P122a Infrared Linear and Circular Polarimetry of NGC 6334

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

Magnetic fields have been thought to play a crucial role in regulating accretion onto protostars, both in powering and shaping outflows and removing angular momentum from disk material, to allow the protostar to gain mass. However, the precise role of the magnetic field is poorly understood and evidence for its shape and structure has not been forthcoming. Getting evidence for the morphology of these fields has been tricky though - and this is an area in which polarimetry can help. In particular, circular polarization can provide evidence for changing grain/field alignment directions along the line-of-sight and hence the presence of twisting fields. In this presentation, we present deep linear and circular polarization images of the NGC 6334 massive star-formation complex observed in the near-infrared bands. Our circular polarization detection is very clear and shows a distinct pattern with some asymmetry for the first time. We will discuss the origin of these polarizations and the relationship to the magnetic field in this region.