

Outcome of Discussion Session on STXS Beyond Stage 1.2.

Frank Tackmann

Deutsches Elektronen-Synchrotron

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Define two targets

- LHC Run 3
 - ▶ Stage 1.3: (Smaller) evolution/update from stage 1.2
 - ▶ Should happen immediately
 - ▶ Could also be reapplied to Run 2
- HL-LHC
 - ▶ Stage 2.0: 1000/fb
 - ▶ Stage 2.1: ...
 - ▶ A bit more time for studies, but starting now

Ideas for Binning: $gg \rightarrow H$.

$gg \rightarrow H$

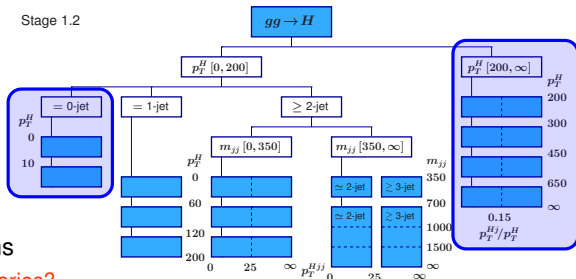
• Stage 1.3

- ▶ Add more low- p_T^H bins
→ Precise bin boundaries?
- ▶ Add more high- p_T^H bins
→ Precise bin boundaries?
- ▶ Clarify to mean hadronic production $gg + b\bar{b} + c\bar{c} + \dots \rightarrow H$

• Stage 2

- ▶ Split ≥ 2 -jet bin in $\Delta\phi_{jj}$ to gain CP sensitivity
→ Primarily as background to VBF
→ Consider whether it is worthwhile on its own at high p_T^H

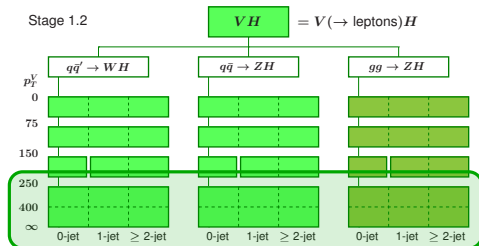
Stage 1.2



Ideas for Binning: VH and $t\bar{t}H$.

VH

- Stage 1.3
 - ▶ Add more p_T^V bins
 - Precise bin boundaries?
 - Solid 0-jet split everywhere?
- Stage 2
 - ▶ Consider additional 2nd variable
 - E.g. $\Delta\phi_{\ell\ell}$, $m_{T\text{tot}}$



$t\bar{t}H$

- Stage 1.3
 - ▶ Generalize to include tH
 - ▶ Add more p_T^H bins
 - Precise bin boundaries?
- Stage 2
 - ▶ Consider a 2nd variable

