

Contribution ID: 500

Type: Poster

## Search for top squarks in final states with two top quarks and several light-flavor jets in proton-proton collisions at CMS

Traditional searches for supersymmetry at LHC collider experiments have returned null results thus far. The expected, characteristic signature of high missing energy (MET) final states has not been observed. Motivated by this, our analysis searches for "stealthier"SUSY where high MET signatures would not manifest. Two models considered here are Stealth and R-parity violating SUSY and evidence for said models is searched for through top squark pair production at the CMS experiment. Here the top squark decay leaves a final state that contains two top quarks and many light-flavored jets with no additional missing energy. The analysis uses a neural network employing gradient reversal in order to help discriminate signal events from background. The full Run2 dataset is utilized and results are interpreted in the context of the above models. Top squark masses up to 670 (870) GeV are excluded at 95% confidence level for the RPV (stealth) scenario, and the maximum observed local signal significance is 2.8 standard deviations for the RPV scenario with a top squark mass of 400 GeV.

## **First author**

Joshua Hiltbrand

## Email

hiltbran@umn.edu

## **Collaboration / Activity**

CMS

Primary author: HILTBRAND, Joshua (University of Minnesota)Presenter: HILTBRAND, Joshua (University of Minnesota)Session Classification: T10: Searches for New Physics

Track Classification: Searches for New Physics