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Results from a Search for Light-Mass Dark Matter with a P-type Point Contact Germanium Detector

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(Submitted on 25 Feb 2010)

We report on several features present in the energy spectrum from an ultra low-noise germanium detector operated at 2,100 m.w.e. By implementing a new technique able to reject surface events, a number of cosmogenic peaks can be observed for the first time. We discuss several possible causes for an irreducible excess of bulk-like events below 3 keVee, including a dark matter candidate common to the DAMA/LIBRA annual modulation effect, the hint of a signal in CDMS, and phenomenological predictions. Improved constraints are placed on a cosmological origin for the DAMA/LIBRA effect.

Comments: 4 pages, 4 figures

Subjects: **Cosmology and Extragalactic Astrophysics (astro-ph.CO)**; High Energy Physics - Experiment (hep-ex); Instrumentation and Detectors (physics.ins-det)

Cite as: [arXiv:1002.4703v1](https://arxiv.org/abs/1002.4703v1) [astro-ph.CO]

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From: Juan I. Collar [[view email](#)]

[v1] Thu, 25 Feb 2010 07:50:24 GMT (3496kb)

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