

Abstract Submitted
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From Gas to Stars in Energetic Environments: Dense Gas Clumps in the 30 Doradus Region¹ CRYSTAL ANDERSON, DAVID S. MEIER, New Mexico Tech, JUERGEN OTT, NRAO, ANNIE HUGHES, Max Plank Institute for Astronomy, TONY WONG, University of Illinois — We present interferometric mapping of dense molecular gas tracers toward the giant molecular clouds (GMCs) of the star forming region 30Dor10, located in the Large Magellanic Cloud (LMC) conducted with the Australia Telescope Compact Array (ATCA). The LMC is the nearest major galaxy to the Milky Way and it contains the most intense star forming region in the Local Group. The large number of OB stars in 30 Doradus create a very intense ionizing photon field, that in combination with the sub-solar metallicity of the LMC, may mimic the conditions present in young starburst galaxies of the early Universe. HCN(1-0) and HCO⁺(1-0) transitions, tracers for dense, ultimately star forming molecular clumps are mapped at parsec scale resolution. We show the first detection of several resolved clumps in 30Dor10, with some of these clumps possibly tracing a molecular filament. We present detailed comparisons of clump structure (masses, linewidths, sizes) in 30Dor10 to those in other star forming regions of the LMC. These observations also reveal low HCN/HCO⁺line ratios in 30Dor10 compared to some of the other LMC GMCs.

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