

Low Radioactivity Techniques (LRT2024)



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Environment background at HADES

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The HADES underground research facility, located in a clay formation at a depth of 225 meters, is operated by Euridice. The ultralow background gamma-ray spectrometry laboratory is operated by the Joint Research Centre of the European Commission (JRC) for radioactivity measurements, made possible by a significant reduction in muon flux (secondary cosmic rays) by a factor of 5000 compared to above ground. Eleven specially designed high-purity germanium detectors are used for sub-mBq measurements. There is also a scanning station through which the homogeneity of dead layers in HPGe detectors can be studied. Among the many topics addressed in HADES, priority is given to the characterization of reference materials, tracing processes in nature (such as ocean currents, uptake in the food chain, and anthropogenic activities related to nuclear operations), and quality control. Basic physics experiments (e.g., the search for neutrinoless double beta decay and other rare processes) are also strongly supported through assays for material selection, storage of radiopure materials, detector testing, studies of rare nuclear decays, and methods for low-level applications. The status of the laboratory and selected aspects of the successful operation of the first SAGe and BEGe detectors in the world will be presented.

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