

THE JAHN-TELLER (JT) EFFECT IN THE \tilde{A} STATE OF THE NITRATE RADICAL NO_3

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The JT effect in the \tilde{A}^2E'' of NO_3 is poorly understood. A preliminary spectrum of the vibronically-allowed $\tilde{A} \leftarrow \tilde{X}$ transition, coupled with ab initio calculations, shows moderate JT activity in the \tilde{A} state. Vibronic bands exhibit either static or dynamic JT distortions depending on the vibrational level of the upper \tilde{A} state. The picture of the \tilde{A} state is however incomplete. For example, in the $E'' \otimes e' = a_1'' \oplus a_2'' \oplus e''$ manifold, while the splitting would provide a direct measure of the JT strength, only the a_1'' levels have been observed. We have gained new insight into the \tilde{A} state by examining the hot bands of NO_3 which access previously unobserved dark levels of the \tilde{A} state.