

P22a Near-Infrared Linear and Circular Polarimetry in Star Forming Regions

Jungmi Kwon, Motohide Tamura (NAOJ/GUAS), Ryo Kandori, Nobuhiko Kusakabe, Jun Hashimoto (NAOJ), and SIRPOL team

Magnetic fields have been thought to play important roles in various stages of star formation from cloud contraction, core formation, and regulating accretion onto disks and protostars, both in powering and shaping outflows and removing angular momentum from disk material. However, the precise role of the magnetic field is poorly understood and observational evidence for its shape and structure has been limited in star forming regions. Infrared polarimetric observations in star forming regions are extremely useful to trace the magnetic fields in dense star forming regions and circumstellar matter such as envelopes. We are currently conducting a systematic near-infrared JHK_s -simultaneous polarization survey of star forming regions. In this presentation, we will outline our IRSF/SIRPOL survey and present results from wide-field deep imaging polarimetry measurements towards the massive star forming region NGC 6334-V as well as the 3-D Monte Carlo light-scattering model. In addition, our first systematic, wide, and deep linear and circular polarization imaging survey in various star forming regions covering from low mass to massive young stellar objects shows a trend toward higher and more extensive circular polarizations with clearer quadrupolar patterns in more massive stars.