

From Underlying Planck Scale M-theory to Predictions for TeV Scale Superpartners

Thursday, 27 August 2015 11:30 (30 minutes)

Beginning from a few discrete assumptions, such as compactifying the M-theory fluxless sector on a G2 manifold to the MSSM, we show moduli are successfully stabilized in a de Sitter vacuum, and supersymmetry is broken. The gravitino mass is calculated to be about 50 TeV, and gaugino masses are always suppressed to about a TeV (gluino 1.5 TeV, wino 620 GeV, bino 450 GeV). \mathbb{Z}_3 is included by Witten's approach via the Kahler potential and his discrete symmetry. LHC and future collider cross sections and decays are calculated. Electroweak symmetry is broken, with the Higgs boson mass and decay branching ratios correctly (summer 2011) predicted via the quartic coefficient. The superpotential, Kahler potential, and gauge kinetic function are all generic, with no adjustable parameters. The dark matter is expected to be from a hidden sector. The talk focuses on LHC physics.

Primary author: Prof. KANE, Gordon (University of Michigan)

Presenter: Prof. KANE, Gordon (University of Michigan)

Session Classification: Plenary

Track Classification: Plenary Talks