FTIR OBSERVATION OF C_n AND Si_mC_n CLUSTERS FORMED IN Ar MATRICES BY LASER ABLATION

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Well resolved vibrational spectra of C_n and Si_mC_n clusters have been produced by trapping products from the pulsed laser evaporation of pure carbon and silicon/carbon rods in Ar at 10 K. Controlled thermally induced diffusion in the matrix has enabled the growth of large clusters. To assist in the analysis of vibrational spectra extensive carbon-13 isotopic shift measurements have been made. Objectives in this work are the identification of linear C_n clusters with n ¿ 9 or cyclic C_n c lusters, and Si_mC_n clusters consisting of long carbon chains with terminal Si atoms.