



ID de Contribution: 22

Type: **Regular talk**

## Comparison of heavy ion transport simulations for mean-field dynamics

*mardi 23 novembre 2021 11:40 (25 minutes)*

Within the transport model evaluation project (TMEP collaboration) of simulations for heavy-ion collisions, the mean-field dynamics of local density fluctuations is examined in several transport models widely employed to describe nuclear reactions.

The results of transport codes belonging to two families (BUU-like and QMD-like) are compared among each other and to exact calculations. For BUU-like codes, employing the test particle method, the results depend on the combination of the number of test particles and the spread of the profile functions that weight integration over space. These parameters can be properly adapted to give a good reproduction of analytical results of the mean-field dynamics.

QMD-like codes, using molecular dynamics methods, are characterized by large damping effects, attributable to the fluctuations inherent in their phase-space representation. Moreover, for a given nuclear effective interaction, they generally lead to slower mean-field response, as compared to BUU-like codes [1].

The significance of these results for the description of heavy-ion collisions is discussed. In particular, a proper reproduction of the mean-field dynamics is instrumental to extract reliable information on nuclear EoS features from the study of reaction mechanisms at Fermi energies.

[1] M.Colonna et al., Phys. Rev. C 104, 024603 (2021).

**Auteur principal:** Dr COLONNA, Maria (INFN-LNS Catania, Italy)

**Orateur:** Dr COLONNA, Maria (INFN-LNS Catania, Italy)

**Classification de Session:** Nuclear Dynamics : from fission to multifragmentation

**Classification de thématique:** Nuclear Dynamics : from fission to multifragmentation: Comparison of heavy ion transport simulations for mean-field dynamics