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AST/RO sub–mm survey of the galactic center

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Abstract. To understand the strongly excited gas near the center of our own galaxy, detailed surveys in a variety of higher excitation states are required. To aid in this effort, the Antarctic Sub-millimeter Telescope and Remote Observatory (AST/RO, a 1.7m diameter sub-millimeter-wave telescope at the geographic South Pole) has completed a fully sampled survey of CO(7-6), CO(4-3), [CI]($^3P_2$-$^3P_1$), and [CI]($^3P_1$-$^3P_0$) in a three square degree region around the Galactic Center (Martin et al., ApJS, 150, 239 (2004)). In addition to this dataset, AST/RO has recently completed a survey area around Clump 1 and 2, thus covering the bulk of strongly excited gas near the center of the galaxy. This dataset comprises nearly a million distinct telescope pointings over many square degrees of the sky. To handle a sub-mm dataset of this size required the development of new automated observational methodologies, reduction techniques, and visualizations.

Key words. Galaxy: center – Galaxy: kinematics and dynamics – Submillimeter – ISM: molecules

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