

## New Analysis of the Comet–Tail ( $A^2\Pi_i \rightarrow X^2\Sigma^+$ ) System Bands in $^{12}\text{C}^{18}\text{O}^+$

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Four bands (with  $v' = 2-5$  and common  $v'' = 0$ ) of the comet–tail ( $A^2\Pi_i \rightarrow X^2\Sigma^+$ ) band system were recorded under high resolution by conventional, photographic spectroscopy and modern analysis of them was carried out. The current investigations include much greater than until now [1, 2] region of the observed  $^{12}\text{C}^{18}\text{O}^+$  molecule spectrum. In particular, the 5-0 band were recorded and studied for the first time.

Thanks to application of high resolution it was possible to record the complete set of twelve branches in all studied bands. The great precise of the measurements and use of commonly accepted theoretical model allowed us to obtain full spectroscopic characteristic of analyzed excited vibrational levels  $v' = 2-5$  of the upper  $A^2\Pi_i$  state. Especially, the values of  $A_D$ ,  $p$  and  $q$  molecular constants for the  $v' = 2, 3, 4$  and all rotational parameters for  $v' = 5$  were extracted for the first time. Otherwise, the first values of the numerous equilibrium constants, as well as RKR parameters and experimental term values were calculated. Finally, Franck–Condon factors and r–centroids for the comet–tail bands were provided.

- [1] R.K. Dhumwad, A.B. Patwardhan and V.T. Kulkarni, *J. Mol. Spectrosc.* 78 (1979) 341–343.  
 [2] B.R. Vujisić and D.S. Pešić, *J. Mol. Spectrosc.* 128 (1988) 334–349.