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Background simulations of the XENON100 dark matter detector[1]
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The XENON100 detector is a dual-phase xenon time projection chamber (XeTPC) used to search for dark matter in the form of weakly interacting massive particles (WIMPs) by measuring simultaneously the scintillation and ionization signals produced by nuclear recoils. The 65 kg XeTPC is instrumented by 178 PMTs and is surrounded by a 85 kg LXe active veto with 64 PMTs. All materials and components used to build the detector (PMTs, PMT bases, stainless steel, PTFE, copper, etc) have been screened with high purity germanium detectors operating at the Gran Sasso underground laboratory. Special attention has been paid to the choice of construction materials. Using the measured radioactivity as input to the Monte Carlo, we have simulated the response of the XENON100 detector to obtain the expected gamma and neutron backgrounds, which largely determine the sensivity reach of the experiment.

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