Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Characterization of High-Purity Germanium Detectors with Amorphous Germanium Contacts in Cryogenic Liquids[1] RAJENDRA PANTH, JING LIU, University of South Dakota, IRIS ABT, XIANG LIU, OLIVER SCHULZ, Max Planck Institut fr Physik, WENZHAO WEI, HAO MEI, GUOJIAN WANG, DONGMING MEI, University of South Dakota, PIRE-GEMADARC COLLABORATION — For the first time, planar high-purity germanium detectors with thin amorphous germanium contacts were successfully operated directly in liquid nitrogen and liquid argon in a cryostat at the Max-Planck-Institut fr Physics in Munich. The detectors were fabricated at the Lawrence Berkeley National Laboratory and the University of South Dakota, using crystals grown at the University of South Dakota. They survived long-distance transportation and multiple thermal cycles in both cryogenic liquids and showed reasonable leakage currents and spectroscopic performance. Also discussed are the pros and cons of using thin amorphous semiconductor materials as an alternative contact technology in large-scale germanium experiments searching for physics beyond the Standard Model.

[1]This work was supported by NSF OISE-1743790, PHYS-1902577, OIA-1738695, DOE FG02-10ER46709, the Office of Research at the University of South Dakota and a research center supported by the State of South Dakota.

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Date submitted: 25 Jun 2020 Electronic form version 1.4