

Scientific Report

Experiments were performed at CIRIL-GANIL in collaboration with the CIRIL group, the Aarhus group, the KVI group and the Stockholm group in the period from October 3 to October 11. The local research group includes: Dr. J. Rangama, Dr. A. Cassimi, Dr. B. Manil, Prof. B. Huber.

We have studied aggregation of small biomolecular molecules (different nucleic bases, amino acids), and investigated formation of neutral biomolecular clusters in the gas phase. In particular, we have studied production of clusters of hydrogen-bonded base pairs (Cytosine-Uracil) and larger clusters of both Uracil and Cytosine to analyse the process of cluster growth. The data analysis is not yet completed but we expect to get information on fragmentation induced by collisions with Xe^{20+} and determine the associated kinetic energy releases. These data may deliver information on the cluster geometry and on the charge mobility in larger biomolecules. The results will be published in a joint publication as soon as the data analysis is completed.

The clusters were formed within a cluster aggregation source where the biomolecular species were evaporated in two separated ovens at rather low temperatures. When entering a liquid nitrogen-cooled He-atmosphere ($\sim 1\text{-}10$ mbar), condensation occurred and mixed clusters were formed. The cluster distribution was analysed by TOF-mass spectrometry after ionisation by ion collisions.

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Approval by the host:

As described above, the proposed experiments have been performed at the ARIBE facility in Caen from October 3rd to October 11th. The analysis of the acquired data is still ongoing.

Herewith I approve as host of this STSM the above report.

Bernd A. Huber