

## Quark-gluon discrimination in the search for gluino pair production at the LHC

*Saturday 24 June 2017 21:00 (15 minutes)*

We study the impact of including quark- and gluon-initiated jet discrimination in the search for strongly interacting supersymmetric particles at the LHC. Taking the example of gluino pair production, considerable improvement is observed in the LHC search reach on including the jet substructure observables to the standard kinematic variables within a multivariate analysis. In particular, quark and gluon jet separation has higher impact in the region of intermediate mass-gap between the gluino and the lightest neutralino, as the difference between the signal and the standard model background kinematic distributions is reduced in this region. We also compare the predictions from different Monte Carlo event generators to estimate the uncertainty originating from the modelling of the parton shower and hadronization processes.

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**Session Classification:** The "energy frontier": LHC and future colliders