

# ZH→vvbb news & plans



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ZH->vvbb phone meeting – 24/1/2012

# ZH->vvbb Support Note

- Editors: Bill Murray, Song-Ming Wang (thanks for agreeing to do this!)
- ATL-COM-PHYS-2012-062
- CDS record: <https://cdsweb.cern.ch/record/1418230>
- SVN area for note:
- [https://svnweb.cern.ch/cern/wsvn/atlasgrp/Physics/Higgs/HSG5/data\\_7TeV/ATL\\_COM\\_PHYS\\_2012\\_062/?#a4470a5853c554280be1c7676e8f5af2f](https://svnweb.cern.ch/cern/wsvn/atlasgrp/Physics/Higgs/HSG5/data_7TeV/ATL_COM_PHYS_2012_062/?#a4470a5853c554280be1c7676e8f5af2f)
- Instructions for SVN are here:  
[https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#SVN\\_Areas](https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#SVN_Areas)

# Actions!

- From last phone meeting (20/1/2012)  
<https://indico.cern.ch/conferenceDisplay.py?confId=173473>
  - Laurent to send around recipe to recalculate MET\_RefFinal when using Z->ll to mimick Z->vv (to avoid double-counting muon energy deposit in calorimeter)
  - Ricardo to put Paul's mistag rate parametrization in wiki. Done:  
[https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#B\\_tagging](https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#B_tagging)
  - Ricardo to put link to trigger D3PD information in wiki. Done:  
<https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#Trigger>
  - Ricardo to update ZH->vvbb wiki with correct cuts for lepton veto: done (updated  $p_T > 10\text{GeV}$ )
  - Matt to add available MC samples to wiki. Done:  
[https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/ZHtoMETbbFall2011#Available\\_MC](https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/ZHtoMETbbFall2011#Available_MC)
  - David to re-do trigger study (what was missing?)
  - Ricardo to send around muon trigger scale factors (H->bb general issue): see next slide
  - IFAE and Ac.Sinica to prepare new skim using same cuts and object ID as the WH analysis to be prepared to change at a later date if needed

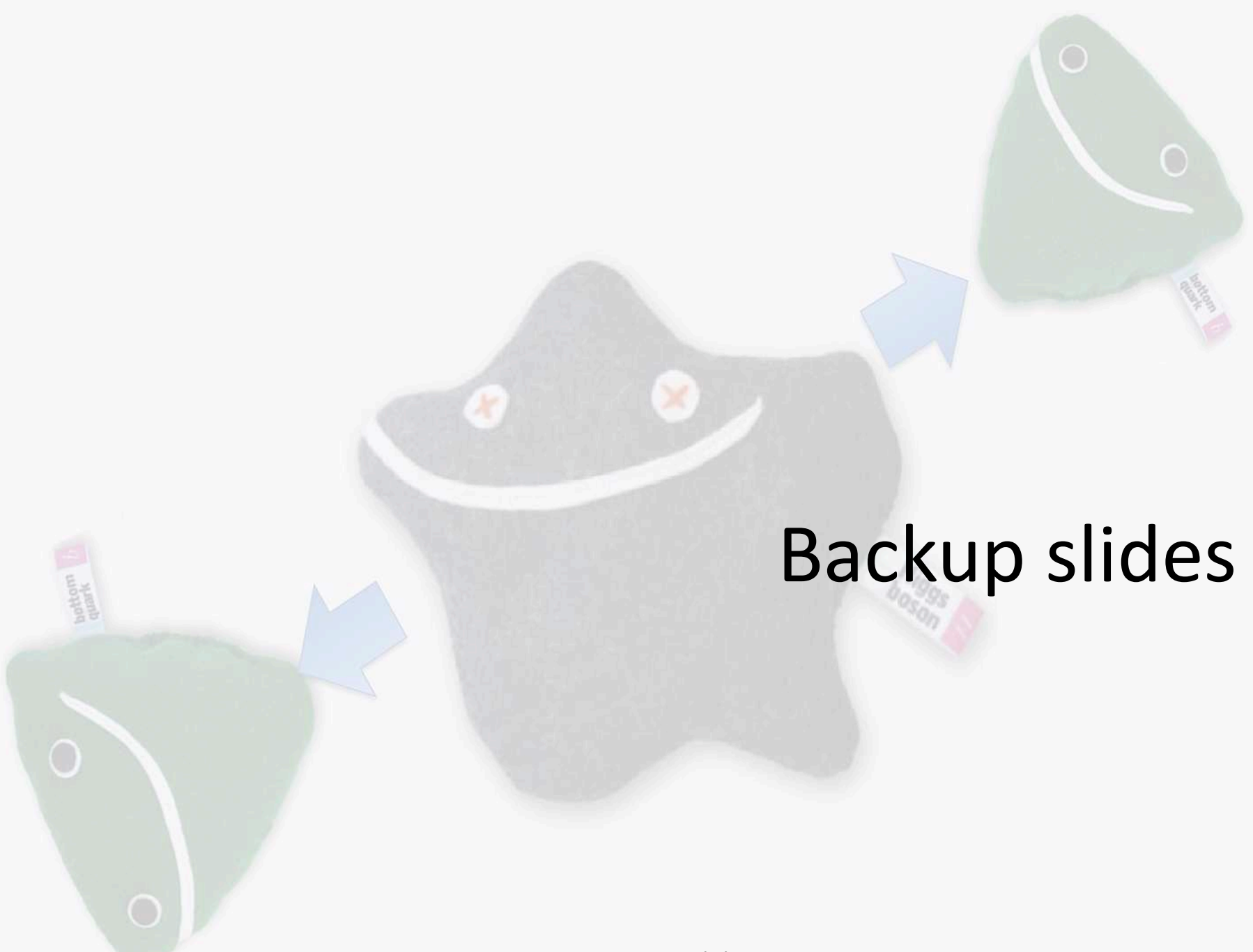
# Trigger Scale Factors – from Stefano Rosati

