Near-threshold photodetachment spectroscopy and THz spectroscopy of NH$_2$ OLGA LAKHMANSKAYA, MALCOLM SIMPSON, SIMON MURAUE, ERIC ENDRES, University of Innsbruck, VIATCHESLV KOKOOULINE, University of Central Florida, ROLAND WESTER, University of Innsbruck — 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-NH$_2^-$ [1]. We, therefore, present findings on near-threshold photodetachment spectroscopy of the amide anion 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 NH$_2^-$ ($X^1A_1$ electronic state) and NH$_2$ ($X^2B_1$ electronic state). With this data we can significantly improve the determination of the electron affinity of amidogen NH$_2$ and access the fundamental rotational transition of p-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. Olber, Á. Hjalmarson, D. C. Lis, H. M. Cuppen, M. Gerin, and K. M. Menten 2014 Astronomy & Astrophysics

Olga Lakhmanskaya
Univ of Innsbruck

Date submitted: 24 Feb 2017
Electronic form version 1.4