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Displaced ALPs from top decays at the LHC

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I will present a study on axion-like particles (ALPs) with quark-flavor-violating couplings at the LHC. The ALPs can originate from decays of top quarks which are pair produced, and then decay to jets. If these couplings to the quarks are tiny and the ALPs have masses of the order of 10 GeV, they are long-lived, leading to signatures of displaced vertex plus multiple jets. We recast a recent ATLAS search for the same signature and reinterpret the results in terms of bounds on the long-lived ALP in our theoretical scenario. We find that the LHC with the full Run 2 dataset can place stringent limits, while at the future high-luminosity LHC stronger sensitivities are expected.

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