



Séminaire du Laboratoire de l'Accélérateur Linéaire

Jean Paul Ebran - Elias Khan

CEA and IPNO

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The atomic nuclei : from the quantum liquid to the molecule

Atomic nuclei are usually described as a quantum liquid, explaining fission properties for example. But in some cases, light nuclei behave like femtometric molecules composed of clusters of protons and neutrons like in the Hoyle state, crucial for stellar nucleosynthesis. The detailed mechanism of clustering in nuclei has not yet been fully understood. We will show that conditions for cluster formation lie in the properties of the confining nuclear potential : its depth drives the localisation of nucleons in the nucleus. This effect leads to consider the molecular phase of atomic nuclei as a transitional phenomenon between crystalline and quantum liquid phases of fermionic systems. An analogous system is predicted in the crust of neutron stars.

Salle 101 du LAL - Bât. 200, Orsay

Thé et café seront servis 1/4 h avant le séminaire



Responsable : N.Delerue (seminaires@lal.in2p3.fr) - <http://www.lal.in2p3.fr>