

PREDISSOCIATIVE RATE CONSTANTS FOR $\text{Bi}_2(\text{A})$ FROM PULSED DYE LASER LIFETIME DATA

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A pulsed dye laser apparatus was used to obtain lifetime data for $\text{Bi}_2(\text{A}0_w^+ \rightarrow \text{X}^1\Sigma_g^+)$ transitions. The collision free lifetimes for $v'=20$ to $v'=39$, and $J \leq 105$, were investigated for effects of heterogeneous predissociation. The observed predissociation rates, establish $k_{pd,v'} = 153 \text{ 1/sec}$ to $1.5 \times 10^{-5} \text{ 1/sec}$ for $v'=21$ to 39. Rapid predissociation and the dense $\text{Bi}_2(\text{A} \rightarrow \text{X})$ spectrum require both traditional lifetime measurements and synthetic spectrum to determine the full range of observed rates.