On 2D Linear Polarimetry in Prominences

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Abstract

An approach for high-precision 2D linear imaging polarimetry is briefly described. The key components of the approach are reducing random errors by the use of "statistical" data, reducing systematic errors based on the use of a special algorithm of data reduction, obtaining the 2D distributions of the polarization degree, polarization angle and the sign of the angle (polarization "images"), a low sky brightness, a low scattered-light telescope, uniformity of the polarizer performance for any point of the image. Polarization "images" of an H-alpha prominence of March 29, 2006 above the west limb show the co-existence of the "+" and "-" polarities in the prominence. The potential of the approach for prominence magnetic research is noted. The reported study was partially supported by RFBR (research project No. 11-02-00631), IAU, SCOSTEP, SF2A and KLSA/CAS.

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