

# Characterization of new scintillator detectors for high-energy gamma-ray measurements

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Large-volume scintillator detectors are used in nuclear physics experiments with high-energy gamma rays. In this paper, I'm presenting the R&D work performed in Milano on scintillators and their employment in collective motion experiments. There are two main activities in Milan: the first one regards the CLYC scintillators, focused on their fast neutron efficiency, whereas the second is on the possibility of replacing photomultiplier tubes with silicon photomultipliers to enhance scintillator performances in a magnetic field and providing position sensitivity. In nuclear physics experiments where the aim is the study of the collective motion in nuclei, scintillators are the best candidates. This paper presents a few physics cases, such as the isospin mixing and the pygmy dipole resonance, and the preliminary results of two experiments performed in Krakow. The first aims to measure the pygmy dipole resonance in nickel isotopes, and the second to detect the gamma-ray decay of the giant quadrupole resonance in  $^{120}\text{Sn}$ .

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