

Abstract of the talk:

Besides supersymmetry, the other prime candidate of physics beyond the Standard Model (SM), crying out for verification at the CERN Large Hadron Collider (LHC), is extra-dimension. To hunt for effects of Kaluza-Klein (KK) excitations of known fermions and bosons is very much in the agenda of the LHC. These KK states arise when the SM particles access the extra space-like dimension(s). We consider here a 5-dimensional universal extra-dimension (UED) scenario. The Kaluza-Klein (KK) number is conserved at all tree level vertices. This entails the production of KK states in pairs and renders the lightest KK particle stable, which leaves the detector carrying away missing energy. The splitting between different KK flavors is controlled by the zero mode masses and the bulk- and brane-induced one-loop radiative corrections. We concentrate on the production of an $n=1$ KK electroweak gauge boson in association with an $n=1$ KK quark. This leads to a signal consisting of one jet, one or more leptons and missing p_T . For definiteness we usually choose the inverse radius of compactification to be $R^{-1} = 500$ GeV, which sets the scale of the lowest lying KK states. We show that with $10 \text{ } (\text{fb})^{-1}$ integrated luminosity at the LHC with $\sqrt{s} = 14$ TeV this signal can be detected over the SM background by imposing appropriate kinematic cuts. We record some of the expectations for a possible intermediate LHC run at $\sqrt{s} = 10$ TeV and also exhibit the integrated luminosity required to obtain a 5σ signal as a function of R^{-1} .