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The ALMA View of Dense Molecular Gas in 30 Doradus LAUREN BITTLE, University of Virginia, REMY INDEBETOUW, University of Virginia/NRAO, CRYSTAL BROGAN, TODD HUNTER, NRAO, ADAM LEROY, Ohio State University — The 30 Doradus region within the Large Magellanic Cloud hosts several sites of star formation including R136, a starburst region home to dozens of evolved O stars. The intense radiation from R136 creates an extreme environment for nearby star formation in such a low-metallicity, dwarf galaxy. We have targeted a star-forming region ∼15 pc away from R136 within 30 Doradus using the Atacama Large Millimeter/submillimeter Array (ALMA) to map the dense (HCO^+, HCN, CS, $H^{13}CO^+$, $H^{13}CN$) and diffuse (CO, ^{13}CO, $C^{18}O$) molecular gas to trace star formation at sub-parsec resolution. We are conducting a clump-by-clump analysis of intensities and line ratios to determine the physical conditions of the ∼100 identified clumps (e.g. size, internal turbulence, molecular abundance). We compare observations to non-LTE Radex model grids of the excitation temperature, molecular column density, and volume density of the H_2 collider to determine the physical excitation conditions within the clumps. We compare these properties of each clump to both associated and embedded star formation properties to quantify the relative importance of internal feedback from the star formation itself versus external feedback processes from R136 and determine which process dominates.

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