Abstract Submission

The abstract should be prepared according to the following instructions:

1- Page size: A4 (21 cm by 29.7 cm) – vertical orientation
2- Margins: 25 mm all around
3- Head of page:

4- Layout
   - Title: single-spaced, 14 points size, Times New Roman Font (TNR), bold;
   - Authors: single-spaced, 11-point size, TNR font;
   - Affiliation: single-spaced, 11-point size, TNR font, italic;
   - E-mail address of presenting author: single-spaced, Times New Roman, 11-points

   - Text: single-spaced, 12-point size, TNR font;
   - Abstract length: one page (max)

Keywords (max. 5, 10-point size); example: Spectroscopy, Raman shift, RMN, Luminescence, Time resolved

5- References: in square brackets; max. 5 references, single-spaced, 10-point size
Example of abstract
Spectroscopic Line Parameters in the 4ν₂ Band of NH₃ and Line Intensities in the ν₁, ν₃ and 2ν₄ Bands

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Ammonia molecule has been detected in the atmospheres of Jupiter and Saturn [1,2] and in the Earth's atmosphere [3]. It is one of the most studied molecules related to its inversion doubling, its atmospheric and astrophysical interests.

In this work, self-broadening coefficients as well as self-shift coefficients have been measured for the first time in 4ν₂ overtone of NH₃ at T = 295 K using a high-resolution Fourier transform spectrometer. The spectra were analyzed with nonlinear least-squares multi-pressure fitting procedure to eight spectra of pure NH₃. The results are discussed as function of the J and K rotational quantum numbers and the branches.

The line intensities of this band as well as those of the ν₁ and ν₃ bands lying in the same region as the 4ν₂ overtone have been retrieved using the same spectra. These data together with those of 2ν₄ band, subject of our previous work [4], allow us to derive the transition dipole moments squared for a total of about 860 lines which were found to exhibit strong J and K dependences. These moments have been also derived for 63 lines of the ΔK = ± 2, ± 3 forbidden transitions of the 2ν₄±₂ sub-band. These dependences are mainly caused by Fermi and Coriolis interactions transferring intensities between the modes forming the 3 µm region system.

The analysis of these moments allows us to derive a consistent set of line intensity parameters such as vibrational transition moments, band intensities as well as Herman-Wallis coefficients. The derived parameters are found to be in agreement with previous data. This study is a complement of line parameters in the 3 µm spectral region, which are essential for the analysis of atmospheric spectra.

Keywords: NH₃; 3 µm spectral region; line intensity; transition dipole moment; band strength.

References