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Gamma-Ray and AntiMatter survey(GRAMS) experiment

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The Gamma-Ray and AntiMatter Survey (GRAMS) is a next-generation experiment using a Liquid Argon Time Projection Chamber (LArTPC) detector to detect gamma rays and antiparticles. Gamma-ray surveys are important for understanding multi-messenger and time-domain astronomy, enabling exploration of the universe's most potent events, such as supernovae and neutron star mergers etc. Despite the significance of MeV gamma-rays, GRAMS could also explore the so-called 'MeV gap' region to improve MeV gamma-ray measurement sensitivity that was restricted by the hardness of accurately reconstructing Compton events. Aside from gamma-ray detection, the GRAMS proposed method also serves as an antiparticle spectrometer, targeting low-energy range cosmic-ray measurement. This talk will provide updates on the current status and progress towards the first prototype balloon flight with a small-scale LArTPC (pGRAMS) scheduled for early 2026, as well as the recent progress on antihelium-3 sensitivity calculation.

Collaboration you are representing

GRAMS

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