Contribution ID: **43** Type: **Oral**

Search for Supersymmetry at CMS in Events with Large Jet Multiplicity and Low Missing Transverse Momentum at sqrt(s)=13 TeV

Tuesday, 11 June 2019 11:15 (15 minutes)

In traditional searches for physics beyond the standard model, a requirement of high missing transverse momentum (MET) is often used. However, without any signs of significant deviations from the standard model expectations, we decided to relax this requirement for the search reported in this talk. Many new physics models, including versions of supersymmetry (SUSY) characterized by R-parity violation, compressed mass spectra, long decay chains, or with additional hidden sectors predict the production of events with low MET, many jets, and top quarks. The results of a general search for new physics featuring two top quarks and six additional light flavor jets are reported. The search is performed using events with at least seven jets and exactly one electron or muon. No requirement on MET is imposed. With the use of a neural-network-based signal-to-background discriminator, a background estimation was achieved where more traditional techniques was not an option. The study is based on a sample of proton-proton collisions at sqrt(s) = 13 TeV corresponding to 77.4 fb-1 of integrated luminosity collected with the CMS detector at the LHC in 2016 and 2017. Results of the search are interpreted for pair production of scalar top quarks in the frameworks of stealth SUSY and SUSY with R-parity violation.

Primary author: MADRID, Christopher

Co-authors: Dr SOHA, Aron (Fermilab); HIRSCHAUER, James (Fermi National Accelerator Laboratory); MEI, Kelvin; STROBBE, Nadja (Fermilab); Prof. LONG, Owen (UCR)

Presenter: MADRID, Christopher

Session Classification: Tuesday Morning II