

“Revealing a Population of Young Stellar Objects in the Outer Galaxy”

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Abstract

We present a preliminary analysis of the star formation activity in the ~ 34 square degrees region (L220) in the Outer Galaxy with longitudes from $l=215^\circ$ to $l=227^\circ$ and the full latitude extent of the *Spitzer* GLIMPSE360 survey (b from -2.3° to 0.5°) at these longitudes. L220 is home to a very young star-forming complex that is the most concentrated source of outflows in the GLIMPSE360 survey. Our goal is to uncover and characterize a previously unstudied population of intermediate- and low-mass Young Stellar Objects (YSOs) in L220. We are performing a census of YSOs using color-color and color-magnitude selection criteria, and modeling of their spectral energy distributions, combined with the visual inspection of multiwavelength images. The L220 region ($12^\circ \times 2^\circ 8'$) samples three different spiral arms and inter-arm regions. This provides an opportunity to study both very active and more quiescent areas. With the kinematic information from the CO data, we will be able to associate YSO candidates with spiral arms and study star formation properties as a function of Galactocentric radius (thus metallicity). Our analysis is mostly based on the *Spitzer* GLIMPSE360 3.6 and $4.5 \mu\text{m}$ data, combined with the near-infrared photometry from 2MASS, and WISE $12 \mu\text{m}$ data. The results of our study on L220 will be a valuable complement to the recent *Herschel* Hi-GAL study of this region. In our preliminary analysis of L220, we focus on the most active region in L220, Canis Major (CMA) OB1 association, which encompasses the area of the largest concentration of outflows.