

PHOTODISSOCIATION SPECTROSCOPY AND DYNAMICS OF FREE RADICALS

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The photodissociation spectroscopy and dynamics of the vinoxy (CH_2CHO), HCCO, and CCO radicals have been studied by fast radical beam photofragment translational spectroscopy. In this experiment, a fast (6-8 keV) beam of radicals is generated by laser photodetachment of a mass-selected anion beam. The radicals are photodissociated with a second laser, and the neutral photofragments are detected with high efficiency using a multichannel plate detector. Depending on the detector configuration, we can measure either the photofragment yields as a function of energy, or the photofragment kinetic energy and angular distributions at selected dissociation energies. The three species to be discussed here all undergo predissociation and have highly structured photofragment yield spectra. However, the energy and angular distributions show that the dissociation dynamics differ significantly.