

Revisiting Universal Extra-Dimension Model with Gravity Mediated Decays

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We explore the collider phenomenology of the fat-brane realization of the Minimal Universal Extra Dimension (mUED) model, where Standard Model (SM) fields propagate in a small extra dimension while gravity accesses additional large extra dimensions. This configuration allows for gravity-mediated decay (GMD) of Kaluza-Klein (KK) particles, resulting in unique final states with hard photons, jets, massive SM bosons, and large missing transverse energy due to invisible KK gravitons. We derive updated constraints on the model's parameter space by recasting ATLAS mono-photon, di-photon, and multi-jet search results using 139 inverse femtobarn of integrated luminosity data.

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Session Classification: Reinterpretation studies/pheno -cont-