HBD report

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HBD meeting

2011.04.06

- Normalize background in M. vs. p_T without applying any HBD cut → Fix normalization to a very high precision which will still be valid when the normalized spectra are sliced according to signal likeliness using HBD variables
- For signal likeliness many options
  - Background subtracted charge
  - Neural network trained on MC
  - Background subtracted charge in closest pad.
- For each pair following values are histogrammed:
  - M, p_T, Min(NNvar), Min(Q_S), Max(Q_L), Min(Q_ClosestPad)
- If we want to put a maximum cut on every electron, we can just make sure the minimum in the pair passes the cut
- EiD somewhat tight (n0>=3, disp<5.5, e/p>0.6, no emc matching yet)
- CabanaBoy with 8 zvtx pools & 10 centrality pools, pd=100
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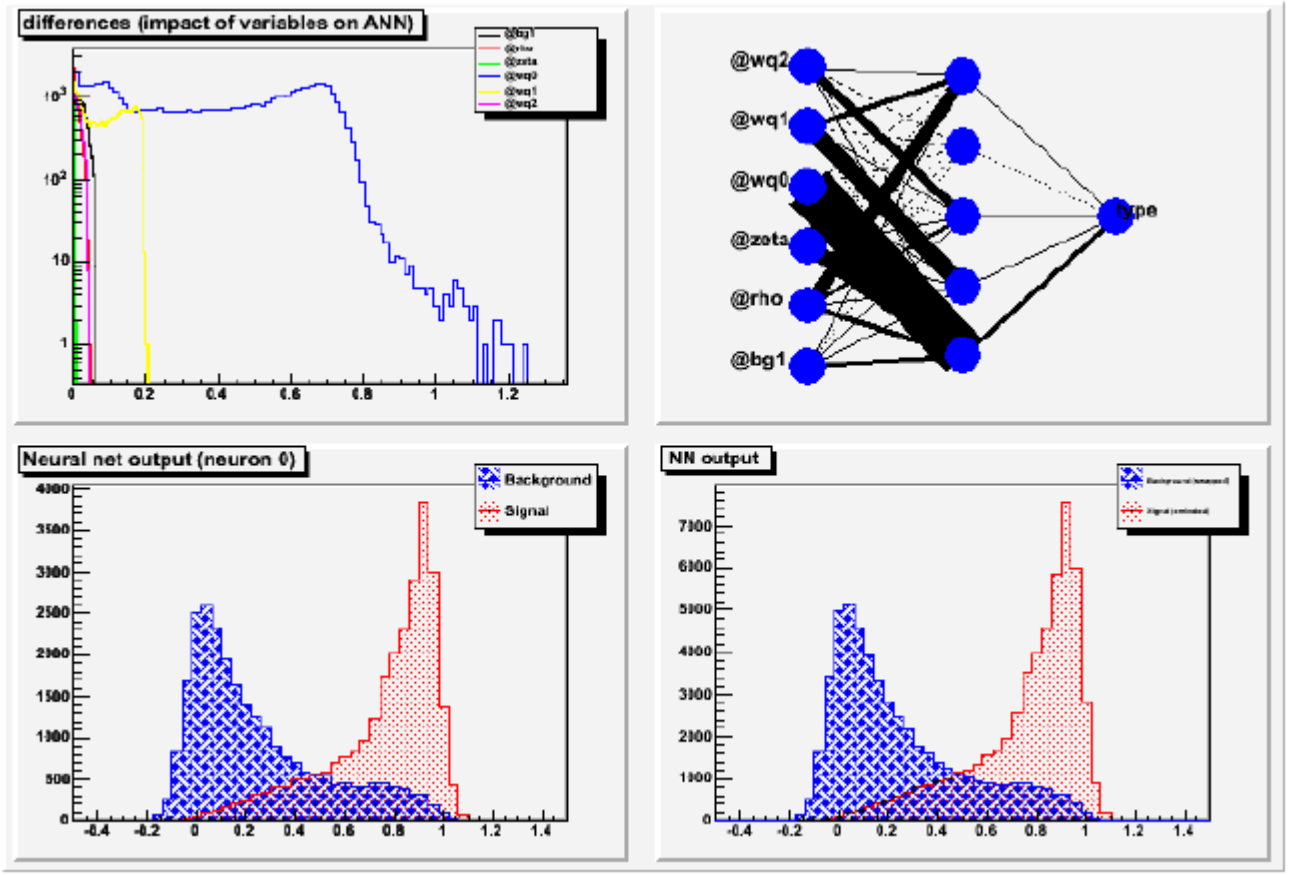
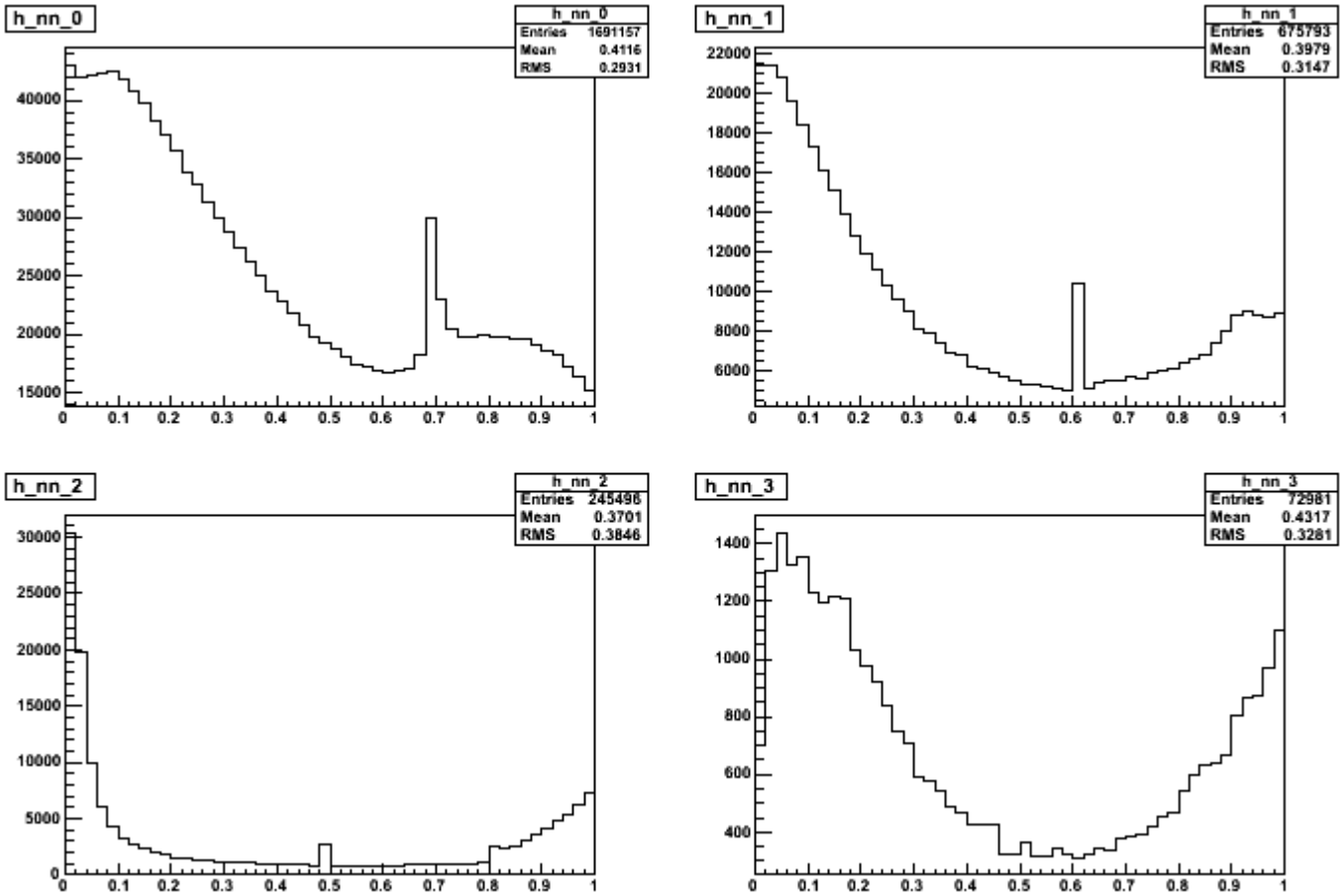
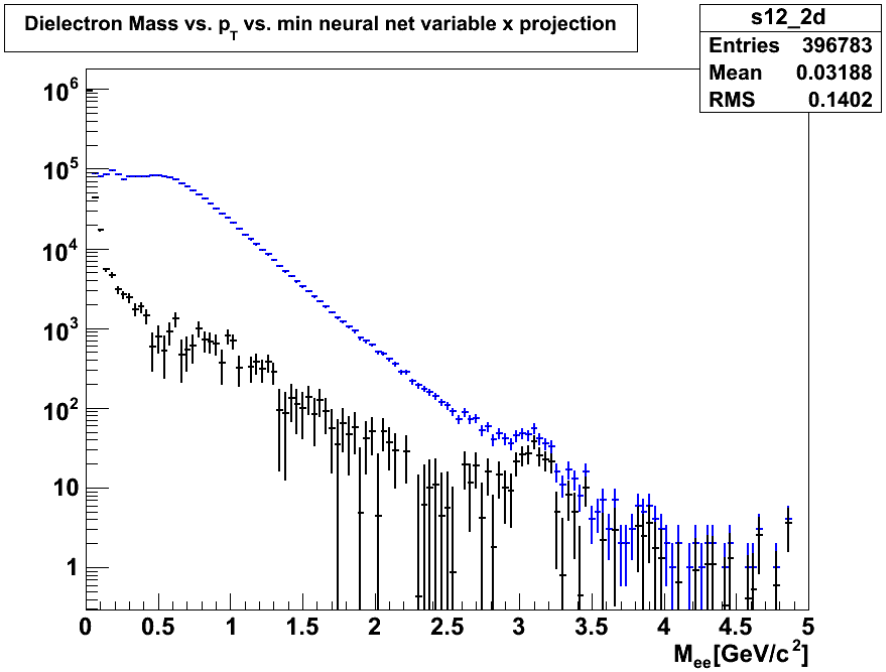
NN in montecarlo

