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Exotic Particle Production in Gamma Ray Burst Fireballs IAN MORGAN, National Institutes of Health, TED TAO, ERIN DE PREE, St Mary's College of Maryland, KEVIN TENNYSON, Oregon State University — We consider the possible production of stable lightest Kaluza-Klein particles (LKP) in baryonic gamma ray bursts (GRB) out flows. We numerically computed the energy-dependent cross-sections of Kaluza-Klein excitations for the Standard Model gauge bosons, γ and Z. Next, we determine the feasibility of producing these KK excitations in gamma-ray emitting regions of GRBs. We find that a GRB fireball that accelerates baryons to energies greater than 10^{14}eV could produce Kaluza-Klein excitations out to approximately 10^{12}cm, indicating that GRBs may be a significant source of the LKP. Finally, we explore the potential observational consequences of our results.

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