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Latest results on a new correlator for neutrons and charged particles with high angular and energy resolution

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With the advent of new facilities for radioactive ion beams mainly rich in neutrons, SPES @ LNL, FRAISE @ LNS and FAIR @ GSI only to give some examples, the detection of neutrons among charged particles in Heavy radioactive Ion collisions became mandatory, with high angular and energy resolutions, and the construction of new detection systems suitable for this experimental purpose becomes both a scientific and a technological challenge.

The contribution will illustrate the results of recent tests performed on new plastic scintillator material, the EJ276, both in the "green-shifted" and in the ordinary version, coupled with PMT and SiPM. These experimental work is aimed at the construction of a prototype of a detector for neutrons and charged particles, based on a 3D cluster of scintillation units, with the technical goal of high energy and angular resolution. Recently the project has received new lymph and strength thanks to the funding of the recent PRIN project, ANCHISE which is focused precisely on the development of a first detection prototype.

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