

Department of Theoretical Physics

Free Meson Seminar

<i>Speaker</i>	:	Priyotosh Bandyopadhyay (HRI, Allahabad)
<i>Topic</i>	:	Aspects of Higgs searches in CP-violating and CP-conserving SUSY scenarios at the Large Hadron Collider
<i>Day, Date & Time</i>	:	Thursday, December 4, 2008 at 2:30 p.m.
<i>Place</i>	:	AG 69

Abstract

A benchmark CP-violating supersymmetric scenario (known in the literature as ‘CPX-scenario’) is studied in the context of the Large Hadron Collider (LHC). It is shown that the LHC, with low to moderate accumulated luminosity, will be able to probe the existing ‘hole’ in the m_{h_1} - $\tan\beta$ plane, which cannot be ruled out by the Large Electron Positron Collider data. This can be done through associated production of Higgs bosons with top quark and top squark pairs leading to the signal *dilepton + ≤ 5 jets (including 3 b-jets) + missing p_T* . Efficient discrimination of such a CP-violating supersymmetric scenario from other contending ones is also possible at the LHC with a moderate volume of data.

In the CP-conserving sector I would like to discuss very briefly about the SUSY cascade decays. Supersymmetric cascades, involving charginos and neutralinos at various stages, contribute in a significant way to Higgs production at the LHC. We explore the nature of such cascades, completely relaxing the universality of the gaugino masses. It is found that the deviation from the scenario with universal gaugino masses would be reflected in the relative production rates for the lightest Higgs and the charged Higgses, two characteristic particles of an extended Higgs sector.

(Saumen Datta)