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Stringed Planar-detectors for Investigation of Rare Event Physics WENZHAO WEI, DONGMING MEI, CHAO ZHANG, The University of South Dakota, CUBED COLLABORATION — In the detection of rare event physics with HPGe detectors, conventional P-type Point Contact (PPC) or coaxial detectors have no capability of discriminating electron/nuclear recoils. The CDMS-type bolometers, which possess great electron/nuclear recoils discrimination, must be operated in milli-kelvin temperature range with diffusion refrigerator at high price. Alternatively, a new idea of using great granularity and plasma time difference in pulse shape to discriminate nuclear recoils from electronic recoils with conventional germanium detectors is discussed in this paper. Stringed planar germanium detectors have been designed in a Geant4-based Monte Carlo simulation in which radiogenic backgrounds from 60 Co, 40 K, 238 U, 232 Th, and (alpha,n) neutrons have been studied. We show the anticipated sensitivity of this new detector array for detecting rare event physics including neutrinoless double-beta decay.

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