SPECTROSCOPY OF ACETYLENE TRIPLET STATES BY DIRECT OPTICAL EXCITATION

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We present here initial results of the first experiments detecting direct optical (uv) excitation of spin-forbidden transitions from the singlet ground electronic surface (S_0) of acetylene into the low-lying molecular triplet manifold (T_1,T_2). The metastable states thus populated are detected via electron ejection from a Cs metal surface (SEELEM: Surface Electron Ejection by Laser Excited Metastables spectroscopy). Initial insights into the structural and dynamical properties of these states, and the mechanism of the SEELEM detection process, are discussed.