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Proposal of new LHC searches for ALPs

Thursday 21 June 2018 15:10 (20 minutes)

ALPs that couple to gluons are predicted both to solve the strong CP problem as well as in composite Higgs models (Higgs pseudo-Goldstone partners) and in Supersymmetry (R-axion).
I will discuss unexplored avenues in the LHC phenomenology resulting from such gluon-ALP couplings. I will derive a new LHC bound on ALPs from diphoton cross-section measurements, and show it is the strongest existing limit in the mass window 10-65 GeV. I will then propose new ALP searches at ATLAS, CMS and the LHCb.

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