

**Karin Menendez-Delmestre** (Valongo Observatory Federal University of Rio de Janeiro , faculty/staff)

**Presentation Requested:** poster

**Category:** Evolution of the Interstellar Medium and Star formation over Cosmic Time

**Question:** What have we or will we learn about the chemical evolution of galaxies over cosmic time with ALMA, JWST and other telescopes? Is there a metallicity density w/ redshift relationship? What molecular and atomic species have we detected with ALMA and how have they helped us better understand the composition and evolution of galaxies?

### **Gas transport in disk galaxies - the ALMA insight**

Stellar bars are present in approximately 2/3 of all nearby galaxies and play a central role in the evolution of galaxies, inducing large-scale streaming motions in the gas that can dramatically change the host galaxy itself. Such inward gas transport has been shown to lead to the accumulation of molecular gas in the central regions of galaxies, triggering nuclear starbursts and leading to the formation of pseudobulges. With all this gas mixing, it has been expected for a long time that bars should wash out metallicity gradients in the host galaxy. However, recent optical IFU studies (e.g., CALIFA) have been unable to trace the expected flattening of metallicity gradients in barred galaxies. This raises many questions and has motivated recent research to take a harder look at the nature of gas transport in barred and unbarred spirals. We are in the process of exploring the ALMA archive to probe for the presence of gas inflow signatures in spiral galaxies. Constructing rotation models for CO line emission ALMA maps in spiral galaxies (assuming symmetry), we seek to probe for the non-circular motions that may point to the gas flow along the bar.