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Photoionization of Hot Radicals STEPHEN PRATT, HAIYAN FAN, Argonne National Laboratory — The combination of velocity map imaging and tunable vacuum ultraviolet light has been used to determine the internal energy dependence of a number of small hydrocarbon radical. In these experiments, radicals are produced by the photodissociation of a suitable halogen-containing precursor, and the resulting images allow the determination of the internal energy of the radical. Comparison of the halogen image, which reflects the true translational energy distribution, and the radical image, which is a convolution between the true distribution and the internal-energy-dependent relative photoionization cross section, allows the extraction of the internal energy dependence of the crtoss section. In larger radicals, intramolecular vibrational energy redistribution minimizes the effect of vibrational excitation of the radical. This work was supported by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences, Division of Chemical Sciences, Geosciences, and Biological Sciences under contract No. W-31-109-Eng-38.

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