



## LHC as an Axion Factory:

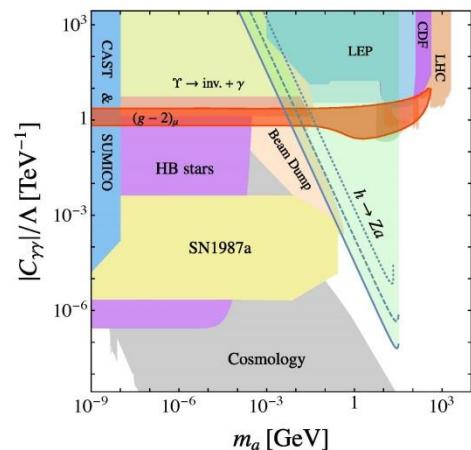
Probing an Axion Explanation for  
( $g-2$ )<sub>μ</sub> with Exotic Higgs Decays



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We argue that a large region of so far unconstrained parameter space for axion-like particles (ALPs), where their couplings to the Standard Model are of order  $(0.01-1)/\text{TeV}$ , can be explored by searches for the exotic Higgs decays  $h \rightarrow Z+a$  and  $h \rightarrow a+a$  in Run-2 of the LHC. Almost the complete region in which ALPs can explain the anomalous magnetic moment of the muon can be probed by searches for these decays with subsequent decay  $a \rightarrow \gamma\gamma$ , even if the relevant couplings are loop suppressed and the  $a \rightarrow \gamma\gamma$  branching ratio is less than 1.



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**2:00pm**

*401 Physical Sciences Building*