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Shield design for the XENON1T experiment at LSM

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The direct search for dark matter experiment, XENON100, using liquid xenon has been in the process of taking data since January 2010 and will continue to do so for another year to reach a never yet achieved sensitivity on the WIMP cross section and ultimately, maybe detect a WIMP.
In addition, the experiment is already being pushed towards its next phase, XENON1T, which will be much larger with a fiducial volume of about 1 ton of liquid xenon. Reducing the background, it would be a hundred times more sensitive.
While the previous phases were located at the Laboratori Nazionali del Gran Sasso (LNGS), in Italy, the location of XENON1T is still uncertain. One of the considered option is to put it in the Laboratoire Souterrain de Modane (LSM), in France.
The LSM site and its different level of gamma, neutron and muon background with an emphasis on the muon induced neutrons coming from the environmental rocks, have been investigated.
Considering the available space at LSM and the final background level necessary for a dark matter search, an efficient and optimal shielding design has been established.
All the results of these studies will be presented in this poster.

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