

The BOOST 2013 Report

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Working Groups

What more can we understand now?

How can we best prepare for 14 TeV?

(the following lists are in no way complete)

What more can we understand now?

- **Review measurements**
 - ▶ How well can our MC models describe them?
 - ▶ Are there other existing measurements that can help us understand possible differences/discrepancies?
 - ▶ Where do the **experiments disagree**?
 - ▶ Take stock of what has been measured (and put it all in Rivet)
 - ▶ What measurements can be done to clarify the situation?
- **Understanding of MC predictions**: What do we understand, what can we calculate analytically?
- What **new measurements** can we think of?
 - ▶ Review observables that have not been measured, check usefulness
 - ▶ Define measurements that can help us to prepare for 14 TeV data
- Study **correlations of taggers/observables** (linear correlations might be small, what about higher orders?), ROC curves but also S/\sqrt{B} , define measurements to clarify
Where do certain taggers fail, in what phase space are some more efficient than others?
 - ▶ Clear list of differences between taggers on a conceptual level?
 - ▶ First-principles differences: very hard problem!
 - ▶ How to get past "the wall" in the $\text{eff} \times \text{mistag}$ curves?
 - ▶ Are the variables in the taggers sensible? Any improvements?

How can we best prepare for 14 TeV?

- Explore different tools over a range of P_T 's (1 TeV - 2 TeV)
 - ▶ How do they scale?
 - ▶ Look at grooming, tagging and other observables
 - ▶ Are their experimental versus theoretical problems?
- Are there differences between MC generators at very high boosts that are not apparent at lower boosts? Can we explain these? Future measurements needed?
- Recommendations for ongoing searches? What are the first measurements that should be done?
- What is the effect of the higher pile-up conditions on the various taggers/observables? How to mitigate it?
- Input for Snowmass studies
 - ▶ What are its limitations?
 - ▶ Where are the approximations justified?

Timeline

- **Now**
organize working groups / assign conveners
(call for contributions will also be sent to the BOOST email list)
- **2-3 weeks from now**
plans from the working groups with detailed plan of studies / milestones
- **Monthly meetings** of the whole group with progress reports
- **End of November**
deadline for contributions
- **End of December**
first draft

Comments/Suggestions/Contributions?

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