



Contribution ID: 58

Type: **Parallel Talk**

Combination and Reinterpretation of LHC SUSY Searches

Tuesday 11 June 2024 16:25 (20 minutes)

To maximise the information obtained from various independent new physics searches conducted at the LHC, it is imperative to contemplate the combination of multiple analyses. We consider a simplified SUSY scenario with all particles but one squark flavor and a bino-like neutralino decoupled to showcase the exclusion power gained by combining uncorrelated signal regions from different searches. This study includes strong squark pair production, associated squark-neutralino production, as well as weak neutralino pair production. We find that considering associated and strong production mechanisms together significantly impacts the mass limit, while contributions from the weak production are insignificant in the context of current exclusion limits. In addition, we demonstrate that the combination of uncorrelated signal regions as assessed from the recent TACO approach substantially pushes exclusion limits towards higher masses, relative to the bounds derived from the most sensitive individual analyses.

Authors: FEIKE, Alexander; FLASCHI, Juri; FUKS, Benjamin; KLASSEN, Michael; NEUWIRTH, Alexander

Presenter: FEIKE, Alexander

Session Classification: SUSY, Phenomenology and Experiment

Track Classification: SUSY: phenomenology and experiment