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Pseudo-Higgs signals at LHC

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Abstract:

We consider general fermi-phobic scenarios in which excess events in diphoton or WW/ZZ resonances may be seen at LHC. These Higgs like signals do not necessarily suggest that the new resonance is a particle with Yukawa couplings nor do we know that it is responsible for electroweak symmetry breaking. We can, however, extract two facts from it, this particle couples to pairs of SU(2) and U(1) gauge bosons and it must be a scalar, pseudoscalar, or tensor. We consider the signals of general operators up to effective dimension 5 in which a new scalar, psuedo-scalar, or tensor particle may couple to pairs of standard model gauge bosons. This particle may or may not be charged under the standard model gauge groups, and may be produced via gluon fusion or EW vector boson fusion.

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