

Aiming for Tops of ALPs with a Muon Collider

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Future muon colliders with center-of-mass energy of $\mathcal{O}(1 - 10)$ TeV can provide a clean high-energy environment with advantages in searches for TeV-scale axion-like particles (ALPs), pseudo-Nambu–Goldstone bosons associated with spontaneously broken global symmetries, which are widely predicted in physics beyond the Standard Model (SM).

We exploit ALP couplings to SM fermions, and guided by unitarity constraints, build a search strategy focusing on the ALP decay to top quark pairs.

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