

Título do Seminário: From Gravitons to Gravitinos: MET signatures at the LHC

Palestrante: Priscila Masetto de Aquino Manfrini

Instituição: Vrije Universiteit Brussel, Belgium

Resumo:

The Standard Model of fundamental particles and their interactions is one of the most successful theories in physics. In particular, up to the weak scale it agrees to a great degree with a large set of experimental data. However, there are several reasons to expect that something new could lie at TeV scale. Hints and/or answer(s) to these fundamental questions will be provided by the Large Hadron Collider (LHC), a proton-proton collider running at high energies.

The present talk aims to explore new physics at the LHC through phenomenological studies that employ simulations and computational tools to directly link theories with experimental data. In particular, the focus is on Beyond Standard Model theories that can incorporate a quantum description of gravity, such as extra dimensional theories and/or Supersymmetry.

We show the results of phenomenological analyses in which graviton and gravitino emission in combination with multiple jets are investigated at hadron colliders. For such analyses, inclusive samples are generated by merging matrix element with parton shower descriptions, and validated by a comparison against next-to-leading order QCD calculations. We present predictions for relevant observables at the LHC, in particular focusing on missing transverse energy (MET).