

ROVIBRONIC INTERACTIONS IN NO₃: HISTORICAL OVERVIEW, PRESENT STATUS AND FUTURE PROSPECT OF HIGH-RESOLUTION SPECTROSCOPIC STUDIES

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The study started in 1985 with the observation and analysis of a band around 1492 cm⁻¹ by our group. Since then, more than ten and five bands were recorded, respectively, for ¹⁴NO₃ and ¹⁵NO₃ in the infrared. We have found that, although the ground vibronic state is free of any perturbations and conforms with a regular triangle structure of *D*_{3h} symmetry, the upper states of almost all the infrared bands are more or less perturbed by vibration-rotation interactions and also by rovibronic interactions with excited electronic states. Although most of the observed bands are by no means easy to analyze, they are well resolved in rotational structure, providing us with clues to assign them. Molecular constants such as rotational and l-type doubling constants allow us to estimate cubic anharmonic potential constants, some of which obviously originate from excited electronic states through vibronic interactions, and may give us a global view on NO₃ in near future.