

# Department of Theoretical Physics

## Free Meson Seminar

<i>Speaker</i>	:	Biplob Bhattacharjee
<i>Topic</i>	:	Boosted Top Quark Signals for Heavy Vector Boson Excitations in a Universal Extra Dimensional Model
<i>Day, Date &amp; Time</i>	:	Thursday, September 30, 2010 at 11:30 a.m.
<i>Place</i>	:	Theoretical Physics Seminar Room (A304)

### *Abstract*

In view of the fact that the  $n = 1$  Kaluza-Klein (KK) modes in a model with a Universal Extra Dimension (UED) could mimic supersymmetry signatures at the LHC, it is necessary to look for the  $n = 2$  KK modes, which have no analogues in supersymmetry. We shall discuss the possibility of searching for heavy  $n = 2$  vector boson resonances, especially the  $n = 2$  gluon resonance, through their decays to highly-boosted  $t\bar{t}$  pairs using recently-developed top-jet tagging techniques in the hadronic channel. It will be shown that  $t\bar{t}$  signals from the  $g_2$  can be as efficient a discovery mode at the LHC as dilepton signals from the  $n = 2$  KK photon and  $Z$  resonances.

*(Nilmani Mathur)*