DETECTION OF INTERSTELLAR BENZONITRILE (c-C_6H_5CN)

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The Unidentified Infrared Bands are now widely believed to originate from the emission of large, aromatic molecules in high-energy environments. Despite this, no individual species has been identified as a carrier, and indeed the only five- or six-membered aromatic ring molecule reported in the ISM is benzene, which is seen in only a small handful of sources at infrared wavelengths. Here, I will discuss a dedicated laboratory, observational (GBT), and modeling effort which has resulted in the first definitive radio identification and quantification of a benzene-ring containing aromatic molecule: benzonitrile (c-C_6H_5CN). The results will shed light on the probable formation pathways for larger aromatic species, and have identified a successful methodology for future, comprehensive investigations.