

Abstract Submitted  
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**Near-threshold photodetachment spectroscopy and THz spectroscopy of  $\text{NH}_2^-$**  OLGA LAKHMANSKAYA, MALCOLM SIMPSON, SIMON MURAUER, ERIC ENDRES, University of Innsbruck, VIATCHESLAV KOKOOLINE, University of Central Florida, ROLAND WESTER, University of Innsbruck —  $\text{NH}_2^-$  ions are known to be interesting species for understanding interstellar nitrogen chemistry [1]. Recent astronomical observations showed that an unidentified absorption feature at 933.973-934.009 GHz might be associated to p- $\text{NH}_2^-$  [1]. We, therefore, present findings on near-threshold photodetachment spectroscopy of the amide anion  $\text{NH}_2^-$  performed in a cold (10 K) 22-pole ion trap. The spectrum reveals step features which are associated with specific transitions between rotational levels of the ground vibrational state of  $\text{NH}_2^-$  ( $X^1A_1$  electronic state) and  $\text{NH}_2$  ( $X^2B_1$  electronic state). With this data we can significantly improve the determination of the electron affinity of amidogen  $\text{NH}_2$  and access the fundamental rotational transition of p- $\text{NH}_2^-$ . [1] C. M. Persson, M. Hajigholi, G. E. Hassel, A. O. H. Olofsson, J. H. Black, E. Herbst, H. S. P. Müller, J. Cernicharo, Wirström, M. Olberg, Å. Hjalmarson, D. C. Lis, H. M. Cuppen, M. Gerin, and K. M. Menten 2014 *Astronomy & Astrophysics*

Olga Lakhmanskaya  
Univ of Innsbruck

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