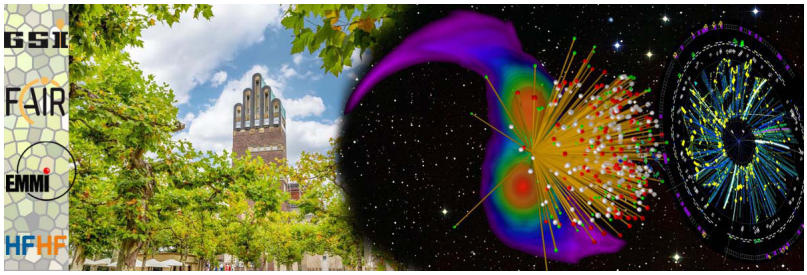

Contribution ID: **22** Type: **Oral**

Dynamics of cluster production in heavy-ion collisions

Tuesday, 19 September 2023 11:45 (20 minutes)

Collisions of heavy ions are the best tools at our disposal to probe nuclear matter. It allows us to reach extreme densities, giving us the possibility to constraint transport models. In particular, at incident energies around 100 MeV/nucleon, a participant zone is formed by a part of projectile and target nuclei.

The aim of this work is to characterize the participant zone. We will focus on the characteristics of cluster production (chemical composition, energy, angular distributions, multiplicities, and their correlations). These analyses reveal the neutron richness of the emitted particles, and their yield gives an insight on the mixing of target and projectile contributions. Furthermore, a systematic analysis of the transverse energy of the emitted clusters shows a link between incident energy, compression energy, and density during the reaction.

For this study, INDRA datasets for 124,129Xe+112,124Sn collisions at 100 AMeV have been used to study the effect of neutron richness on the production of light particles. The kinematic study was carried out using the datasets for 129Xe+124Sn collisions at 65, 80, 100 and 150 AMeV, and using the data set of 136Xe+124Sn collision at 32 and 45 AMeV. Densities of up to 1.7 of saturation density were deduced in agreement with previous pBUU calculations. The results of this analysis were compared to the semi-classical event generator ELIE.

Primary author: GÉNARD, Tom (GANIL)

Presenter: GÉNARD, Tom (GANIL)

Session Classification: Constraints from heavy-ion collisions at Fermi energies

Track Classification: Constraints from heavy-ion collisions at Fermi energies