

Poster

Splinter HiRes

PAMIS:  
A PARTIALLY MULTIPLEXED HIGH RESOLUTION IMAGING  
SPECTROMETER

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A multi-channel partially multiplexed spectrometer (PAMIS) has been developed for the investigation of sparse spectra as they are typical for emission and absorption processes in the Sun and its corona.

The analysed object is imaged onto a slit mirror (a mirror where a slit-like portion has been removed by laser ablation) the image being monitored by a separate camera. Light transmitted through this slit is then analysed by the PAMIS spectrometer. The spectrometer separates the incoming light into different broad spectral regions with the use of multi-layer dichroic mirrors in combination with colour cut-off and band filters. The output from each of these channels is then analysed by an echelle gratings (one for each channel) operated in higher - typically 40th to 60th - order thus obtaining a resolution between 15000 and 20000 for slit sizes of 50 micron. Each spectral line appears several times in the spectrum in different order, the separation of the lines being a function of wavelength. Due to the well defined positions of each of these higher order lines a unique assignment is possible for as many as 200 lines in each channel. Data taken by a 2-channel and a 3-channel PAMIS will be shown which have been collected during the 2015, 2016 and possibly the 2017 total Solar eclipses. Data reduction techniques will be discussed.