

Department of Theoretical Physics

Free Meson Seminar

<i>Speaker</i>	:	Tuhin S. Roy (University of Washington)
<i>Topic</i>	:	Viable gravity mediation
<i>Day, Date & Time</i>	:	Thursday, March 1, 2012 at 2:30 p.m.
<i>Place</i>	:	AG 69

Abstract

We present a complete, viable model of gravity-mediated supersymmetry breaking, where an accidental $U(1)_R$ symmetry emerges naturally in the visible sector. Gauginos acquire Dirac masses from gravity-mediated D-terms. Contributions to soft breaking scalar (mass)² arise from flavor-arbitrary gravity-induced F-terms plus one-loop finite flavor-blind contributions from Dirac gaugino masses. Renormalization group evolution of the gluino causes it to naturally increase nearly an order of magnitude larger than the squark masses. This hierarchy, combined with the accidentally $U(1)_R$ -symmetric visible sector, nearly eliminates all flavor violation constraints on the model. If we also freely tune couplings and phases within the modest range 0.1-1, while maintaining nearly flavor-anarchic Planck-suppression contributions, we find our model to be safe from Δm_K , ϵ_K , and $\mu \rightarrow e$ lepton flavor violation.

(Nilmani Mathur)