

Search for Axion-like Particles in Photonic Final States with FASER

vendredi 9 août 2024 08:55 (20 minutes)

Axions are hypothetical particles that may solve the strong CP problem and act as a dark matter candidate. FASER is able to search for axion-like-particles (ALPs) that couple to both photons and weak gauge bosons in more general models. These ALPs are produced at pp collisions in ATLAS through b-hadron decays, and their decay products are identified as high energy photons in the electromagnetic calorimeter of FASER, located at about 480 m far apart from ATLAS. ALPs mass between 50 and 500 MeV and ALP-W-W coupling between 10^{-5} and 10^{-3} GeV $^{-1}$ can be probed, reaching a previously unexplored region of parameter space. The search result based on 57.7 fb $^{-1}$ of initial LHC Run-3 data will be presented in this talk.

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