SURFACE ELECTRON EJECTION BY LASER EXCITED METASTABLES SPECTROSCOPY OF ACETYLENE

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We report recent progress in attempts to observe rotationally resolved spectra of directly laser-excited vibrational levels of the third triplet excited electronic state (T_3) of acetylene, detected via Auger electron ejection from a gold metal surface. Preliminary results obtained with narrow linewidth (0.005 cm^{-1}) excitation using a frequency-doubled pulse-amplified cw ring laser system will be displayed. Insights into singlet-triplet interaction in acetylene gained from such high-resolution simultaneous laser-induced fluorescence and surface electron ejection by laser excited metastables spectroscopy will be discussed.