

MCNet Introduction

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MCNet network meeting



Introduction

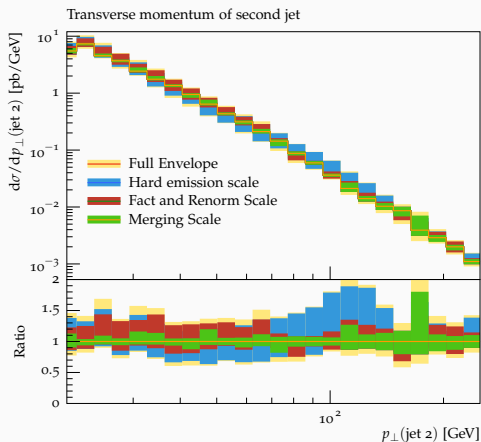
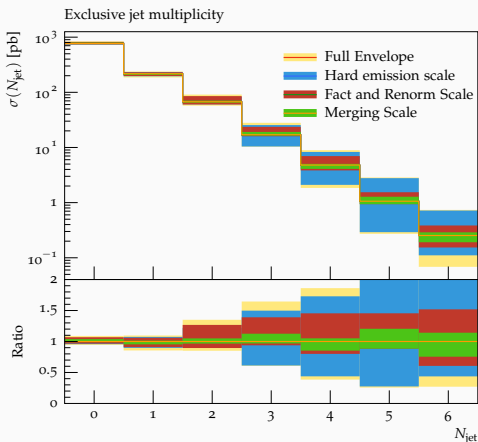
- 2nd Year PhD Student @ UCL (Supervisor J. Butterworth)
- Joining ATLAS experiment (moving to CERN in Jan)
- 1st Year spent constructing an analysis of BSM signatures with SM Measurements
- Currently (until Jan) visiting ITP @ KIT on 4 month MCNet studentship, working on some Herwig 7 modelling w. S. Gieseke (and others), hope to use and demonstrate some of the nice new features!
 - Use within ATLAS
 - Use for continued development of limit setting program

One aspect of work at KIT, look at producing comprehensive theory uncertainties. In particular focus on new Multi NLO Merging

- Of interest to the experiment - Want multiple implementations of NLO merging to best understand uncertainties, hopefully demonstrate new Matchbox merging facilities in H7
- Of interest to our limit setting project, many reasons to require current best available calculations. [Independent talk on this project later]

Herwig NLO Merging

- Show H7 NLO Merged Z+0,1jet @NLO +2 jet at LO (alternatively Z(0*,1*,2))
- Show band from 7 point envelope of μ_f and μ_R varied up/down by factor of 2
- Additional band from similar orthogonal variations of hard emission μ_Q and merging scale.



H7 for VBF @ ATLAS

- Some involvement with a VBF search within ATLAS
- Nice opportunity to demonstrate some other features of H7, in this case VBFNLO integration within Matchbox
- Here demonstrating tuning VBF cuts to discriminate SM EW VBF diagrams on some simple LO+PS events
- Should scale to a comprehensive set of NLO samples with requisite variations

