CONFIRMATION OF INTERSTELLAR METHYLCYANODIACETYLENE

L. E. SNYDER, *Department of Astronomy, University of Illinois, 1002 W. Green Street, Urbana, IL 61801*; J. M. HOLLIS, *NASA Goddard Space Flight Center, Space and Earth Data Computing Division, Code 930, Greenbelt, MD 20771*; P. R. JEWELL, *National Radio Astronomy Observatory, P. O. Box 2, Green Bank, WV 24944-0002*; F. J. LOVAS, *Optical Technology Division, National Institute of Standards and Technology, Gaithersburg, MD 20899*; and A. REMIJAN, *NASA Goddard Space Flight Center, Space and Earth Data Computing Division, Code 930, Greenbelt, MD 20771; National Research Council Resident Research Associate*.

Ten spectral lines of the symmetric top molecule methylcyanodiacetylene (CH_3C_5N) have been detected with the 100-m Green Bank Telescope (GBT) toward the Taurus molecular cloud TMC-1. Both K=0 and K=1 components of the 12,K-11,K, 13,K-12,K, 14,K-13,K, 15,K-14,K, and 16,K-15,K transitions were observed. Consistent with $\sim$10 K kinetic temperature for the TMC-1 dark dust cloud, no higher K components were detected. The CH_3C_5N excitation temperature range is 2.7 K to 4.0 K for both K=0 and K=1 ladders, similar to that previously reported for methylcyanoacetylene (CH_3C_3N). The abundance ratio of CH_3C_5N to CH_3C_3N is in the range of 0.5 to 1, but most probably closer to $\sim$0.5 than 1. Methyl cyanide (CH_3CN), CH_3C_3N, and CH_3C_5N are all found in TMC-1 in decreasing relative abundance, suggesting that simple carbon addition may be possible in dark clouds.