

Department of Theoretical Physics

Free Meson Seminar

<i>Speaker</i>	:	Sudhansu S. Biswal
<i>Topic</i>	:	Top quark forward-backward asymmetry at Tevatron and its implications at the Large Hadron Collider
<i>Day, Date & Time</i>	:	Thursday, May 5, 2011 at 2:30 p.m.
<i>Place</i>	:	AG 69

Abstract

The measurement of forward-backward (FB) asymmetry in the top and anti-top quark ($t\bar{t}$) production at Tevatron shows a more than 3σ deviation from the Standard Model (SM) prediction in the large $t\bar{t}$ invariant mass region. After mentioning the SM prediction for this asymmetry, I shall discuss models with new Z' or W' bosons that have been invoked to explain this deviation. In the context of these models we perform a χ^2 analysis with all the available experimental numbers in different rapidity (ΔY) and $M_{t\bar{t}}$ bins. We find that for the Z' model the region of parameter space which explain the Tevatron asymmetry can be probed in the same sign top production channel by Tevatron itself. Moreover, we consider a recently proposed observable, the one sided forward-backward asymmetry (A_{OFB}) at the Large Hadron Collider (LHC) and conclude that both the W' and Z' models can lead to sizable A_{OFB} even at the LHC running at a center of mass energy of 7 TeV for the model parameters consistent with the Tevatron measurements. In the end, I will briefly overview some of the other possible explanations of this FB-asymmetry anomaly of Tevatron.

(Nilmani Mathur)