

Abstract Submitted
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Fabrication and Characterization of Mini-PPC HPGe Detector Using Crystals Grown at USD¹ KYLER KOOI, JING LIU, DONGMING MEI, WENZHAO WEI, RAJENDRA PANTH, HAO MEI, University of South Dakota, PIRE-GEMADARC COLLABORATION — A mini-PPC high purity germanium (HPGe) detector with amorphous germanium point contact has been made for the first time at USD. HPGe detectors are widely used in dark matter and neutrino experiments such as CDEX, TEXONO, CoGeNT, COHERENT, GERDA, Majorana, etc. In order to understand and improve the performance of HPGe detectors at various environmental and system configurations in a convenient and economic way, we are in the process of fabricating mini-PPC from HPGe that has been purified with zone refining and grown into HPGe crystals at USD. This way we avoid risking expensive commercial detectors in unconventional operating environments. We take advantage of resources, facilities, and equipment at both USD and Lawrence-Berkeley National Lab. In this presentation, we will describe the process of the fabrication and performance of the mini-PPC HPGe detector, as well as how performance can be improved in the future.

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