Contribution ID: **78** Type: **Oral**

Theoretical study of superheavy nuclei with the Dinuclear System model

This research investigates fusion reactions, focusing on the complex dynamics of nuclear fusion below and above the Coulomb barrier, and the formation of superheavy elements. Using the Dinuclear System model, the study aims to understand how multi-neutron transfer channels impact fusion cross-sections and contribute to the identification of tetra-neutron states in weakly-bound neutron-rich systems like 14Be and 16Be. Additionally, it explores the production of superheavy nuclei through fusion reactions, considering internal degrees of freedom such as vibrations and deformations, which influence fusion dynamics and stability against fission. A coupled differential equation approach is used to compute transmission coefficients and cross-sections based on phenomenological potentials or folding density techniques. This research advances theoretical insights into fusion reactions and superheavy element formation, potentially offering new perspectives in nuclear physics and fusion energy applications

Notes

Primary author: Mr NKUNA, Learn (UNISA)

Presenter: Mr NKUNA, Learn (UNISA)