Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Evaluation of Large Area Planar Germanium Double-Sided Strip Detectors S. GROS, Lawrence Berkeley National Laboratory and Argonne National Laboratory, C.J. (KIM) LISTER, Argonne National Laboratory — Large area segmented planar germanium detectors have many potential uses in basic research as well as in space science, medical imaging and homeland security applications. However, the intrinsic cost and technical complexity of their electronics have hindered progress in developing these position-sensitive gamma ray detectors. In this report we will compare large counters made with the traditional "LEPS" configuration, *i.e.* with lithium and boron contacts, with more recent detectors using amorphous germanium. We will present a basic series of tests which allow the performance of the counters to be evaluated and compared. Traditional MCA resolution and timing tests are necessary, but far from sufficient, conditions for identifying a superior detector. Charge loss, charge sharing, and cross talk all play significant roles in detector performance. These issues become critical when exploiting the detectors capability for reconstructing "multi-hit" events in gamma ray tracking or polarization experiments. This research was supported by the DOE Office of Nuclear Physics under contract DE-AC02-06CH11357.

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Date submitted: 10 Jan 2008 Electronic form version 1.4