

## **Results on the CROSSTEST@LNL experiment for NArCoS: the Cross-talk problem**

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The advent of new facilities for radioactive ion beams mainly rich in neutrons, like SPES @ LNL, FRAISE @ LNS and FAIR @ GSI only to give some examples, imposes the joint detection and discrimination of neutrons and charged particles in Heavy radioactive Ion collisions, with high angular and energy resolution. The construction of novel detection systems suitable for this experimental task is both a scientific and a technological challenge.

The contribution will illustrate the results of recent tests performed on a recently introduced plastic scintillator material, the EJ276, both in the "green-shifted" and in the base version, coupled with SiPMs. The contribution will also present results on the CROSSTEST experiment performed at LNL-INFN in November 2023. The goal of the experiment was the study of the crosstalk among the elementary cells of NArCoS (Neutron Array for Correlation Studies) at low neutron energy of 4.5 MeV, a novel detector for neutrons and charged particles with high energy and angular resolution, based on a 3D cluster of the EJ276 scintillation units. This project is also funded by the Italian PRIN ANCHISE Project (2020H8YFRE) and the CHIRONE experiment of the INFN.