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Experimental study of precisely selected evaporation chains in the decay of ^{25}Mg . Results and perspective with light radioactive beams.

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Also in view of the availability of Radioactive Ion Beams at energies well above the Coulomb barrier, we present some results from an experiment on the fusion-evaporation reaction $^{12}\text{C}+^{13}\text{C}$ at 95 MeV bombarding energy, performed with the GARFIELD+Ring Counter apparatus located at the INFN Laboratori Nazionali di Legnaro. We investigated the deexcitation of ^{25}Mg compound nuclei aiming both at a further stringent test of the statistical description of nuclear decay and at a direct comparison with data on ^{24}Mg , previously measured in fusion reactions with the same apparatus. The key aspect of this study is the measurement of complete fusion events which allow to select and investigate the various decay chains and to evidence possible cluster or correlation effects for nuclear systems above the separation energies. This can be of particular interest on the way to experiments with light heavy-ion beams from 5 to 15 MeV/u, as those obtainable with ISOL facilities using light atoms carbide as production targets.

Selected session

Nuclear Structure, Spectroscopy and Dynamics

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