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SIR-2 on Chandrayaan-1 - First results

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Abstract

Chandrayaan-1 [1], launched into lunar orbit in November 2008, is the first Indian mission to the Moon, which will provide an opportunity for *in situ* lunar observations over a two-year period from a 100 km, respectively, 200 km polar orbit.

Part of a comprehensive suite of science experiments on board Chandrayaan-1 is a collection of optical instruments, among them the SIR-2 near-infrared experiment [2]. The SIR-2 experiment is a compact grating-based high-resolution pointing spectrometer, which is observing the Moon in the spectral range 900–2400 nm, with a spectral resolution of about 6 nm, with an InGas detector. The field of view of the instrument translates into a ground sampling distance of approximately 200 m.

After a short introduction into the rational for NIR spectroscopy at the Moon, existing lunar NIR data sets will be survey and compared. We will explain the SIR-2 experiment's concept and its realization.

After an explanation of the instrument's operation we will explain the data, which the instrument is delivering and discuss the conditions under which the hitherto taken four million spectra of the lunar surface were made.

The high-resolution SIR-2 observations, particularly of the lunar far side and polar region, are expected to have a large impact on our understanding of the mineralogy and composition of the Moon. We will present the first results from the ongoing studies with the SIR-2 instrument.

References

[1] Goswami J. N. and M. Annadurai, (2009) *Current Science*, 96, 486–491.

[2] Mall, U. et al. (2009) *Current Science*, 96, 506–511.