Contribution ID: **463**   Type: **Experimental poster**

Prospects to exclude top quark partners using full Run II, III and HL-LHC data sets

Thursday 10 June 2021 18:45 (1 hour)

This talk discusses the prospects under various scenarios of the amount of data collected and assumptions on systematic uncertainties to explore the top squark and neutralino mass degenerate corridor. The analysis technique employs a deep neural network fed with variables sensitive to top quark spin correlation and polarization in top quark pair production. In particular, different improvements on experimental and theoretical uncertainties are studied in terms of their impact on sensitivity as well as the amount of data collected, e.g. proton-proton collisions at the LHC collected during Run II, upcoming Run III and the HL-LHC. Further improvements of the method and sensitivity are possible by a multi-differential measurements of the full spin density production matrix and other angular observables of top quarks pairs and we highlight the impact and plans of these.

Authors: JUNG, Andreas (Purdue University (US)); NEGRO, Giulia (Purdue University (US)); BAKSHI, Amandeep Singh (Purdue University)

Presenter: BAKSHI, Amandeep Singh (Purdue University)

Session Classification: Poster Session

Track Classification: Upgrade & Future