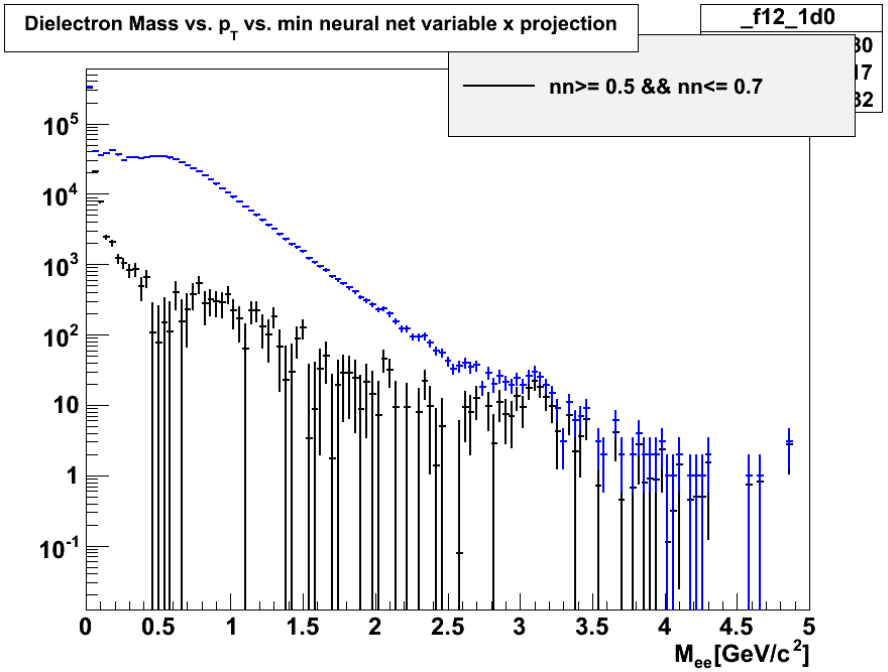


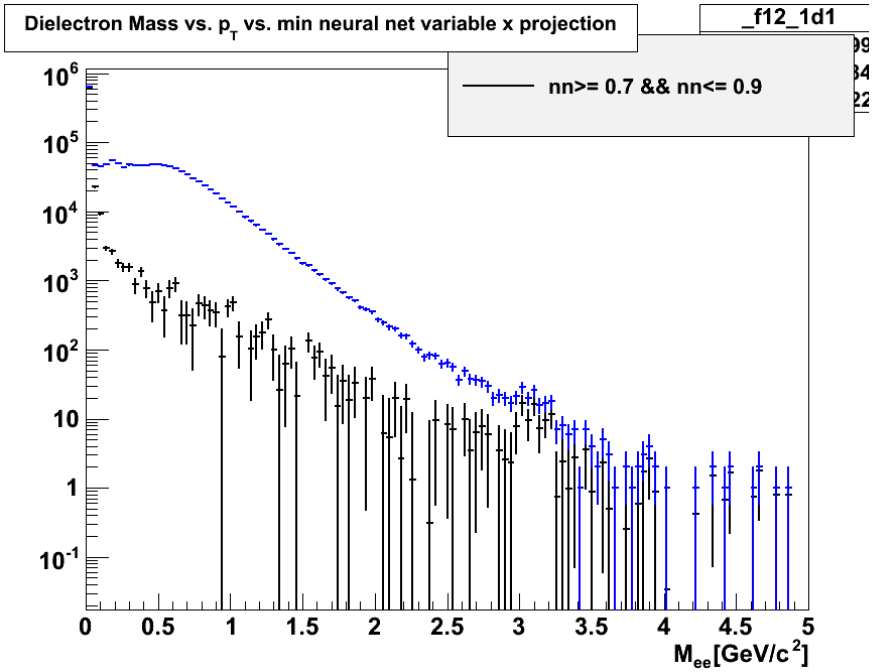
NN in real data

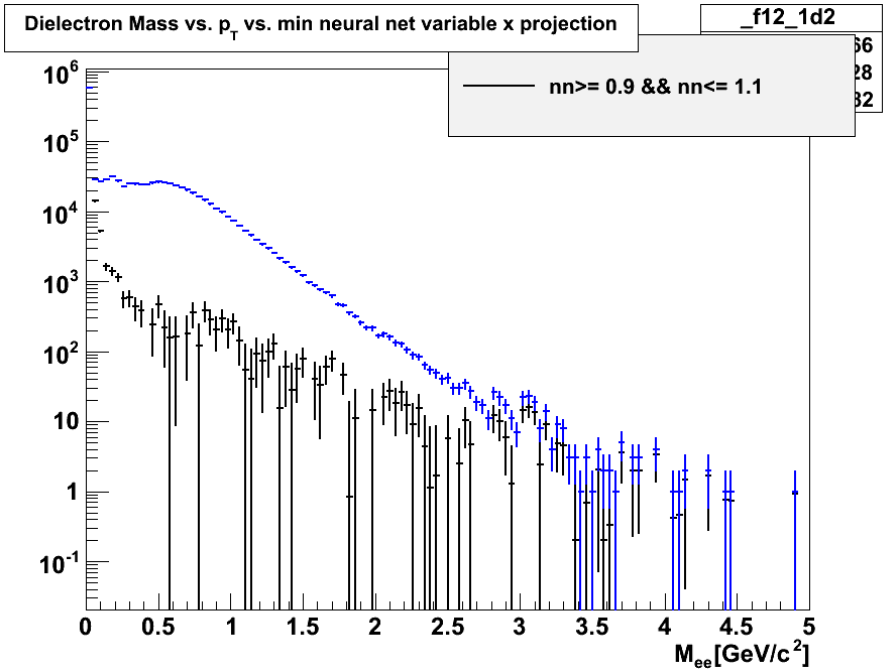


Testing NN with J/psi







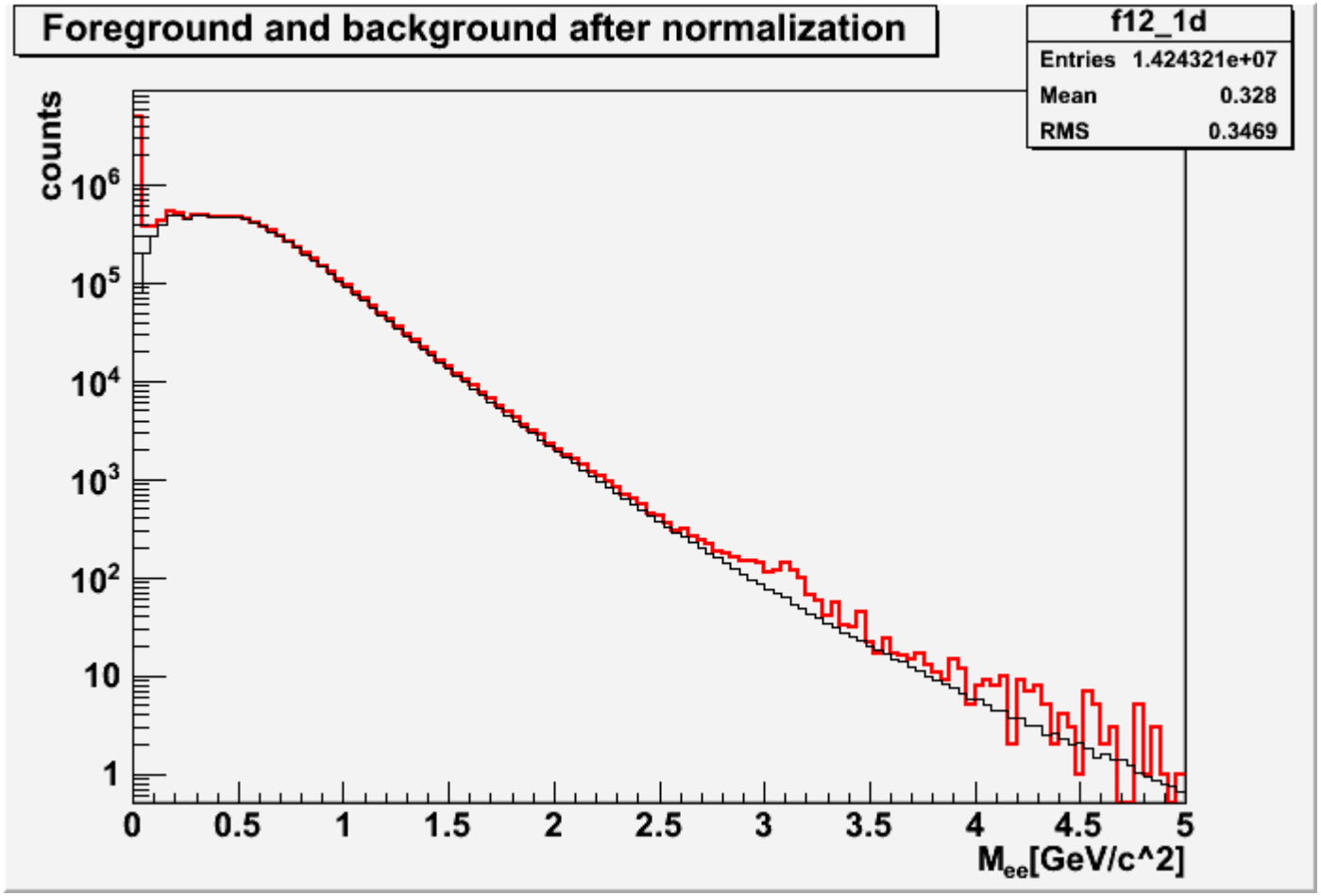


Other HBD variables

- Charge (bg subtracted) of the pad closest to the track projection
  - Jiayin has seen that for most tracks rho, zeta don't matter and charge in the central pad is the most important variable in our NN mix.
- The charge from the clusterizer.
  - For double separation, it works just okay

