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Modelling the Leaching Rate for 222Rn daughters in the SNO+ Detector

Wednesday 18 June 2014 19:00 (2 minutes)

SNO+ is a scintillator based neutrino experiment located 2 km deep underground at SNOLAB in Sudbury, Ontario. Looking for rare events requires very stringent background limits and one of the sources originates form 222Rn daughters implanted into the inner surface of the acrylic vessel, holding first ultra-pure water and then organic liquid scintillator - LAB (Linear Alkyl Benzene). 210Pb, 210Bi, and 210Po can leach into the detector volume, therefore it is important to study the leaching rate mechanism and its dependence on factors such as temperature, medium and initial contamination. Several benchtop measurements were performed at Laurentian University. This poster will discuss a model based on the diffusion physics that can be used to fit the data and estimate expected background rates from this source for the SNO+ experiment.

Author: KHAGHANI, Pouya

Presenter: KHAGHANI, Pouya

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