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Highly efficient 4Pi light charged particle segmented detector EUCLIDES for in-beam gamma-spectroscopy at GALILEO array

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One of the key-feature of the modern γ -ray spectrometers, such as GALILEO at LNL Legnaro is its capability to identify and to study exotic excited states produced at very low cross section. To improve the selectivity of GALILEO the EUCLIDES Si-ball ancillary detector was renewed. Here it is reported the performance of EUCLIDES in the latest experiment using $^{12}\text{C}+^{24}\text{Mg}$ reaction: the selectivity; the efficiency; an event-by-event kinematic reconstruction of the trajectory of the recoiling nuclei. The devoted configuration of EUCLIDES can be coupled to the plunger device allowing, therefore, to benefit its advantageous in the experiment using Recoil Distance Doppler-Shift method.

Primary author: TESTOV, Dmitry (PD)

Co-authors: GOASDUFF, Alain (LNL); BOSO, Alberto (PD); GRASSI, Alessandro (PI); BOIANO, Ciro (MI); NAPOLI, Daniel Ricardo (LNL); MENGONI, Daniele (PD); ROSSO, Davide (LNL); BAZZACCO, Dino (PD); RECCHIA, Francesco (PD); CALAON, Fulvio (PD); DE ANGELIS, Giacomo (LNL); JAWORSKI, Grzegorz (LNL); VALIENTE DOBON, Jose' Javier (LNL); Mrs HADYNSKA-KLEK, Katarzyna (University of Warsaw); RAMINA, Loris (PD); SICILIANO, Marco (LNL); COCCONI, Paolo (LNL); Mr JOHN, Philipp Rudolf (PD); ZATTI, Piergiuseppe (PD); ISOCRATE, Roberto (PD); MENEGAZZO, Roberto (PD); Prof. LUNARDI, Santo (Dipartimento di fisica, Universita' di Padova)

Presenter: TESTOV, Dmitry (PD)

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