USING ELECTRONIC SPECTROSCOPY TO PROBE STERIC EFFECTS IN ROVIBRATIONAL ENERGY TRANSFER FROM S_1 GLYOXAL

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The detection of dispersed fluorescence from rotational and vibrational states populated after single collisions of excited S_1 glyoxal with another atom or molecule has proven to be a powerful technique for monitoring rovibrational energy transfer in c rossed molecular beams. Additional information concerning the steric aspects of energy transfer can be obtained by creating collision geometries where the planar glyoxal molecule is predominately "broadside" or "edge-on" with respect to the collision par tner. These collision geometries are achieved via the natural alignment of glyoxal resulting from S_1 - S_0 excitation with a polarized pump laser. The degree of alignment attainable via direct excitation, as well as the steric dependence of the rov ibrational energy transfer as deduced from dispersed fluorescence spectra, will be discussed.