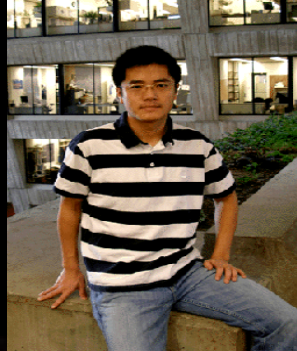




# Theory Seminar

Monday, April 21, 2008 2:10 PM 831 Pupin Hall



## Minimal Little Higgs Model and Dark Matter

We construct a little Higgs model with the most minimal extension of the standard model gauge group by an extra  $U(1)$  gauge symmetry. For specific charge assignments of scalars, an approximate  $U(3)$  global symmetry appears in the cutoff-squared scalar mass terms generated from gauge bosons at one-loop level. Hence, the Higgs boson, identified as a pseudo-Goldstone boson of the broken global symmetry, has its mass radiatively protected up to scales of 5-10 TeV. In this model, a  $Z_2$  symmetry, ensuring the two  $U(1)$  gauge groups to be identical, also makes the extra massive neutral gauge boson stable and a viable dark matter candidate with a promising prospect of direct detection.

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