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Threshold Photoelectron Spectra of HNCO and the NCO radical

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Isocyanic acid HNCO, a small molecule of great importance for the chemistry in the interstellar space, was investigated in a threshold photoelectron photoion coincidence (TPEPICO) experiment at the DESIRS vacuum ultraviolet (VUV) beamline at the SOLEIL synchrotron. Due to the high resolution of the DELICIOUS III experiment, the ionization energies of the first electronic states of HNCO were assigned accurately. A detailed analysis of the corresponding vibrational structures in the threshold photoelectron spectrum (TPES) is also presented.
In addition, preliminary data on the mass-selected TPES of the isocyanate radical NCO are shown. The radical, which is relevant in combustion processes, was generated by flash pyrolysis of chloro-isocyanate and investigated using the iPEPICO setup at the X04DB VUV Beamline at the Swiss Light Source.

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