Contribution ID: **25**                                                          Type: **not specified**

# Top Tagging Using Spatial Distribution of Subjets

*Wednesday 29 January 2020 15:20 (15 minutes)*

The LHC is a top quark factory and the copious amounts of top quarks produced provide valuable insight into the standard model and beyond. Majority of the top quarks produced can be identifed using standard methods such as identifying features such as bottom quarks (b-tagging), W bosons or three jets with an invariant mass that is roughly equal to the top mass. However, some of the top quarks will be highly boosted and thus the decay products will be collimated into single jets. This will hinder the standard methods and consequently, subjet analysis is the natural next step. A brief investigation was conducted to determine if it was possible to distinguish top quarks from background by looking at the spatial distribution and number of subjets within a large-radius jet. Whilst the simplicity of the analysis severely hindered any viable results, valuable insight into the nature of top quark and QCD jets was obtained. As expected, the QCD background jets tended to be more closely spaced together (due to the jets originating from high pT partons that shower into many soft and collinear particles) and the top quark jets were more separated (due to the distinct decay products).

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**Session Classification:**   Session II