



ID de Contribution: 176

Type: **Talk**

Fission properties of r -process nuclei predicted with the BCPM energy density functional

jeudi 23 mars 2023 14:30 (30 minutes)

The rapid neutron capture process, or r process, is responsible for the production of about half of the elements heavier than iron found in nature, including the heaviest uranium and thorium. During the r process, several thousands of neutron-rich nuclei are synthesized in few seconds, powering an electromagnetic transient known as kilonova. Since most of such exotic nuclei have never been experimentally observed due to their exceedingly short half-lives, the estimation of abundances and kilonova light curves must rely upon the theoretical predictions of nuclear properties. During this talk, I will present calculations of nuclear properties obtained with the Barcelona-Catania-Paris-Madrid energy density functional (EDF) and their impact on the r process. In particular, I will focus on the nucleosynthesis of translead elements in the merger of two neutron stars, and the role that nuclear masses, beta decays and fission play in shaping the r -process abundances and kilonova light curves.

Auteur principal: GIULIANI, Samuel Andrea (Universidad Autónoma de Madrid)

Orateur: GIULIANI, Samuel Andrea (Universidad Autónoma de Madrid)

Classification de Session: Thursday 14:00-16:00

Classification de thématique: Dynamics