

Abstract Submitted  
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**TeV gamma rays from BL-Lacs and photon - hidden sector paraphoton kinetic mixing**<sup>1</sup> RICHARD ANANTUA, OLIVER BAKER, Yale University — Extra U(1) gauge bosons can arise in some embeddings of the Standard Model in string theory; they are referred to as hidden sector paraphotons here. We propose that the weak coupling of hidden sector paraphotons to Standard Model photons results in a mechanism whereby gamma rays from distant astrophysical objects can propagate vast distances through the intergalactic medium without absorption or pair conversion. This mechanism is used to show that TeV gamma rays from distant BL-Lacertae objects may kinetically intermix with weakly interacting paraphotons in a way that helps to explain their observed energy spectra. Laser based photon regeneration experiments may test this model in the very near future.

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