bbH Analysis Status

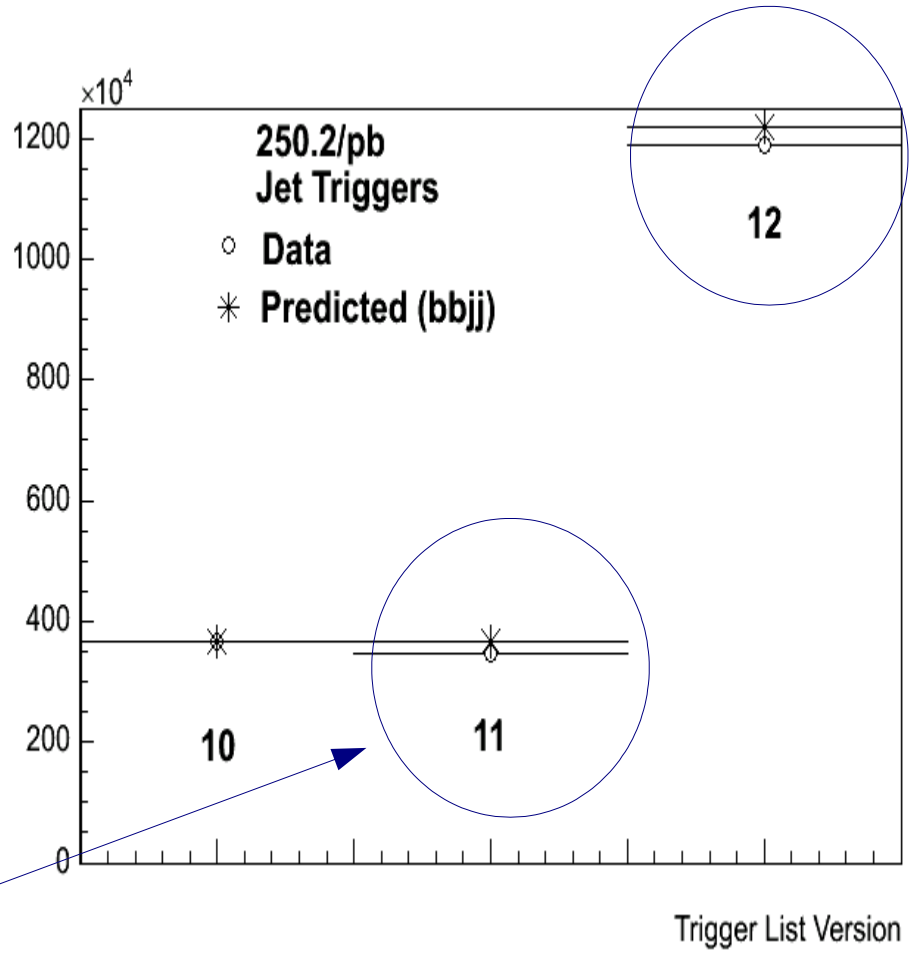
- New data
- Some crosschecks
  - M_{bb} is interesting
- Limits after optimized kine. cuts →
- Schedule

Using S/sqrt(B) Optimization

Mass	njmin	ET1 2 3 cut	njmax
90-100	3	35 20 15	6
110-120	3	45 25 15	6
130	3	50 35 15	6
150	3	65 35 15	6

