

## HIGH-RESOLUTION PHOTODISSOCIATION SPECTROSCOPY OF $\text{N}_2\text{O}^+$

ANTHONY ROUCOU, XAVIER URBAIN, CLÉMENT LAUZIN, *Institute of Condensed Matter and Nanosciences (IMCN), Université catholique de Louvain, Louvain-la-Neuve, Belgium.*

The nitrous oxide cation ( $\text{N}_2\text{O}^+$ ) is an important intermediate in the upper atmosphere<sup>a</sup>. The photodissociation spectra of  $\text{N}_2\text{O}^+$  have been measured in the UV range using the new STARGATE instrument (Spectroscopy of Transient Anions and Radicals by Gated and Accelerated Time-of-flight Experiment) developed in UCLouvain.

This talk will present the rovibronic analysis of the  $\tilde{\text{A}}^2\Sigma^+(002) \leftarrow \tilde{\text{X}}^2\Pi(000)$ ,  $\tilde{\text{A}}^2\Sigma^+(101) \leftarrow \tilde{\text{X}}^2\Pi(000)$  and  $\tilde{\text{A}}^2\Sigma^+(003) \leftarrow \tilde{\text{X}}^2\Pi(000)$  bands measured at 550 K in the 30500-32500  $\text{cm}^{-1}$  range. A global vibronic fit has been performed including these bands, Q-branch head of overtones, combination bands and data from other studies<sup>b,c</sup>. The Renner-Teller effect involving the  $\tilde{\text{X}}^2\Pi$  and  $\tilde{\text{A}}^2\Sigma^+$  states is taken into account in the global fit procedure. The improvement of the description of the vibronic energy level will be discussed.

---

<sup>a</sup>G. Chambaud, H. Gritli, P. Rosmus, H. J. Werner, and P. J. Knowles, *Mol. Phys.* 98, 1793 (2000)

<sup>b</sup>M. Gharaibeh and D. Clouthier, *J. Chem. Phys.* 136, 044318 (2012).

<sup>c</sup>C. E. Fellows and M. Vervloet, *Chem. Phys.* 264, 203 (2001).