

P57a Near-Infrared Imaging Polarimetry of the NGC 2071 Star Forming Region with SIRPOL

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SIRPOL is the polarimetry mode of the JHKs band simultaneous infrared camera SIRIUS mounted on the 1.4-m IRSF telescope in South Africa. The instrument is among the first ones that provide deep and wide-field infrared polarimetric images, which can in principle measure polarizations of *all* the 2MASS-detected sources within a field-of-view of $7.7' \times 7.7'$ in the JHKs bands simultaneously with $\leq 1\%$ polarization accuracy.

We have conducted deep imaging polarimetry of the NGC 2071 star forming region with SIRPOL. Our polarization data have revealed various infrared reflection nebulae (IRNe) associated with the central IR young star cluster NGC2071IR and identified their illuminating sources. Aperture polarimetry of each cluster source is used to detect unresolved circumstellar disk/outflow systems. Aperture polarimetry of the other point-like sources within the field is made in this region for the first time. The magnetic field structures are derived using both aperture polarimetry of the point-like sources and imaging polarimetry of the shocked H₂ emission. The magnetic field direction projected on the sky is running roughly perpendicular to the direction of the large scale outflow. We argue that the field strength is too weak to align the outflow in the large scale field direction via magnetic braking.