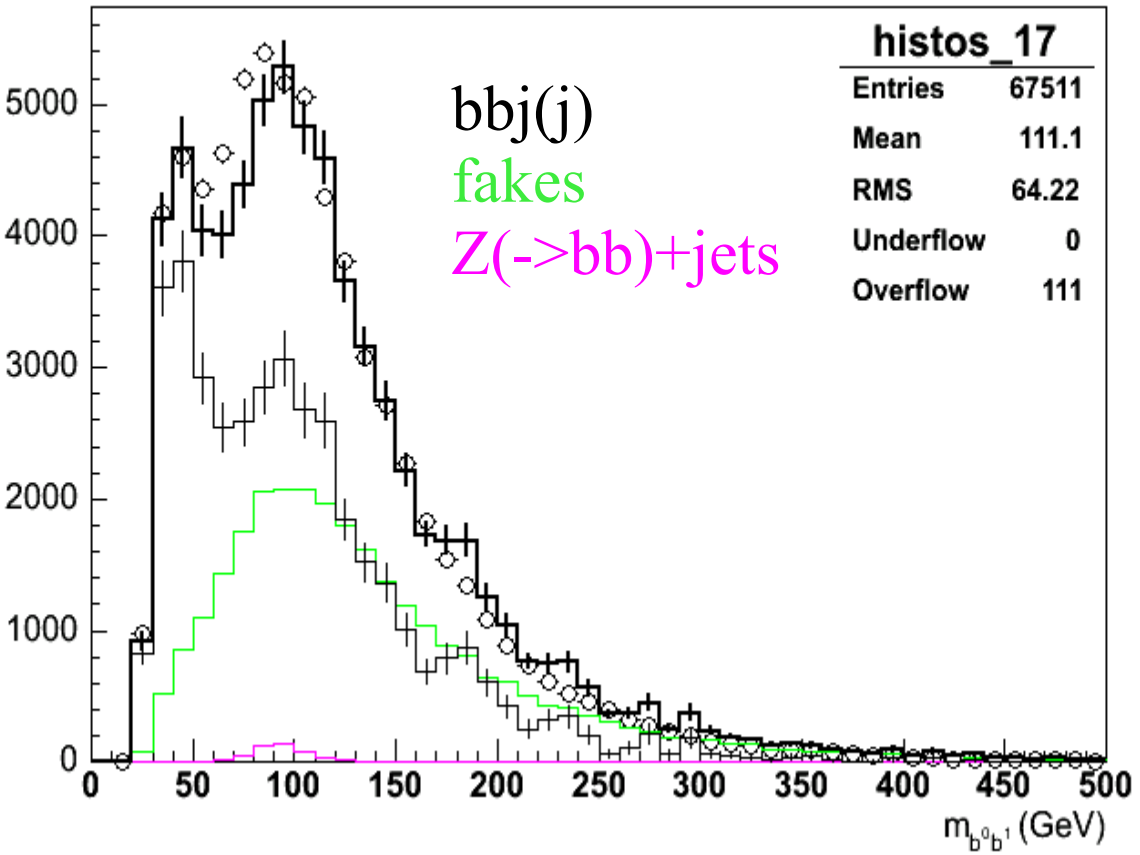
New data

- Jyothsna has processed the post-April2004 data.
- I estimated the luminosity (based on the # of events) **+40/pb = total of 250/pb.**
  - We need to calculate the actual luminosty on the jet and muon branches... need parentage files?
- We still may be missing a few % of events...
  - Still crashed files?



M_{bb}

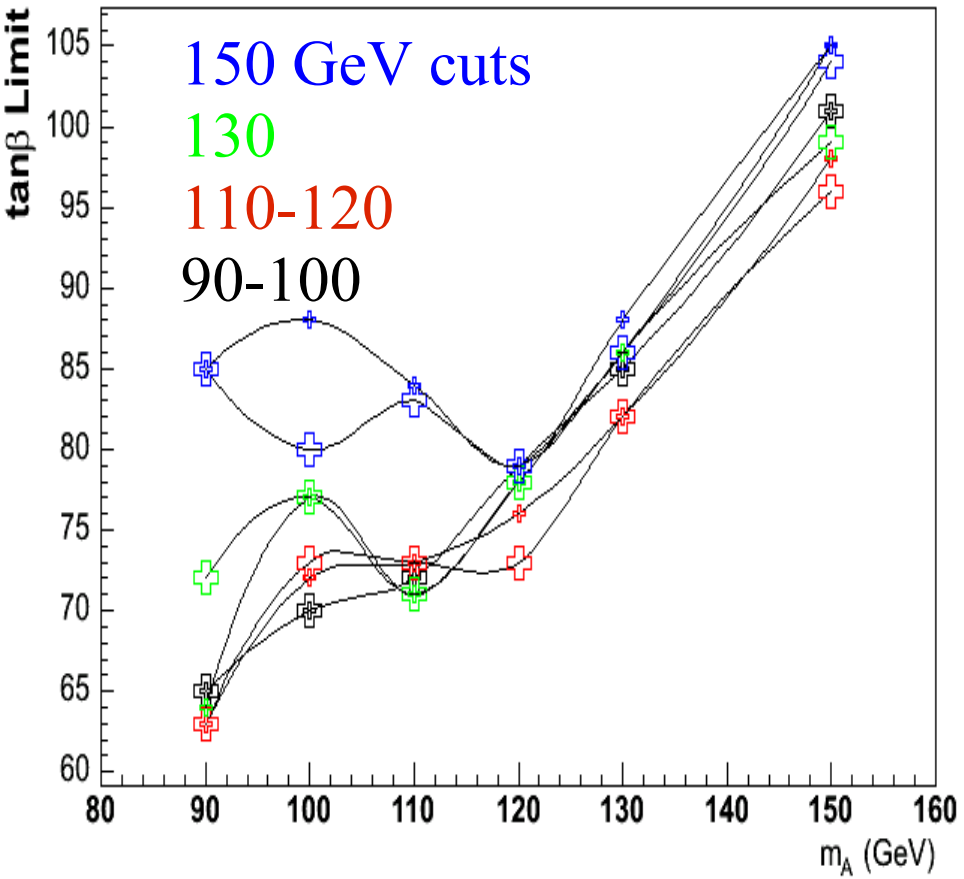
- The M_{bb} distribution: mass of two leading b-tagged jets
- Different spectrum for bbj(j) than fakes!
  - Gluon splitting… ?
- Have we made the most of this?
- This shows in a new way that we do understand our backgrounds



