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Presentation Requested: oral

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

Question: Is there a common Schmidt-Kennicutt law at all redshifts and all scales? How is this "law" affected by different measurement limitations or conversion factors from tracer molecules or emission / absorption lines to amounts of gas and SFR?

Studying Star Formation with ALMA and the JVLA

We will present new results from the Star Formation in Radio Survey (SFRS), highlighting synergies between ALMA and the JVLA for studying star formation within nuclear and extranuclear regions of M66 and NGC3773. Using JVLA observations at 3, 15, and 33GHz, combined with ALMA Band-3 observations (90 GHz continuum + HCN line emission from 2 targets), we are able to robustly decompose the radio spectrum into thermal and non-thermal components, resulting in highly accurate measures of the current star formation rate for comparison with diagnostics at other wavelengths. The addition of the serendipitous detections of HCN line emission further allows us to investigate the resolved star formation law within M66 using a tracer of the dense gas, which is actively being converted into newly formed stars. This investigation is only a pilot study, as the full SFRS sample consists of over 100 sources with multifrequency JVLA data, with more than half being accessible to ALMA.