IR SPECTROSCOPY OF GLYCINE-WATER CLUSTERS IN HELIUM NANODROPLETS

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We have studied water induced zwitterionization of glycine using helium nanodroplets isolation infrared spectroscopy. In the past, this process has been studied using matrix isolation infrared spectroscopy.[1] However, spectroscopic fingerprint for zwitterion formation could not be assigned, unambiguously. This triggered various theoretical studies for predicting the energetic stabilization and vibrational fingerprint of zwitterionic glycine-$(H_2O)_n$ (n=1-10) clusters.[2] In this study, we have exploited the barrier free diffusion property of helium droplets to stepwise add water molecules to one molecule of glycine. Herein we present the infrared spectra of glycine-$(H_2O)_n$ clusters recorded in the range of 1000-1850 cm^{-1}, using the free electron lasers (FELs) at FELIX laboratory in Nijmegen.

References: **1)** R. Ramaekers, J. Pajak, B. Lambie and G. Maes, *J. Chem. Phys.*, **120**, 4182 (2004). **2)** R. Perez de Tudela and D. Marx, *J. Phys. Chem. Lett.*, **7**, 5137 (2016).

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