- Muons
  - Reweighting code is in the package: Trigger/TrigAnalysis/TrigMuonEfficiency
  - For standard muons basically all tags are ok
  - Latest validated is TrigMuonEfficiency-00-00-12
  - But content of the histos didn't change since December (i.e. used for 4l analysis for the council, for example),
  - No wiki, but there is a readme in the package and it should be straightforward.
  - The muon trigger needs some correction because of the efficiency drop there was in the barrel during period L , for L1 trigger
- For electrons:
  - Impact of the correction is much smaller than muons
  - It is slightly larger (but still  $< 1\%$  ) with respect to loose++ electrons
  - Anyway the reweighting code is documented here:  
<https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/EfficiencyMeasurements> together with offline efficiency

# Plan for today

- Before meeting do first iteration of cut-flow comparison between all groups:
  - Use agreed data, cuts and cut sequence
  - Put numbers on wiki
- Plan to have a close look at the  $\langle \mu \rangle$  rescaling:
  - Is the effect on MC11b as we expect?
  - Systematics for MC11c?
- Discuss inputs for limit setting (Ricardo added Lianliang to mailing list)
  - Establish format of inputs: list of variation histograms (with names... try to be consistent with other analyses)
- If possible: have a closer look at which electron ID would be best for the electron veto (thinking about a possible change later)

# Backup slides



# ZH→vvbb Publication Plans

- From PC/subconveners meeting:
  - Latest circulation date to ATLAS is 17<sup>th</sup> February
  - Higgs approval to be arranged with Ed.Board
- In practice:
  - This means 2<sup>nd</sup> February Higgs approval for paper – very little margin
  - Plan is more clear for WH and ZH→llbb, the status is not as good for vvbb yet
- To gain a few days:
  - ZH→vvbb will be submitted as support documentation to be included in paper
  - This means that we can turn it into CONF note if not in schedule for paper
  - Now thinking about editors for note



# Minutes of last meeting

- Cut flow comparison:
  - Cut sequence to compare agreed: use sequence shown in Jake's talk
    - No Cuts
    - GRL
    - LAr Error (reject larError==2)
    - Trigger (EF xe70 noMu)
    - Vertex (Ntracks  $\geq 4$ )
    - SumEt (reject SumEt < 0)
    - Jet Cleaning
    - LAr HoleMPT (> 30GeV)
    - Electron veto
    - Muon veto
    - Number of good jets (= 2/3)
    - Number of b-jets (== 2)
    - ETmiss (> 120GeV)
    - dR(bj1, bj2)
    - dPhi(ETmiss, H)
    - dPhi(ETmiss, ClosestJet)
- We should use per-jet mistag rate parametrisation from Paul's presentation - now in main HSG5 wiki:  
[https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#B\\_tagging\\*](https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Higgsbb#B_tagging*)  
Agreed cuts and object ID baseline - may change for final numbers



# Regular meetings

- Propose additional short meetings on Friday:
  - Friday 20 – 10am
  - Tuesday 24 – regular slot
  - Friday 27 – 10am
  - Tuesday 31 – regular slot
  - Friday 3 – 10am
  - Tuesday 7 – regular slot
  - Friday 10 – 10am