



Poster session 4 – Friday 8 July

P4.059 **Background model for the MAJORANA demonstrator**

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The Majorana Collaboration is constructing a system containing 44 kg of HPGe detectors to demonstrate the feasibility and potential of a future tonne-scale experiment capable of probing the neutrino mass scale in the inverted-hierarchy region. To realize this, a major goal of the Majorana Demonstrator is to demonstrate a path forward to achieving a background rate at or below 1 cnt/(ROI-t-y) in the 4 keV region of interest around the Q-value at 2039 keV. This goal is pursued through a combination of a significant reduction of radioactive impurities in construction materials with analytical methods for background rejection, for example using powerful pulse shape analysis techniques profiting from the p-type point contact HPGe detectors technology. The effectiveness of these methods is assessed using simulations of the different background components whose purity levels are constrained from radioassay measurements. Preliminary background results obtained during the engineering runs of the Demonstrator will be presented in this poster.