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Overview of the GRAMS (Gamma-Ray and AntiMatter Survey) Project

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GRAMS (Gamma-Ray and AntiMatter Survey) is a next-generation proposed balloon/satellite mission that will be the first to target both MeV gamma-ray observations and antimatter-based indirect dark matter searches with a LArTPC (Liquid Argon Time Projection Chamber) detector. Astrophysical observations at MeV energies have been poorly explored and long-neglected. With a cost-effective, large-scale LArTPC, a single LDB (Long-Duration Balloon) flight could provide an order of magnitude improved sensitivity compared to previous experiments. We can uniquely measure gamma rays from annihilating dark matter and evaporating primordial black holes. Additionally, GRAMS can extensively explore dark matter parameter space via antimatter measurements. In particular, low-energy antideuterons can be background-free dark matter signatures. In this talk, I will give an overview and the current status of the GRAMS project.

Are you are a member of the APS Division of Particles and Fields?

No

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