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The Relaxion and Composite Higgs (12' + 3')

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The recently-proposed relaxion framework aims to provide a novel dynamical solution to the Standard Model hierarchy problem. We examine the phenomenology of a new TeV-scale QCD-like sector associated with particular relaxion models in which non-perturbative effects in the new sector provide the stopping-potential for the relaxion. Among the host of potential new-physics signals, whose impact we consider in exploring the parameter space available to these models, it is particularly interesting that decays of the new-sector mesons may provide an explanation for the recent evidence from ATLAS and CMS indicating the presence of an excess of diphoton events with an invariant mass near 750GeV.

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