

Will Armentrout (GBO)

## The Star Forming Potential of Clouds on the Fringe of the Milky Way

HII regions are the archetypical tracers of recent high-mass star formation. Because of their high luminosities, they can be seen across the entire Galactic disk from mid-infrared to radio wavelengths. A uniformly sensitive survey of Galactic HII regions across the disk would allow us to constrain the properties of Galactic structure and star formation. We have cataloged over 8000 HII regions and candidates in the WISE Catalog of Galactic HII Regions ([astro.phys.wvu.edu/wise](http://astro.phys.wvu.edu/wise)), but only 2000 of these are confirmed HII regions.

A population of especially interesting HII regions trace the Outer Scutum-Centaurus spiral arm (OSC), the most distant molecular spiral arm in the Milky Way. These regions represent star formation at low densities and low metallicities, similar to the conditions in galaxies like the Large Magellanic Cloud or a much younger Milky Way. To date, we have detected high-mass star formation at 17 locations in the OSC, with the most distant source at 23.5 kpc from the Sun and 17 kpc from the Galactic Center. We map the  $^{13}\text{CO}$ ,  $\text{HCO}^+$ , and  $\text{HCN}$  molecular gas emission using the Argus array on the Green Bank Telescope, producing 5 arcmin maps with 8 arcsec resolution and 0.5 K sensitivity in 20 minutes.  $^{13}\text{CO}$  measurements indicate the total molecular gas content of the clouds, while  $\text{HCO}^+$  and  $\text{HCN}$  trace the dense star forming gas. These OSC sources have molecular cloud masses up to  $10^5 M_{\text{sol}}$  and central stellar types as early as O4.