POLARIZATION OF THE SiO J=2→1 EMISSION IN ORION IRc2

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We mapped the polarization structure of SiO J=2→1 emission in Orion IRc2 in both the ground state (v=0) and the vibrationally excited state (v=1). The data were obtained using the Berkeley-Illinois-Maryland-Association (BIMA) array at a frequency of 86 GHz. The angular resolution that was achieved was $0.4''$. Both the ground state and the vibrationally exited state are associated with maser emission from a disk around a young stellar object (YSO) in IRc2[a]. The v=1 emission has 3% linear polarization which rotates across the spectral line. The fractional linear polarization and the position angle of the plane of polarization vary with time. The v=0 polarized emission seems to arise from a highly compact source but the data show that the polarization angle is constant across the spectrum. In addition, there is no time variability. The data are consistent with a rotating, expanding disk between 40 and 80 AU from a young stellar object (YSO) associated with a radio source (I). The magnetic field is entrained in the disk's motion. At larger radii from source I, the SiO J=2→1 v=0 traces a flared disk structure on a scale of 1000 AU. The magnetic field on these scales is not strongly influenced by the star formation, or the outflow which is centered on source I.

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[a] M. C. H. Wright, R. L. Plambeck, L. G. Mundy and L. W. Looney *Astrophys. J.* **455**, L185 (1995).