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Gamma-Ray and AntiMatter Survey (GRAMS) for antimatter detection

Monday, July 18, 2022 8:40 PM (20 minutes)

Gamma-Ray and AntiMatter Survey (GRAMS) is a next-generation balloon-/satellite-based experiment using a Liquid Argon Time Projection Chamber (LArTPC) detector to detect Gamma-rays and antiparticles. With a cost-effective and large-scale LArTPC, GRAMS can achieve high sensitivity towards antiparticle searches within the low energy region (<0.5GeV), where we can have essentially background-free dark matter searches. We can potentially validate various dark matter models with this sensitivity.
Currently, we are building and testing prototype GRAMS devices parallelly at Northeastern University (US), Tokyo University (Japan), and Waseda University (Japan) to demonstrate our detection concept.
In this poster presentation, I will discuss the detection concept for antimatter measurements and hardware R&D at Northeastern University, as well as the GRAMS sensitivities to cosmic antinuclei, especially antihelium-3.

In-person or Virtual?

In-person

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