Phenomenology 2012 Symposium



Contribution ID: 163

Type: parallel talk

WIMPless dark matter in Anomaly Mediated SUSY breaking

Monday 7 May 2012 18:15 (15 minutes)

Abstract:

In anomaly-mediated supersymmetry breaking, superpartners in a hidden sector have masses that are proportional to couplings squared, and so naturally freeze out with the desired dark matter relic density for a large range of masses. We present an extremely simple realization of this possibility, with WIMPless dark matter arising from a hidden sector that is supersymmetric QED with N_F flavors. Dark matter is multi-component, composed of hidden leptons and sleptons with masses anywhere from 10 GeV to 10 TeV, and hidden photons provide the thermal bath. The dark matter self-interacts through hidden sector Coulomb scatterings that are potentially observable. In addition, the hidden photon contribution to the number of relativistic degrees of freedom is in the range \Delta N_eff \sim 0 - 2, and, if the hidden and visible sectors were initially in thermal contact, the model predicts \Delta N_eff \sim 0.2 - 0.4. Data already taken by Planck may provide evidence of such deviations.

Author: RENTALA, Vikram (U)

Co-authors: Prof. FENG, Jonathan (UC Irvine); Dr SURUJON, Ze'ev (UC Irvine)

Presenter: RENTALA, Vikram (U)

Session Classification: DM I