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Measurement of the cosmogenic activation of germanium detectors in EDELWEISS-III

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Activation of germanium crystals due to cosmic rays becomes a serious hazard for experiments searching for rare events with germanium detectors.
Cosmic ray induced activation of the detector components and, even more importantly, of the germanium itself during production, transportation and storage at the Earth's surface, might result in the production of radioactive isotopes with long half-lives, with a possible impact on the expected background. We present a measurement of the cosmogenic activation in the cryogenic germanium detectors of the EDELWEISS III direct dark matter search experiment. The decay rates measured in detectors with different exposures to cosmic rays above ground are converted into production rates of different isotopes. They are compared to model predictions present in literature and to estimates calculated with the ACTIVIA code.

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