OUTFLOWS AND MAGNETIC FIELDS IN L1448 IRS3

WOOJIN KWON, LESLIE W. LOONEY, RICHARD M. CRUTCHER, and JASON M. KIRK, *Department of Astronomy, University of Illinois, Urbana, IL 61801*.

Although stars are thought to form in dense molecular clouds through gravitational contraction, the details on star formation initiation are still controversial: e.g. ambipolar diffusion or turbulence. In order to better understand the initial stages of this process, the youngest stars should be studied. Unfortunately, however, due to the embedded nature of these systems, producing a clear picture of the circumstellar environment of the youngest stars is difficult. A good example of this is the dark molecular cloud L1448 IRS3 that includes three Class 0 sources (protostars). We present the first polarimetry observations of this source in the CO 2-1 line, presumably in the outflow regions, using the BIMA array. Combining with previous observations of the large-scale dust continuum polarization from SCUBA, high resolution λ = 3 mm dust continuum, and $H^{13}CO^+$ and N_2H^+ observations from the BIMA array, we develop a detailed view of the star formation in this source. Finally, we suggest a composite structure of circumstellar material, outflows, and magnetic field.