



Contribution ID : 71

Type : **Contributed talk**

The Influence of Bars on Gas Concentrations and Star Formation in Nearby Galaxies

Wednesday, 28 October 2026 13:15 (10)

Galactic bars exist in over half of the galaxies in our local universe, but studies of the resolved gas properties in the bar have been limited to small samples of star forming spiral galaxies. The ALMA program Kiloparsec Investigations of Local Objects' Gas And Star-formation (KILOGAS) is a survey of the molecular gas in 450 mass-selected galaxies covering the full parameter space of star forming, quenching, and quiescent galaxies. At redshifts between 0.015 and 0.06, all galaxies have unprecedented spatial resolution of 1 kpc that are matched with optical field spectroscopy from the MaNGA and SAMI surveys, allowing for a detailed comparison of the molecular gas with resolved properties from ionized gas such as stellar mass, star formation rates, and metallicity. I will present results of our analysis using radial profiles of molecular gas surface density and star formation rate surface density, where we have found that galaxies with a strong bar have more centrally concentrated molecular gas and star formation. Our findings are broadly consistent with results from Chown et al. (2019) who used a smaller sample of star forming galaxies and found that galaxies with higher molecular gas concentrations and centrally enhanced star formation tend to be barred galaxies. We expect gas concentrations to be higher due to gas inflows along the bar which have been found to suppress star formation efficiency. I will further present results from a full classification of barred galaxies in the KILOGAS sample using both optical and position-velocity diagrams.

Did you give a contributed talk at CASCA 2026?

No

If you are selected for a poster, would you be interested in giving a short flash talk on your work?

Yes

What is your career level?

PhD

Which keyword describes the area of focus of this talk?

Galaxies

Primary author(s) : LAING, Jennifer (McMaster University)

Presenter(s) : LAING, Jennifer (McMaster University)

Session Classification : Galaxies