

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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THE LOIANO CAMPAIGNS FOR PHOTOMETRY AND SPECTROSCOPY OF GEOSYNCHRONOUS
OBJECTS**Abstract**

A pilot program for the physical characterization of the space debris population in high Earth orbits was started in 2010 at the 152cm G.D. Cassini Telescope in Loiano, operated by the INAF astronomical Observatory of Bologna, Italy. The Ritchey - Chretien optical system has a 70-arcminute corrected field and is equipped with BFOSC (Bologna Faint Object Spectrograph and Camera), a multipurpose instrument for imaging and spectroscopy, with an EEV CCD (1340x1300 px).

Several observation campaigns were performed in past few years. The preliminary results from the first four nights were presented during the 62nd IAC. Now the results of 3 more nights, obtained in August 2011, were analyzed and three nights are scheduled for March 1 and 2, 2012 and May 19, 2012. In the forthcoming nights we will concentrate in trying to get reliable spectra for a few selected, slow motion objects (i.e., objects that should remain inside the slit for the requested time interval without needing differential tracking) to be used as reference for the comparative analysis of the photometric data. Moreover BVRI photometry of debris, if possible mainly large area over mass debris, will be acquired.

The increase in the sample of observed objects at this stage is fundamental to allow a meaningful comparison with the existing laboratory samples (see Rossi et al., IAC-11,A6,1,7,x10320, 2011) and the results available in the literature. This effort, coupled with similar ones currently ongoing in the US and in Russia, should allow a first comprehensive physical characterization of the GEO debris population.

The paper will discuss the new obtained data and how to establish the physical nature based on the color index and the normalized reflectance.