



Contribution ID: 6

Type: Oral

Study of fusion mechanisms induced by weakly bound nuclei

Thursday, 16 May 2019 16:10 (20 minutes)

The study of fusion reaction for weakly bound nuclei at sub-barrier energies is of large interest, especially those studies of the breakup and transfer effects in weakly bound nuclei. Due to the low breakup threshold, the fusion reactions induced by weakly bound nuclei are complicated processes including complete fusion and incomplete fusion. Also, transfer processes, including the one-neutron stripping, followed by the breakup of the projectile can occur. In all the above reaction channels, the same products can be produced by different mechanisms. So it is fundamental to experimentally discriminate the different reaction channels to explore the various reaction mechanisms.

In this report we will introduce the study of suppression factor of complete fusion and how to use gamma rays in coincidence with the light charged to discriminate the different reaction channels. On basis of GALILEO array which is a high-efficiency gamma-ray spectrometer coupled with the Si-ball EUCLIDE for the detection of charged particles at Legnaro National Laboratory (LNL) in Italy, the experiments of $6\text{Li}+89\text{Y}$ and $6\text{Li}+209\text{Bi}$ have been performed. It is indicated that the different reaction mechanisms can be clearly studied. This facility can be used well to explore the fusion reaction mechanisms induced by weakly bound nuclei.

Primary authors: Dr ZHANG, Gaolong (Beihang University); Dr ZHANG, Guangxin (Beihang University); Prof. ZHANG, Huanqiao (China Institute of Atomic Energy); Dr HU, Shipeng (Shenzhen)

Co-authors: Dr GOASDUFF, Alain (University of Padova); Dr MENGONI, Daniele (University of Padova); Dr BAZZACCO, Dino (University of Padova); Dr TESTOV, Dmitry (University of Padova); Dr VALIENTE-DOBON, Javier (Legnaro National Laboratory); Dr QU, Weiwei (Soochow University)

Presenter: Dr ZHANG, Gaolong (Beihang University)

Session Classification: Session XXI (Parallel Session)