

P142c **Near-Infrared Imaging Polarimetry of Orion A Molecular Cloud**

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Orion Molecular Cloud (OMC) is the nearest region (~ 414 pc) of massive star formation, which was intensively studied as a representative of star-forming regions. The northern part of Orion A giant molecular cloud - OMC 1, 2, 3, and the southern part, OMC 4, are often referred to Integral Shape Filament (ISF), and contains intermediate-sized molecular cores, low and high mass young stars, dozens of Herbig-Haro (HH) objects and molecular outflows. This region was well studied in various wavelengths (molecular outflow, sub-millimeter, infrared, radio continuum, and optical), but no wide-field observation of near-infrared polarimetry is represented.

We present the first wide-field ($\sim 8' \times 8'$) deep near-infrared (NIR) images of $15' \times 50'$ area of the Orion A Integral Shape Filament, obtained with SIRPOL, simultaneous JHKs imaging polarimeter on the IRSF telescope. Point-like source aperture polarimetry reveals complex magnetic field structures of this region. Embedded sources that are responsible for illuminating reflection nebulae and for exciting molecular outflows and HH objects can be determined by using NIR aperture polarimetry. We will describe these results in detail and discuss the role of magnetic fields in the formation of the Integral Shape Filament and its relationship with the outflow phenomena.