



Carbamic acid produced by UV/EUV photon irradiation of interstellar ice analogues

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Carbamic acid (NH_2COOH) is the simplest amino acid, simpler than the simplest proteinaceous amino acid glycine. Previous experiments showed that carbamic acid is formed in a stable zwitterionic structure ($\text{NH}_3^+\text{COO}^-$) when H_2O , $^{12}\text{CO}_2/^{13}\text{CO}_2$ and NH_3 ice mixtures were subjected to 1 MeV proton irradiation.

In this work, we employed ultraviolet (UV)/extreme ultraviolet (EUV) photons provided by a synchrotron radiation in the 4-20 eV range to irradiate H_2O , $^{12}\text{CO}_2/^{13}\text{CO}_2$ and NH_3 ice mixtures. We compare the results of mass spectra as well as infrared spectra and found that carbamic acid is formed around 250K in a neutral structure, we also identified the IR absorption features of HNCO , OCN^- , CO , NH_4^+ and NH_2CHO at low temperature during UV/EUV photons irradiation process.