Unlike FG and normalized BG

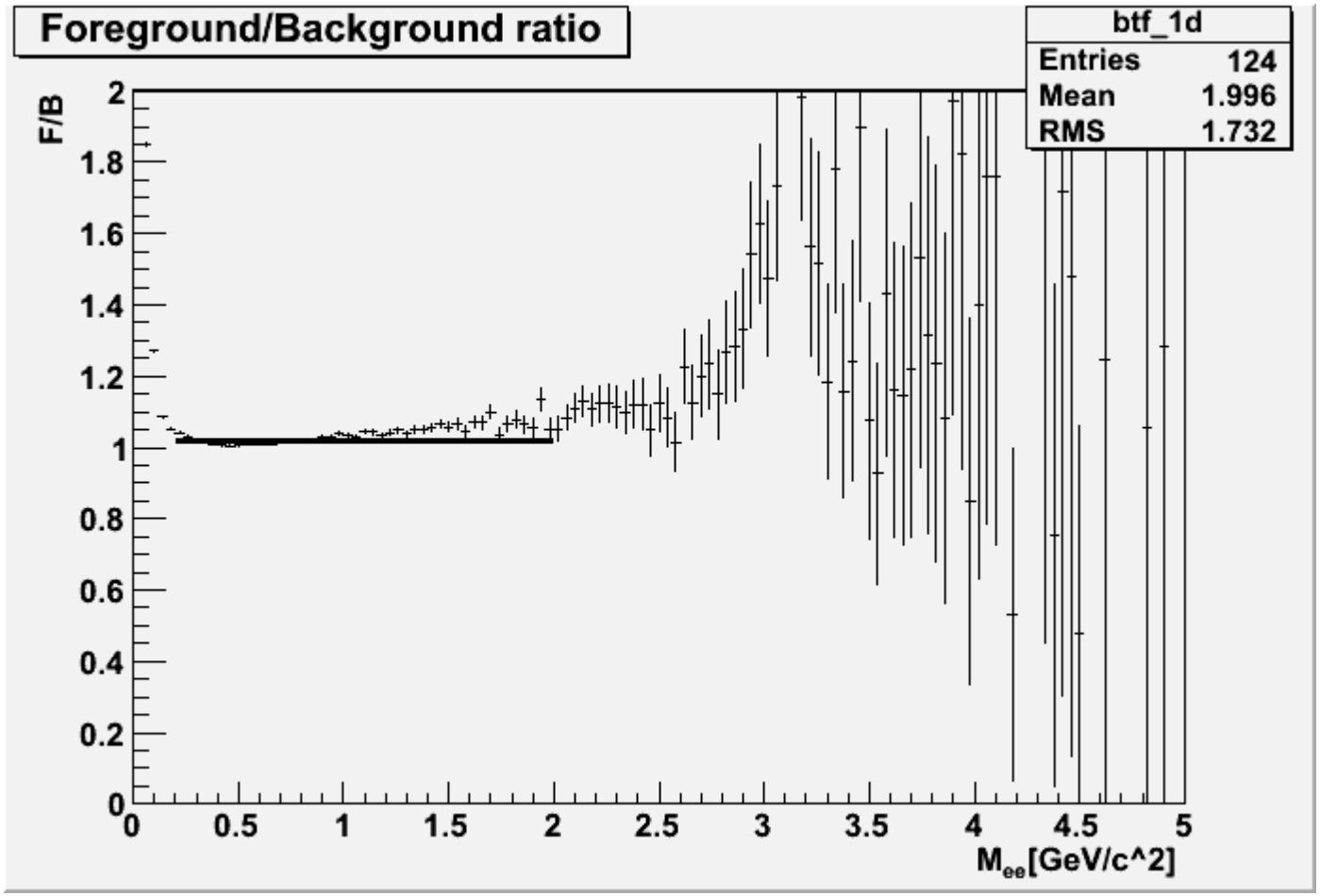
40-100%



Background