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

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The JT effect in the $\widetilde{A}^2E''$ of NO_3 is poorly understood. A preliminary spectrum of the vibronically-allowed $\widetilde{A}\leftarrow\widetilde{X}$ transition, coupled with ab initio calculations, shows moderate JT activity in the $\widetilde{A}$ state. Vibronic bands exhibit either static or dynamic JT distortions depending on the vibrational level of the upper $\widetilde{A}$ state. The picture of the $\widetilde{A}$ 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 $\widetilde{A}$ state by examining the hot bands of NO_3 which access previously unobserved dark levels of the $\widetilde{A}$ state.