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## A study on 4 reactions forming the $^{46}\text{Ti}^*$

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The study of pre-equilibrium emitted particles is a useful tool to examine nuclear clustering; to study how possible cluster structures affect nuclear reactions, the NUCL-EX collaboration (INFN, Italy) is carrying out an extensive research campaign on pre-equilibrium emission of light charged particles from hot nuclei [1]. In this framework, the reactions  $^{16}\text{O} + ^{30}\text{Si}$ ,  $^{18}\text{O} + ^{28}\text{Si}$ ,  $^{19}\text{F} + ^{27}\text{Al}$  at 7 MeV/u and  $^{16}\text{O} + ^{30}\text{Si}$  at 8 MeV/u have been measured at the GARFIELD+RCO array [2] in Legnaro National Laboratories.

After a general introduction on the experimental campaign, this contribution will focus on the analysis results obtained so far; effects related to the entrance channel and to the colliding ions cluster nature are emphasized through differences between the theoretical predictions and the experimental data.

[1] L. Morelli et al., Journ. of Phys. G 41 (2014) 075107; L. Morelli et al., Journ. of Phys. G 41 (2014) 075108; D. Fabris et al., PoS (X LASNPA), 2013, p. 061.D; V.L. Kravchuk, et al. EPJ WoCs, 2 (2010) 10006; O. V. Fotina et al., Int. Journ. Mod. Phys. E 19 (2010) 1134.

[2] F. Gramegna et al., Proc. of IEEE Nucl. Symposium, 2004, Roma, Italy, 0-7803-8701-5/04/; M. Bruno et al., M. Eur. Phys. Jour. A 49 (2013) 128.

### Selected session

Nuclear Structure and Dynamics

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