



Università degli Studi di Torino

Dipartimento di Chimica

Via P. Giuria, 7 10125 Torino Italy



Seminar

Prof.sa Cristina Puzzarini

Dipartimento di Chimica "Giacomo Ciamician" - Università di Bologna



Prebiotic molecules in interstellar space: rotational spectroscopy and quantum chemistry

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Aula Avogadro ore 11

Via Pietro Giuria 7, 10125 Torino

Abstract

One of the most important open issues in astrochemistry and astrobiology is the detection in space of complex organic molecules, in particular those having a strong prebiotic role (i.e., related to the formation of biomolecule building blocks), and the identification of the chemical routes for their production. By means of selected examples, the role of rotational spectroscopy and quantum chemistry will be pointed out. Since the compounds containing the $-CN-$ moiety are considered important prebiotic molecules as potential precursors of amino acids, the exemplificative study of C-cyanomethanimine will be presented. Another important prebiotic molecules is formamide, which has the ability to act as a precursor in the abiotic amino acid synthesis and perhaps also in that of nucleic acid bases. The investigation of its formation route will be addressed.

Prof. Piero Ugliengo
Prof. Salvatore Coluccia

Prof. Marco Vincenti (Direttore
Dipartimento di Chimica)