Magnetic Field Structure along Orion A's OMC3 Filament

by

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Measurements of magnetic field structures, especially within dense star forming cores, have until recently been difficult or extremely challenging to obtain. Reliance on absorption measurements in the near-mid IR can only probe the edges of these cold cores while far-IR and submillimetre measurements were inefficient due to low sensitivity photometric detectors. Using a new polarimeter on SCUBA at the JCMT, we have obtained imaging polarimetry of 850 micron thermal emission along a bright filament in Orion A called OMC3. These data were among the first to be taken with this new instrument which represents a dramatic technological improvement in ability over previous polarimeters.

We will present these data and interpret their meaning in terms of the magnetic field structure of the filament and the local condensations along the filament structure. The importance of this region as a locale for both protostars and uncollapsed cores will be discussed. These data form the basis for a more global study of magnetic fields in star forming regions which is currently underway.