Events with >= 2 b-tags

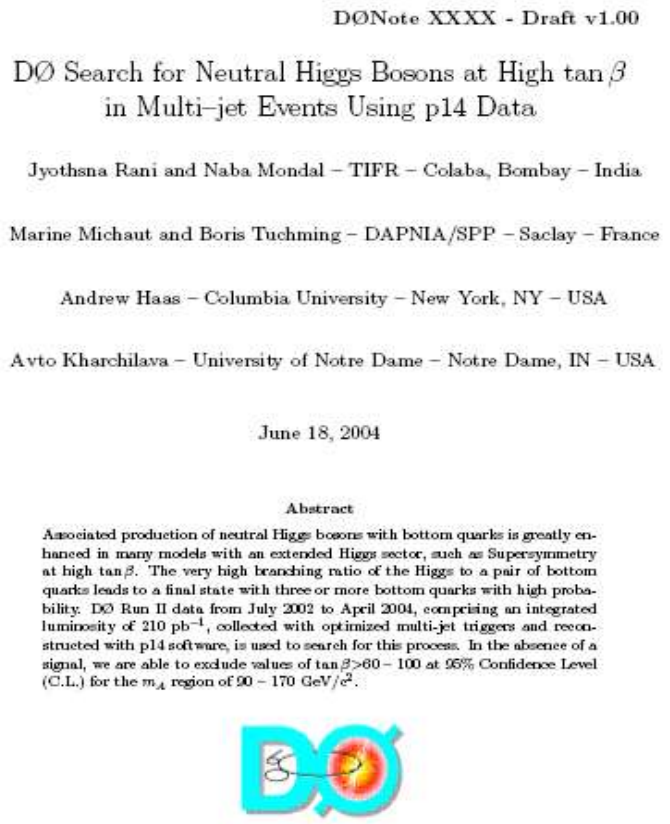
Limits

- I've processed all the data, using each set of optimized kinematic cuts from Jyothsna
  - Derived from maximizing S/sqrt(B) in Monte Carlo
- In general, they don't help much, and often hurt...
  - I suggest we always use the loosest cuts (black points)



Working on ...

- Data set (luminosity)?
  Monte Carlo -> bbj(j)?
- Jet resolution?
  - Have these numbers been finalized?
- Higgs width?
  - Maybe we just ignore mA=150 ?
- **Finish the DONote...**
- **Schedule:**
  - **I'm at CERN next week (!)**
  - **Then we have 2 weeks to polish the analysis and write a PRL...**



DØNote XXXX - Draft v1.00

DØ Search for Neutral Higgs Bosons at High tan β in Multi–jet Events Using p14 Data

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Abstract

Associated production of neutral Higgs bosons with bottom quarks is greatly enhanced in many models with an extended Higgs sector, such as Supersymmetry at high tan β. The very high branching ratio of the Higgs to a pair of bottom quarks leads to a final state with three or more bottom quarks with high probability. DØ Run II data from July 2002 to April 2004, comprising an integrated luminosity of 210 pb^{-1}, collected with optimized multi-jet triggers and reconstructed with p14 software, is used to search for this process. In the absence of a signal, we are able to exclude values of tan β>60 – 100 at 95% Confidence Level (C.L.) for the m_A region of 90 – 170 GeV/c^2.