Magnetic field dispersion in the neighbourhood of Bok globules

Claudia Rodrigues*†1, Victor Magalhães
1, José Vilas Boas¹, German Racca¹, and Antonio ${\rm Pereyra}^2$

¹Instituto Nacional de Pesquisas Espaciais (INPE) – Divisão de Astrofísica - Av. dos Astronautas, 1758 - São José dos Campos - SP - 12227-010, Brazil ²Instituto de Astrofísica de Canarias (IAC) – Spain

Abstract

We performed an observational study of the relation between magnetic field properties and star formation in Bok globules with and without star formation. The interstellar magnetic field direction is mapped using optical polarimetry in twenty (20) sky regions containing Bok globules. These maps are used to estimate the dispersion of magnetic field direction in each region from a Gaussian fit. In addition to the Gaussian dispersion, we propose a new parameter to measure the magnetic field dispersion which does not rely on any function fitting. The ocurrence of star formation in those regions is verified using the IRAS and WISE satellites databases and data from the literature. Statistical tests show no clear difference in the magnetic field dispersions of the sub-samples of globules with and without star formation. We also discuss some trends as a function of the young stellar object class.

^{*}Speaker

[†]Corresponding author: claudiavr@das.inpe.br