COST Action MP1104
Short Term Scientific Mission

Beneficiary: Irina Belskaya, Institute of Astronomy of Kharkov National University (Ukraine)
Host: Sonia Fornasier, LESIA, Observatoire de Paris (France)
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SCIENTIFIC REPORT

The main goals of this mission were analysis of polarimetric observations of asteroids made within our joint observational program and finalizing the paper on polarimetric properties of the observed asteroids. Polarimetric observations of selected asteroids were carried out at five observational sites, including the 1.8 m telescope of the Asiago Astrophysical Observatory and the 2.5 m Nordic Optical Telescope. During my visit we discussed details of the data reduction, reliability of results obtained with different instruments and methods of data analysis.

The obtained data will be published in two papers. The first paper contains results of polarimetric observations of 15 main belt asteroids of various surface composition, including asteroid (21) Lutetia, the target of Rosetta space mission. The available data let us to investigate relationship of the polarization phase angle behaviours of asteroids and their spectral properties. The second paper presents results of combined polarimetric and spectrophotometric observations of the potentially hazardous asteroid 214869 (2007 PA8). The obtained polarimetric observations allow estimating values of polarization maxima and polarimetric slopes for BVRI bands. The draft of both papers have been written and discussed. We plan to submit these papers within a month.

I took part in the workshop devoted to the discovery rings of the Centaur Chariklo (Braga-Ribas et al. 2014) which held in Paris observatory on March 26-27. First polarimetric observations of Chariklo were published by Belskaya et al. (2012). They were obtained at the aspect when rings were edge-on. We plan to continue polarimetric observations of this object when a noticeable ring contribution is expected and discuss details of the application for observing time at the ESO-VLT.

We have also discussed aims and targets of further polarimetric observations of asteroids, and prospects of collaboration between the Paris Observatory and Institute of Astronomy of Karazin Kharkiv National University.

References

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Braga-Ribas F., Sicardy B., Ortiz J.L., et al. A ring system detected around the Centaur (10199) Chariklo. Nature 508, p. 72-75, 2014.