## Abstract Submitted for the APR21 Meeting of The American Physical Society

Charcoal-based Radon Reduction for Rare Event Detectors<sup>1</sup> MARIS ARTHURS, DONGQING HUANG, CHAMINDU AMARASINGHE, University of Michigan, ERIC MILLER, SLAC National Accelerator Laboratory, WOLFGANG LORENZON, University of Michigan — Radon and its daughters constitute the most significant background in many rare event searches, since they are continuously re-supplied from detector materials. The principle challenge for radon reduction of multi-tonne noble-liquid detector systems using charcoal-based systems is the intrinsic radon activity of the charcoal adsorbent itself. In this presentation, we will discuss radon dynamics in vacuum swing adsorption systems, and show that it appears possible to build effective radon mitigation systems, if adsorbents with about three times lower intrinsic radon activity than in currently available activated charcoals are available.

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