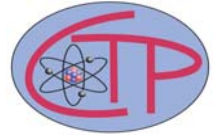




NEW YORK CITY COLLEGE OF TECHNOLOGY
Physics Department
Center for Theoretical Physics



Top Quark Physics in the LHC Era

Presented by:

Gabriel Abelof

Institute for Theoretical Physics
ETH, Zurich, Switzerland

Thursday, April 18 at noon

Namm, Room 823

Abstract

The running of the LHC started a new era in particle physics. It provides a unique opportunity to test the Standard Model of particle physics in a new energy regime, and to search for new elementary particles and interactions. Top quark physics is one of the cornerstones of the current LHC research program. As the heaviest particle known to date, the top quark plays an important role in many new physics scenarios, as well as in electroweak precision tests of the Standard Model. The large statistical sample of events involving top quark pairs at the LHC will allow cross sections and differential distributions to be measured with an unprecedented accuracy. In order to extract fundamental parameters such as masses and couplings, as well as to detect potential deviations from the Standard Model predictions, those precise experimental measurements need to be matched with equally accurate theoretical predictions. In my talk I shall describe the importance and the phenomenology of top quark physics at the LHC. I also will explain how precise theoretical predictions for top quark pair

production can be obtained through the computation of higher order terms in perturbative Quantum Chromodynamics.

