

Abstract Submitted  
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**Constraints on extra dimensions within the framework of the Standard Model Extension** FRANK WALZ, HAMNA ALI, JAMES OVERDUIN, Towson University — We consider Kaluza-Klein-type extensions of General Relativity in which extra dimensions may be large but do not necessarily have units of length. Additional coordinates of this kind necessarily violate Lorentz symmetry in principle, but whether or not the violations are detectable in practice depends on the dimension-transposing constants that convert them into lengths. We parametrize these violations in terms of coefficients associated with the matter sector of the Standard Model Extension, and show that the associated variation in fundamental quantities, such as rest mass or charge, must occur slowly, on cosmological scales.

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