Abstract Submitted
for the TSS21 Meeting of
The American Physical Society

Ar42/K42 Decay Backgrounds in Liquid-Argon-based Rare Event Searches SAGAR POUDEL, University of Houston, GADMC (THE GLOBAL ARGON DARK MATTER COLLABORATION) COLLABORATION — Ar42/K42 decays can be a possible source of backgrounds in rare event searches with liquid argon detectors. In this talk, I will present various Monte Carlo-based studies I carried out to study and estimate the backgrounds from Ar-42/K-42 decays using DarkSide-50 data. I will summarize the techniques that have been used to measure the specific radioactivity of Ar42/K42 in liquid argon. I will also talk about the possible implications of Ar42/K-42 backgrounds in next-generation liquid-argon-based detectors employing multiple tons of liquid argon.

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Date submitted: 15 Mar 2021 Electronic form version 1.4