VIBRATIONALLY DRIVEN HYDROGEN ABSTRACTION BY THE BROMINE ATOM FROM CYCLOHEXANE

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Using ultrafast pump-probe spectroscopy, we study vibrationally driven bimolecular chemistry in the condensed phase. Our current focus is on the abstraction of hydrogen by the bromine atom from cyclohexane. This reaction has a barrier close in energy to that of a C-H stretch and also avoids isomer and complex complications seen in other systems. We produce bromine atoms using 400 nm photolysis of Br_2 and explore the influence of C-H excitation on the abstraction reaction in solution. We present here preliminary results of experiments probing the production of HBr and loss of bromine atoms through the use of infrared probing of the HBr fundamental and visible probing of the charge transfer transition of the cyclohexane and bromine atom complex.