

THE ROTATIONAL SPECTRA OF IO $X_1 \ ^2\Pi_{3/2}, v \leq 13$ and $X_2 \ ^2\Pi_{1/2}, v \leq 9$

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The rotational spectra of IO in vibrational states up to $v = 13$ in the $X_1 \ ^2\Pi_{3/2}$ state and up to $v = 9$ in the $X_2 \ ^2\Pi_{1/2}$ state have been observed in an O_2 discharge over molecular I_2 . In addition, $I^{18}O$ has been observed for both the X_1 and X_2 states up to $v = 5$. All data have been analyzed simultaneously with fixed isotopic ratios among the constants. This extends the data set for the X_1 state described last year at this meeting and provides the first high resolution data for the X_2 state and for $I^{18}O$. An extensive set of parameters has been derived. These will be interpreted in terms of the electronic structure and the interatomic potential.