

Explaining the 152 GeV di-photon excesses at the LHC via associated production

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Recently, statistically significant excesses have been observed at the LHC in associated di-photon production ($\gamma\gamma + X$) at around 152 GeV in the sidebands of SM Higgs analyses. They are most pronounced in the single-tau, missing-transverse-energy, four-jet and $1\ell + 1b$ -jet channels and compatible with associated production mechanisms for new Higgs bosons (such as Drell-Yan), leading to a significance of $\approx 4\sigma$. In this context, I will argue how such excesses can be explained within different new physics scenarios.

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