

FIRST Observations in Low-Intermediate Mass Star Forming Regions

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JCMT polarimetry toward a filamentary cloud in Orion A reveals a pattern predicted for a helical magnetic field configuration. The radial density profile of r^{-2} discerned from intensity data at $850 \mu\text{m}$ is also predicted for a helically threaded cloud since additional support is provided by the magnetic field. Several other filamentary clouds in Cygnus also exhibit the r^{-2} density profile. However, many filamentary clouds (e.g. those in Taurus) are too large to map substantially with SCUBA. Gas maps are useful for mapping large scale features, but continuum maps are required to identify the dusty protostellar envelopes or prestellar cores. Since FIRST will probe shorter wavelengths than current instrumentation with better resolution, it will be invaluable for extensive mapping of cloud structures as well as identifying the cores within. The resolution will be too poor to study the inner protostars or disks in continuum, but the large scale maps will more than compensate for this limitation. SCUBA2 will provide a strong followup instrument for polarimetry as well.