Minor body studies using MIRO telescopes over the past two decades

S. Ganesh[1*], Aravind K.[1,2], P. Halder[1], Kumar V.[1], Archita Rai[1,2], K. S. Baliyan[1], U. C. Joshi[1]

[1]Astronomy & Astrophysics Division, Physical Research Laboratory, Navrangpura, Ahmedabad
[2] Indian Institute of Technology Gandhinagar, Palaj, Gandhinagar

*Corresponding Author E-mail: shashi@prl.res.in

Abstract: PRL operates a 1.2 m optical/infrared telescope at the Mount Abu IR Observatory (MIRO). MIRO is situated at 24:39:09N and 72:46:47E at 1680 m altitude. The 1.2 m telescope is of the Cassegrain type. It was built by the SHAR Centre of ISRO and has been in continuous operation for observations since 1994. Among the various instruments used at the telescope is an optical photopolarimeter built at PRL in 1985. It was used at other observatories in the country until its permanent residence at Mount Abu was ready. The optical photopolarimeter has been used for observing many bright cometary apparitions visible from Mt Abu since 1995. This instrument produced one of the largest and homogeneous polarimetric dataset for Comet Hale-Bopp (C/1995 O1). Optical polarimetry allows us to study the physical characteristics of the dust grains of the cometary coma. In this presentation we shall summarize the results from these observations and also discuss briefly our efforts to model the observations using the PRL Vikram HPC.

PRL has also established a 50cm telescope at the same observatory site. On this telescope we have a small spectrograph (LISA) which is quite suitable for observing objects moving at non-sidereal rates (e.g. comets and near-Earth asteroids). We have found this combination to be quite effective at obtaining high quality spectra of the brighter comets and also the Near Earth asteroids during flyby. LISA has also been used on the 1.2 m telescope for spectroscopy of the fainter comets. We shall discuss some of the results from this instrument as used on both telescopes.

Compelling results obtained from observations with small telescopes and good instruments shows their potential for achieving good scientific returns.