

THE C-H STRETCH SPECTRUM OF ETHYLENE IN LIQUID HELIUM DROPLETS

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In this talk we report our study of $^{12}\text{C}_2\text{H}_4$ monomer and its clusters in ^4He with the new, “second generation” helium droplet/infrared spectroscopy apparatus at UNC. The region containing the ν_{11} and ν_9 asymmetric C-H stretches of the monomer was scanned using a tunable, cw OPO aligned collinearly with the droplet beam and detected with a quadrupole mass spectrometer. Rotationally resolved spectra were observed with line widths as narrow as 0.08 cm^{-1} , FWHM. Details of the new instrument and the analysis of the spectra will be presented.