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Characterization of BEGe Detectors in the HADES Underground Laboratory

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A complete characterization of new Germanium detectors of BEGe type is being carried out in the HADES underground laboratory, located 225 m below ground in Mol (Belgium). The aim is to determine all the important operational parameters, like the detector active volume, the dead layer thickness and uniformity over the surface and to test the performance of the diodes in terms of energy resolution and quality of pulse shape discrimination.
Authomatized acquisition systems, both analog (MCA) and digital (FADC), will be run in parallel. Two types of mechanical set-ups have been designed for the tests. One type consists of a simple measurement table, with a lead shield surrounding the detector, suitable for measurements with a test source placed in fixed positions (collimated or uncollimated). A second one is provided with a movable, motor controlled harm, which allows performing a full area scanning of the diode with a collimated source.
This work aims at describing the test procedure and the measurement setups, as well as the preliminary results obtained and the potential applications which can be derived.

for the collaboration

GERDA collaboration

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