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Amorphous Germanium Planar Detectors Directly Immersed in LN/LAr for Study of Contact Properties¹ RAJENDRA PANTH, WENZHAO WEI, HAO MEI, GUOJIAN WANG, JING LIU, DONGMING MEI, University of South Dakota, PIRE-GEMADARC COLLABORATION — The stability of an electrical contact when directly immersed in liquid nitrogen (LN) and liquid argon (LAr) is important for the rare event searches including neutrinoless double-beta decay using germanium (Ge) detectors. Utilizing the USD-grown crystals, we fabricated several planar Ge detectors to study electrical contact properties. The fabricated planar Ge detectors were directly immersed in LN and LAr in a test facility at the Max-Planck-Institut fuer physik (MPI) in Munich, Germany. We report that amorphous Ge contacts can survive when the detector is directly immersed. We performed several thermal cycle measurements to study the stability of the contacts. Measurements show that leakage current and energy resolution of the detectors are stable.

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