



Contribution ID: 79

Type: Oral Presentation

Cosmogenic background and its consequences for rare event searches with germanium

Friday, June 17, 2022 9:40 AM (20 minutes)

When located on surface, rare event searches face various background sources. While most of them can be reduced by different shielding approaches, cosmogenic radiation is high enough in energy to still penetrate the experiments. Therefore, the only feasible solution remains to locate experiments deep underground. In my talk I will give an overview how germanium-based experiments handle this background. By showing studies from the MAJORANA DEMONSTRATOR data, I will illustrate which measures were taken to enable low-background searches for neutrino less double beta decay and other beyond standard model particles, even before the experiment data taking started. I will also show how the remaining in-situ cosmogenic background can be tagged and used to validate the results from simulations. By using delayed decay signatures, we were able to show how the muon-induced neutron flux contributes to remaining background deep underground. At the end I will give an overview on studies for the next generation effort LEGEND which aims reduce the remaining cosmogenic background component further.

Primary author: MASSARCZYK, Ralph

Presenter: MASSARCZYK, Ralph

Session Classification: LRT 2022 - presentations

Track Classification: Cosmogenic Activation of Materials