PAINEL 182

INFRARED POLARIMETRY AT LNA

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We have adapted the IR Camera at the LNA Observatory in order to perform imaging polarimetry. We will present the first results with this setup for point sources. We have gathered standard star data with the H filter and compare them with the literature. The results are consistent and a good signal to noise ratio was obtained. Fast integrations were done in each half-wave plate position including dithering. The data reduction steps will be presented, with the future goal of standardizing the process in mind. Special care to be taken during data acquisition will be pointed out. The reduction process includes an adaptation of a specific purpose software developed for optical polarimetry data by the Polarimetry Group at IAG. We also included preliminary results of IR polarimetry of stars in the line of sight toward the Musca dark cloud. This research is supported by FAPESP and CNPq.

PAINEL 183

STATUS OF THE DEVELOPMENT OF THE PROTOTYPE OF BRAZILIAN DECIMETRIC ARRAY

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The Brazilian Decimetric Array (BDA) is being developed at INPE as a international collaborative program. Initially, the BDA will operate in a tuneable frequency range of 1.2 - 1.7 GHz and finally its range will be extended to 2.7 and 5.0 GHz. The largest planned baselines for the initial phase of BDA is 256 144 m (E-W and S directions, respectively) and those will be extended to 2.2 1.1 km in the form of a "T". The array will be installed at -22º 41' 19" S (latitude) and 45º 00' 22" W (longitude). Here, we present the results of developments concerning the prototype of BDA (PBDA). The PBDA will initially operate in the frequency range of 1.2 - 1.7 GHz only with a five-antenna array. (i) The antennas employ 4-meter parabolic dishes with alt-azimuth mounting, the accuracy of pointing and tracking of the first prototype antenna will be presented. (ii) Radiation diagram, cross talk of crossed log periodic feeder, gain, and phase stability's of the PLO type receiver, operating in the above frequency range will be presented. (iii) Solar observations in transient mode of the two elements interferometer will be presented.

PAINEL 184

22 / 48 GHz MULTI-BEAM SPECTROGRAPH

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The 22 / 48 GHz Spectrograph is a focal plane array with three receivers at 48 GHz and one at 22 GHz, for regular solar campaigns at the ROI's (Rádio Observatório do Itapetinga) 13.7 m antenna. The 48 GHz receiver system was built at ROI/Bern University to determine the position of solar flares, with high spatial resolution. We added the 22 GHz receiver to allow spectral analysis of solar flares. Solar flares are transient manifestations that occur in active regions that appear in higher number on the solar disk in the maximum solar cycle activity. In general, 22 and 48 GHz emissions of solar flares are optically thin, allowing the analysis of the non-thermal emitting electrons. The 22 GHz receiver horn was installed below the polarization grid, in order to observe the horizontal polarization that reflects on the grid and it is directed to this direction. Thus, the 48 GHz receivers detect the vertical polarization of the electromagnetic radiation and the 22 GHz receiver detects the horizontal polarization. The Spectrograph's first tests had been concluded; where we checked the digital controls, calibration system, gain analysis, 22 and 48 GHz beam pattern. We also included the first results of the Spectrograph's solar observations, presented here in 22 and 48 GHz solar maps, and position analysis of a solar flare, occurred in October 14, 2001, at NOAA Active Region 9661.