PHOTOINDUCED ELECTRON TRANSFER IN THE C_2H_4–Br_2 COMPLEX

AIMABLE KALUME, LISA GEORGE AND SCOTT A. REID, *Department of Chemistry, Marquette University, Milwaukee, WI 53233*.

We have used a new dual-nozzle late-mixing scheme for the trapping and interrogation of pre-reactive donor-acceptor complexes to examine photoinduced electron transfer in the prototypical Mulliken donor-acceptor (halogen bonded) π-complex, C_2H_4–Br_2. The charge transfer transition of this band was measured for the first time, and the position and intensity of this band is in excellent agreement with theoretical expectations. Excitation into the intense charge transfer band of the complex leads exclusively to the anti-conformer of the single reaction product, 1,2-dibromoethane, in agreement with the Mulliken theory of electron transfer.