SPECTRA OF ETHANE IN He DROPLETS IN THE 3 μm RANGE

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The infrared spectra of ethane molecules embedded in He droplets have been studied via depletion spectroscopy in the ν = 2880-3000 cm^{-1} spectral range. Four features observed in the spectra are assigned as the ν_5, ν_{8+11}(perpendicular and parallel components), and ν_7 vibrational bands. Band origins and rotational constants for ethane in He are obtained and compared with corresponding gas phase values. Spectra of large ethane clusters $(C_2H_6)_n$ (with n = 1300-13000) in He are also reported.