Jovian seismology: preliminary results of the SYMPA instrument

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Abstract

Jupiter's internal structure is poorly known (Guillot et al. 1997). Seismology is a powerful tool to investigate the internal structure of planets and stars, by analysing how acoustic waves propagate. Mosser (1997) and Gudkova & Zarkhov (1999) showed that the detection and the identification of non-radial modes up to degree $\ell = 25$ can constrain strongly the internal structure. SYMPA is a ground-based network project dedicated to the Jovian oscillations (Schmider et al. 2002). The instrument is composed of a Mach-Zehnder interferometer which produces four interferograms of the planetary spectrum. The combination of the four images in phase quadrature allows the reconstruction of the incident light phase, which is related to the Doppler shift generated by the oscillations. Two SYMPA instruments were built at the Nice university and were used simultaneously during two observation campaigns, in 2004 and 2005, at the San Pedro Martir Observatory (Mexico) and the Izana Observatory (Las Canarias). We present for the first time the data processing and the preliminary results of the experiment.

References

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Werner Weiss presents Gerald Handler's deserved remuneration for running the meeting.