

Table of Contents

H->bbbar Final State Subgroup (LHC HXS WG)	1
Group Contacts and Contributors.....	1
Meeting Agendae.....	1
Plan of Activity.....	1
Common cuts definition between CMS/ATLAS/LHCb.....	1
VH->Vbb for LHCb.....	1
Boosted VH->Vbb.....	1
Non-boosted VH->Vbb (PRELIMINARY proposal from ATLAS).....	1
Non-boosted ttH->ttbb.....	1
Boosted ttH->ttbb.....	2
Baseline Common Parameters.....	2
Available Tools.....	2
Results.....	2
References.....	2

H->bbbar Final State Subgroup (LHC HXS WG)

💡 Contribute to Sharepoint discussions here: [VH production](#), [ttH production](#), [bb final state](#). 💡

Group Contacts and Contributors

- ATLAS/CMS/LHCb Contacts: Chris Potter (Oregon)/Jim Olsen (Princeton)/Clara Matteuzzi (Milano-Bicocca)
- Experiment: Chris Potter, Jim Olsen, Clara Matteuzzi, Chris Neu, Chris Collins-Tooth, Giacinto Piaquadio, Douglas Wright, Michiel Sanders, Ben Smart, Andrea Messina
- Theory: Laura Reina, Michael Spira

All contributors are welcome!

Meeting Agendae

- February 2011 [↗](#)
- March 2011 [↗](#)
- May 2011 [↗](#)

Plan of Activity

- VH->Vbb differential K-factor (LO to NLO) in signal and background after common cuts with MC@NLO and POWHEG
- ttH->ttbb differential K-factor (LO to NLO) in signal with aMC@NLO
- evaluation of VH->Vbb and ttH->ttbb cross section uncertainties at NLO after common cuts

Common cuts definition between CMS/ATLAS/LHCb

VH->Vbb for LHCb

Boosted VH->Vbb

- $pt(H) > 200 \text{ GeV}$
- $pt(V) > 200 \text{ GeV}$
- No additional C/A jets with $pt > 20 \text{ GeV}$ ($|\eta| < 2.4$)

Non-boosted VH->Vbb (PRELIMINARY proposal from ATLAS)

- $pT(e/\mu) > 20-25 \text{ GeV}$
- $|\eta(e/\mu)| < 2.5$
- 2 jets with $pT > 25 \text{ GeV}$
- $MET > 25 \text{ GeV}$ (????)

Non-boosted ttH->ttbb

- exactly one isolated lepton with $pt > 25 \text{ GeV}$ (20 GeV) $e(\mu)$.
- ≥ 6 jets with $pt > 20 \text{ GeV}$
- ≥ 4 b-tagged jets with $pt > 20 \text{ GeV}$

Boosted ttH->ttbb

- $p_T(H) > 2 \cdot m_H$

Baseline Common Parameters

Use the parameters from this TWiki. These will be updated with PDG2010 (they are now PDG2009). For PDFs, use the NLO PDFs recommended by PDF4LHC: CTEQ6.6, MSTW2008nlo, NNPDF2.0.

Available Tools

- MC@NLO [↗](#)
- POWHEG Box [↗](#)
 - ◆ W+bb in POWHEG [↗](#)
- aMC@NLO [↗](#)
 - ◆ ttH in aMC@NLO [↗](#) (contact the authors at [amcatnlo@cernNOSPAMPLEASE.ch](mailto:amcatnlo@cern.ch)).

Results

References

- ATLAS Sensitivity to the Standard Model Higgs in the HW and HZ Channels at High Transverse Momenta ATL-PHYS-PUB-2009-088 [↗](#)
- Search for ttH->ttbb CERN-OPEN-2008-020 [↗](#) (pp. 1333-1363)
- Search for H->bb in Association with a ttbar Pair at CMS CMS-NOTE-2006-119 [↗](#)
- PDF4LHC Working Group Interim Recommendations arXiv:1101.0538 [↗](#)
- Handbook of LHC Higgs Cross Sections: 1. Inclusive Observables CERN-2011-002 [↗](#)

-- ReiTanaka - 02-Oct-2010

This topic: LHCPHysics > LHCHWGBb

Topic revision: r11 - 2014-11-04 - ReiTanaka



Copyright &© 2008-2021 by the contributing authors. All material on this collaboration platform is the property of the contributing authors.
or Ideas, requests, problems regarding TWiki? use Discourse or Send feedback