Star-Forming Clouds: Modelling Three Dimensional Magnetic Fields with Two Dimensional Polarimetry

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Polarized emission from dust at 850 microns has opened a new window on the analysis of magnetic field geometries in star-forming molecular clouds. Spatially extensive, highly sensitive polarization maps of several regions have been obtained using SCUBA at the JCMT, and these permit detailed modeling since we can now observe how the polarization emission varies across a field. It is from this variation that much of the magnetic field information is deduced.We present a series of models generated for filamentary clouds, illustrating how the polarization pattern one observes is dependent on the inclination and radius of curvature of the cloud, the viewing angle and the overlapping of cloud complexes along the line of sight.Data toward several filamentary clouds will be presented and their polarization patterns compared to the various models.

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