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## **Towards the neutrinoless double-beta decay study with SNO+: radioactive background characterization with SNO+ scintillator data**

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Neutrinoless double beta decay is a process that could give very strong evidence about the majorana nature of neutrinos. SNO+ (Sudbury Neutrino Observatory) will begin its search in the Fall of 2025, where it will add Tellurium into the scintillator. This analysis comes right before adding the Tellurium. It aims to study and identify the all the events in the region of interest, which are possible backgrounds, and pave the way for an unambiguous measurement of the neutrinoless double beta decay. Firstly, this analysis identifies a clean period of data through the study of Bismuth activity. Then, to that period of data, it applies cuts to background events, such as muons, coincident events, events from Pile up or from the neck. To each cut, it evaluates the sacrifice on signal events with Monte Carlo simulations. After each cut, it was checked that all the remaining events were uniformly distributed.

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