



# Spectropolarimetry of the two faces of Saturn's moon Iapetus

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## Abstract

Polarimetry is a well-established tool for investigating the physical properties of small bodies in the solar system. Grain sizes, albedo and composition are the physical parameters to distinguish surface properties through light scattering. The light scattering behaviour of the organic compounds on surfaces of small bodies in the solar system is an important unknown for both the observational polarimetry and its modeling since it remains unclear to what extent the analogs to be used in terrestrial laboratories are representatives for organic materials in space. Hence, we are measuring for the first time the spectral polarization functions of the bright trailing hemisphere, mostly covered by water ice (Fillachione et al., 2007, Icarus 186) and of the dark leading hemisphere, covered by organic compounds related to polycyclic aromatic and aliphatic hydrocarbons (Crushank et al., 2008, Icarus 193), of Saturn's satellite Iapetus through a telescope experiment. Here we show the first measurements we obtained from the spectropolarimetric observations of the two hemispheres of Iapetus, which have been taken at the ESO VLT with FORS2 instrument in service mode between April and June 2009. We are performing a series of observations to sample our measurements over in total up to 6 different phase angles (ranging from 0-6.5 deg) for each hemisphere, to get phase functions and grain parameters information on the light scattering of water ice and organics rich surfaces in the solar system

## References

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