

Poster

**Signals Associated to Trapped Charges in the EDELWEISS Germanium Cryogenic Detectors**

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Cryogenic germanium detectors used in dark matter searches operate at ranges of low temperature ( $<100$  mK) and electric field ( $\sim 1$  V/cm) such that charge trapping in the bulk of the detector plays a significant role in the net charge collected following a particle interaction. It is shown that in EDELWEISS FID800 detectors, these trapped charges induce residual charge signals that perturb the measurement of the total charge, degrading significantly the energy resolution at high energy. It is also shown that, by reading out the signal on all the electrodes, it is possible to clearly identify these effects and correct the total charge measurement accordingly. This effect is demonstrated with data. A simple analytical model based on Ramo's theorem is presented, whereby this effect is due to the position dependence of signals induced by trapped charge.