Title: **Expected background for the XENON100 Experiment**

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Abstract
For any dark matter detection experiment it is crucial to know the sources of gamma and neutron backgrounds. The dominant fraction comes from natural radioactive contamination of detector and shield materials. Neutrons, in particular, are very dangerous, since their nuclear recoils can not be distinguished from those produced by the WIMP elastic scatterings off target nuclei. We are studying the background of the XENON100 experiment at the Gran Sasso laboratory by screening all used materials in order to obtain their natural radioactivity. This allows us to predict the XENON100 background by performing GEANT4 simulations of a detailed detector geometry.