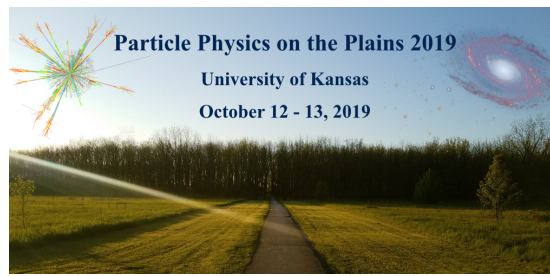


Particle Physics on the Plains 2019



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PASSAT: Particle Accelerator helioScopes for Slim Axion-like-particle deTection

Saturday 12 October 2019 14:00 (20 minutes)

I discuss a novel method to search for axion-like particles (ALPs) at particle accelerator experiments. ALPs produced at the target subsequently enter a region with a magnetic field, where they are converted to photons that are then detected. Dubbed Particle Accelerator helioScopes for Slim Axion-like-particle deTection (PASSAT), this proposal uses the principle of the axion helioscope but replaces ALPs produced in the Sun with those produced in a target material. Since the search relies on ALP-photon conversions, PASSAT probes light (slim) ALPs that are otherwise inaccessible to laboratory-based experiments which rely on ALP decay, and complements astrophysical probes that are more model-dependent. I discuss how the idea of PASSAT is realized, taking NOMAD, CAST, and BabyIAXO experiments.

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