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TALK: Introduction to DAMSA, A Novel Dark Matter Search Experiment at an Accelerator

Friday, June 28, 2024 3:00 PM (45 minutes)

Dark matter is thought to make up 25% of the universe. Dark sector particles (DSP) do not interact through the known forces but could be weakly coupled to Standard Model particles through a portal or a mediator. Many searches for dark matter/dark sector particles at an accelerator thus far seem to face a ceiling that the sensitivity reach is greatly limited, beyond statistical effects. DAMSA is an extremely short baseline experiment that proposes to break through this limit, taking advantage of high beam powers available at various accelerator facilities around the world, including the PIP-II Linac under construction, an essential element in providing the necessary high flux proton beams to DUNE at Fermilab. In this talk, I will describe the DAMSA (Dump produced Aboriginal Matter Search at an Accelerator) experiment. I will also discuss current status and plan for DAMSA and its expected sensitivity reach in the search of the Axion-Like Particle as an example physics case.

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