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EDELWEISS-2 Dark Matter Search: recent results with new detectors

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The existence of dark matter (DM) has strong support today while its nature remains one of the big science quests. EDELWEISS-2 is a direct DM search experiment using cryogenic Germanium bolometers. The most promising DM candidate, a so-called weakly interacting massive particle, WIMP, is expected to scatter off the target nuclei thus depositing a tiny energy in the detectors. A powerful event selection and good background knowledge are of crucial importance in this case. The experiment is situated in the French-Italian Fréjus tunnel, in the Modane underground laboratory LSM with a shielding of 4800m.w.e. against cosmic rays. Since the end of 2007, EDELWEISS is taking data. The status of the experiment and the latest results will be presented. Special emphasis will be given on the performance of recently developed detectors. These detectors show a significantly improved beta/gamma rejection power and provide a promising base for next generation direct DM searches. In addition, the identification of muon-induced background events and special measurements of muon-induced neutrons will be discussed.

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