

P130a Near-infrared Circular Polarization Survey in Star-forming Regions: 2

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Polarimetry is a crucial tool for studying the physical processes in the interstellar medium, including star-forming regions. Even though the polarimetry of young stellar objects and their circumstellar structures provides invaluable information about the distribution of matter and the configuration of magnetic fields in their environments, a few near-infrared circular polarization (CP) observations were reported so far. We have conducted a systematic near-infrared CP survey in star-forming regions, covering high-mass, intermediate-mass, and low-mass young stellar objects. All the observations were made using the SIRPOL imaging polarimeter on the Infrared Survey Facility 1.4 m telescope at the South African Astronomical Observatory. In this presentation, we mainly present the polarization properties of ten sub-regions in six star-forming regions. The polarization patterns, extents, and maximum degrees of circular and linear polarizations are used to determine the prevalence and origin of CP in the star-forming regions. The results that we found are consistent with dichroic extinction mechanisms generating the high degrees of CP in star forming regions. We also show our very recent observation results.