KMI-Theory Seminar

Thursday, December 15, 2011

4:30 pm KMI Science Symposia (ES635)

" General Lepton Mixing in Holographic Composite Higgs Models "

Speaker:

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Abstract:

We study leptons in holographic composite Higgs models, namely in models possibly admitting a weakly coupled description in terms of five-dimensional (5D) theories. We introduce two scenarios leading to Majorana or Dirac neutrinos, based on non-abelian discrete symmetries of the form Gf = X × ZN.
The flavour symnmetry is broken to Z2 ×Z2 ×ZN in the elementary sector and to Z(D) N in the composite sector, with Z(D) N being the diagonal subgroup of a ZN ⊂ X and the external ZN. The smallness of neutrino masses is naturally explainedand normal/inverted mass ordering can be accommodated. By choosing X = Δ(96) or Δ(384), a non-vanishing θ13 of order 0.1 is naturally obtained. We apply our considerations to a 5D model in warped space for the particular cases of X = S4,A5,Δ(96) and Δ(384) and N = 3 or 5. Lepton flavour violating processes and electric dipole moments are well below the current bounds, with the exception of $\mu \to e\gamma$ that puts a very mild constraint on the parameter space of the model, for all presented choices of Gf ."