

CHARACTERIZATION OF CHBrCl_2 PHOTOLYSIS BY VELOCITY MAP IMAGING

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Halomethanes have attracted extensive research efforts of considerable variety, owing to their relative simplicity and ubiquitous presence in synthetic and environmental settings as well as their amenability to benchmark problems in physical chemistry. Their role in atmospheric processes is well known, most famously as the source of atomic halogens which catalyze the depletion of stratospheric ozone. Indeed, the photolytic cleavage of the carbon-halogen bond is the primary fate of halomethanes in the atmosphere. We utilize laser-induced photolysis to study the C-Br bond cleavage in CHBrCl_2 in a molecular beam. Atomic bromine fragments are probed with resonance enhanced multiphoton ionization (REMPI), which allows ground state and spin-excited products to be independently detected. Action spectroscopy in conjunction with velocity map imaging is used to determine the internal energy of the CHCl_2 partner fragment. Product state distributions as a function of photolysis energy may be discerned with these techniques. Current results will be presented.