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## Searching for axion-like particles in light-by-light scattering at the Large Hadron Collider

The existence of pseudoscalars weakly coupled to particles from the Standard Model of particle physics, known as axion-like particles (ALP), would induce anomalous scattering of light-by-light. Searching for these particles relying only on their coupling to the electromagnetic field is challenging. This process can be probed at the Large Hadron Collider (LHC) in production of photon pairs in proton-proton where the protons remain intact after the collision and have lost a fraction of their original longitudinal momentum due to coherent photon exchanges ( $pp \rightarrow p \gamma \gamma p$ ), and are tagged using dedicated forward proton spectrometers installed at the LHC. We estimate the expected sensitivity on the ALP-photon coupling for a wide range of masses. We show that the proposed search is competitive and complementary to other collider bounds for masses above 600 GeV, especially for resonant ALP production between 600 GeV and 2 TeV.

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