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Exploring nucleon nucleon collisions and clusterization within the AMD model by means of a bayesian analysis on a FAZIA dataset

The in-medium nucleon nucleon cross section and the cluster production are key ingredients in transport models for heavy ion collisions. A bayesian analysis aimed at tuning two parameters of the AMD model (coupled to a stastical afterburner) related to these topics has been performed in order to improve the global agreement between data and simulation. Experimental data for the system $^{20}\text{Ne}+^{12}\text{C}$ at 50A MeV collected with four blocks of the FAZIA setup have been compared with simulated data built on a grid of values of the investigated parameters. A large dataset of observables has been included in the analysis. The prior distribution was chosen on the basis of the existing literature.

Indications towards a higher average number of collisions with respect to the standard value already adopted for previous studies based on FAZIA data have been obtained as outcome of the analysis.

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