

NEW CARBON-CHAIN MOLECULAR DETECTIONS IN TMC-1 WITH THE GREEN BANK TELESCOPE

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The source of molecular complexity in the interstellar medium is strongly dependent on the build up of carbon-chain molecules. As such, it is crucial to develop a robust chemical inventory of the largest of these carbon-chain species and, in turn, constrain their formation mechanisms. The cold core TMC-1 has long been a source of new molecular detections, particularly for unsaturated carbon-rich molecules. Through deep observations with the Green Bank Telescope of TMC-1, we report 8 new isotopologues of HC₅N and HC₇N and an entirely new molecular family (HC₅O, HC₇O). These new detections provide crucial insights to the formation of PAHs and the underlying carbon-chain chemistry of dark clouds. In addition, we will also discuss preliminary results from the next stage of GBT chemical surveys toward TMC-1.