

Characterization of BEGe detectors in the HADES underground laboratory

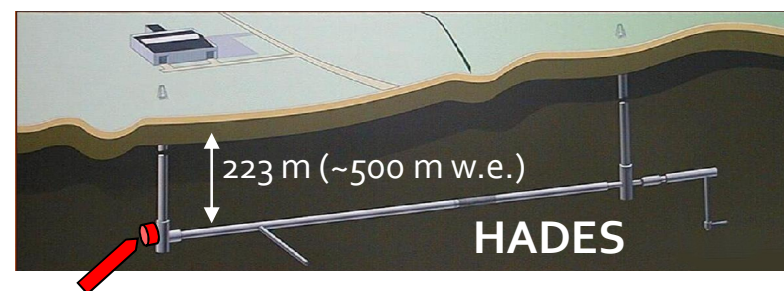
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Newly produced **Broad Energy Germanium detectors (BEGe)**, enriched in the isotope ^{76}Ge , are being characterized in the frame of the **GERDA** experiment.

AIM: determination of all the important operational parameters.

- Energy resolution at operational high voltage;
- High voltage scan up to the operational value;
- Detector stability in time;
- Dead layer thickness and uniformity;
- Active volume;
- Quality of pulse shape discrimination.



HEROICA: Hades Experimental Research Of Intrinsic Crystal Appliances

The characterization is being carried out at the **HADES** underground laboratory, in Mol (Belgium) in order to **minimize diodes exposure to cosmic radiation**. The **~500 m w.e.** overburden guarantees a muon flux reduction of order 10^4 with respect to the ground level.

A test facility for the fast screening of the BEGe detectors has been developed in the course of the first half of 2012.

Two different types of mechanical set-ups have been developed:

1. Two **simple measurement stands**, provided with a lead and copper shielding, allowing the positioning of a radioactive source at the chosen fixed position; this is used for all those **measurements which do not require collimated sources**.
2. Three copies of an **automated scanning set-up** provided with a movable, motor controlled arm, for the **automated full area scan of the diode using a ^{241}Am collimated source**; this is used to study the **uniformity of the dead layer** along the whole detector surface and the variation of the **pulse form in different active regions**.

