Abstract Submitted
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Early Search for Extra Dimensions in the Diphoton Channel at CMS DUONG NGUYEN, Brown University — The existence of extra dimensions (EDs) is an exciting new proposed solution of the hierarchy problem of the Standard Model. The evidence can be revealed in the diphoton mass spectrum either as a broad enhancement (Arkani-Hamed, Dimopoulos, Dvali, or ADD model) or as a narrow resonance (Randall-Sandrum, or RS model) over the continuum SM background. We present the search for these scenarios at CMS with early data. From simulation, we expect a 95% C.L. signal cross section limit of 0.053 pb assuming only the presence of SM processes with 100 pb^{-1} of pp collision data at $\sqrt{s} = 10$ TeV. This would translate in the most stringent limits on the ADD and RS model parameters to date. The discovery potential in the ADD and RS models is discussed in the expectation of rapidly increasing integrated luminosity. The status of this search using first LHC data is presented as well.

Duong Nguyen
Brown University

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