

## THE ROTATIONAL SPECTRUM OF IODINE DIOXIDE, OIO

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The rotational spectra of OIO in its ground vibrational and first excited bending states have been observed for the first time. OIO was formed initially from the products of a microwave discharge in O<sub>2</sub> passing over molecular iodine and later with greater yield in a DC discharge through a mixture of O<sub>2</sub> and I<sub>2</sub> vapor. OIO is an asymmetric prolate rotor ( $\kappa = -0.690$ ) with a <sup>2</sup>B<sub>1</sub> electronic ground state. Over 550 ground state transitions and over 160 transitions of the excited bending state have been included in the fits. The resulting parameters are well determined and will be compared to those recently published for OBrO and OCIO. These will be interpreted in terms of the molecular geometry, harmonic force field, and electronic structure.