

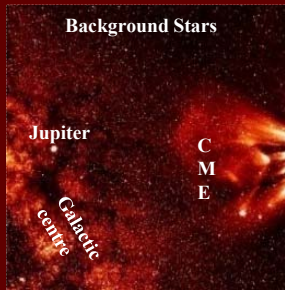
STRESS STEREO TRansiting Exoplanet and Stellar Survey

Vinothini Sangaralingam^(1,a), Ian Stevens^(a)

^a – School of Physics and Astronomy, University of Birmingham, UK. 1 – vs@star.sr.bham.ac.uk.

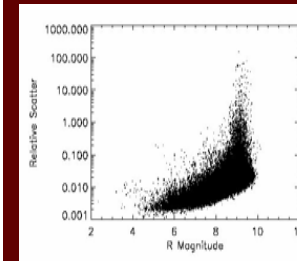
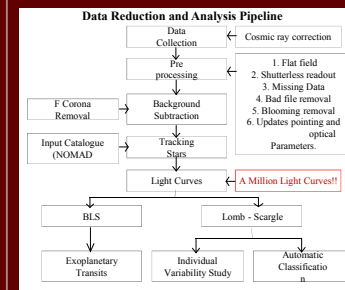
Abstract:

The Heliospheric Imager (HI) instruments on board the two STEREO (Solar TERrestrial RELations Observatory) spacecraft provides an excellent opportunity for space based stellar photometry. The HI instruments provide a wide area coverage (20X20 degrees and 70X70 degrees for the HI-1 and HI-2 instruments respectively) and long continuous periods of observations (20 days and 70 days respectively). Using HI – 1A which has a pass band of 650nm to 750nm and an integrated cadence of 40 minutes, we have gathered photometric information for more than a million stars brighter than 10th magnitude for a period of 36 months. Here we present some early results from this study on prospective transiting exoplanet candidates as well as on a range of variable stars and the future prospects for the data.



HI-1A
image
showing a
CME, the
Galactic
centre
and
Jupiter

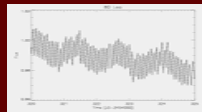
	HI - 1	HI - 2
Field of view	20° X 20°	70° X 70°
Plate scale	35.15"/pixel	2.05"/pixel
Cadence	40 min	2 hours
Passband	6500Å - 7500Å	4000Å - 10000Å



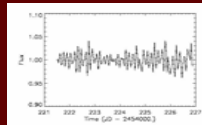
- A plot of Relative scatter in the lightcurves against R magnitude : Lower cut-off of the scatter < 1 %, Rmag < 9. ~ few % , fainter than 9th mag.
- Nyquist frequency – 18 cycles/day
- Suitable for study of variables like β Cepheid, δ Scuti, γ Doradus and exoplanetary transits.
- Not for short period variables like the ro-AP stars or longer period Cepheids.

Stellar Variability Results :

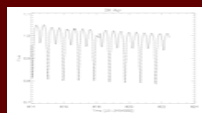
Known variables:



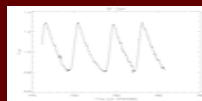
80 Leo – γ Dor –
V : 6.37 – A0



44 Tau – δ Scuti
– V : 5.3 – F2



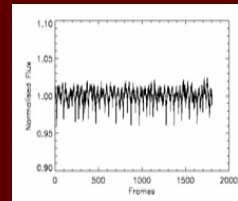
DX Aqr –
Eclipsing
Binary – V : 6.3
– A0/A1



BF Oph – delta
Cepheid –
V : 7.3 – G0

New Variable Candidates:

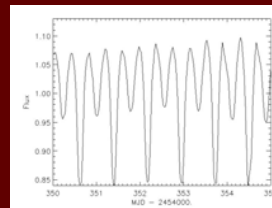
HD 13018 :



V Mag : 6.7
Type : A3
Found Period :
Binary : 2.574
Days
 δ Scu – 0.05 Days

BD +02 2686 :

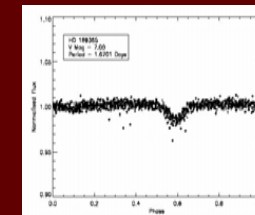
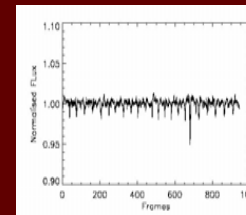
V Mag :
9.75
Type : G5
Found Period
: 0.77 Days



No literature so far.

Transit Search Results:²

HD 189365 :



HD 222891 :

V Mag : 8.07
Type : F8
Found Period :
1.5949 Days

