powerful among the planets in the Solar System, are the results of high-energy electrons falling along the planet's magnetic field lines into the upper atmosphere, exciting the atmospheric gases, which then emit at different wavelengths.

JIRAM, specifically, is designed to observe the intense emission of H3+, which is mainly possible in a spectral interval (3.2 to 4.0 μm) where the solar and thermal radiance emitted by the planet is very low due to intense atmospheric methane absorption band, resulting in high auroral contrast against Jupiter's dark disk.

Hence, JIRAM is composed of two IR imager channels and one spectrometer in the range 2-5 μm , with a spectral resolution of less than 10 nm and surface resolution as low as 50 km. One of the two imager channels is centered at 3.455 μm (in the H3+ emission region), to give a context information of auroral emission, for better understanding the spectrometer detailed measurement.

In this presentation we show latest results on JIRAM's observations of the H3+ infrared emission. Taking advantage of optimal point of view given by the polar orbit of the Juno spacecraft, these observations provide spatial, spectral and temporal distribution of the Jovian auroras; the footprints of Io, Europa and Ganymede are also observed and studied.