Infrared Spectroscopy of Germanium-Carbon Clusters: \( \nu_4(\sigma_u) \) mode of GeC\(_5\)Ge\(^1\) ERIC GONZALEZ, C.M.L. RITTBGY, W.R.M. GRAHAM, TCU — Recent results will be presented from FTIR (Fourier transform infrared) and DFT (density functional theory) studies of the vibrational fundamentals and structures of germanium-carbon clusters trapped in solid Ar. The linear germanium-carbon cluster GeC\(_5\)Ge has been detected using FTIR spectra generated when products from the dual laser evaporation of Ge and C rods are trapped in solid Ar matrices at \( \sim 10 \) K. Comparison of frequencies and \(^{13}\)C isotopic shift measurements with the predictions of DFT calculations at the B3LYP/cc-pVDZ level confirms the identification of the \( \nu_4(\sigma_u) \) mode of GeC\(_5\)Ge at 2158.0 cm\(^{-1}\).

\(^1\)The Welch Foundation.