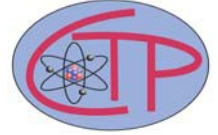




*NEW YORK CITY COLLEGE OF TECHNOLOGY*  
Physics Department  
Center for Theoretical Physics



# Soft-Gluon Resummation for the Production of Supersymmetric Particles at the LHC

*Presented by:*

**Alessandro Broggio**

**Paul Scherrer Institute, Switzerland**

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***Note that we are beginning 15 minutes earlier than usual***

**Namm, Room 823**

## Abstract

If the Minimal Supersymmetric Standard Model (MSSM) is realized in nature at scales of around 1 TeV, the slepton-pair and the top squark-pair production cross sections should be measurable at the Large Hadron Collider (LHC). We use techniques from soft-collinear effective theory to improve existing calculations of these observables at hadron colliders. As a first application, we implement soft-gluon resummation at next-to-next-to-next-to leading logarithmic accuracy for slepton-pair production. This approach resums large logarithmic corrections arising from the dynamical enhancement of the partonic threshold region caused by steeply falling parton luminosities. As a second application we present precise predictions for top squark-pair production total cross sections at the LHC. These results are based on approximate next-to-next-to leading order formulas in fixed-order perturbation theory.