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Search for long-lived Axion-Like Particles in association with a top-quark pair with CMS

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We are searching for long-lived Axion-Like Particles produced in association with a top-antiquark pair, in proton-proton collisions with the CMS detector at the LHC. Compared to inclusive searches for a displaced vertex, top quark-associated signals offer new trigger options and an extra handle to suppress background. The search strategy includes axion-like particle decays to a displaced dimuon vertex, which further contributes to the suppression of prompt background. The search is done using full CMS Run 2 data (2016-2018) and partial Run 3 data (2022-2023).
In this talk, we will present the ongoing efforts for the first CMS analysis searching for this signature.

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