normalization is well constrained

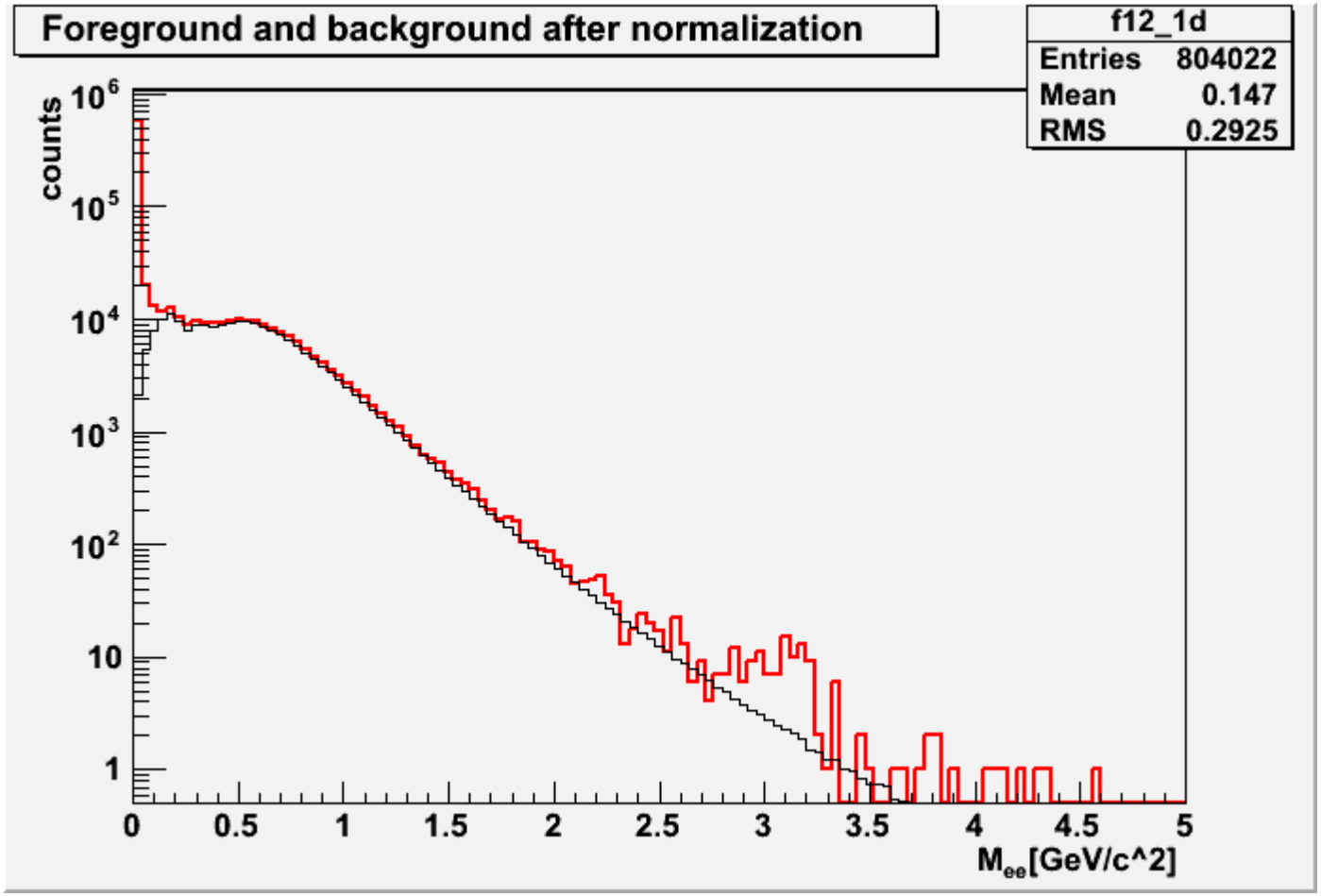
FG/BG ratio

40-100%



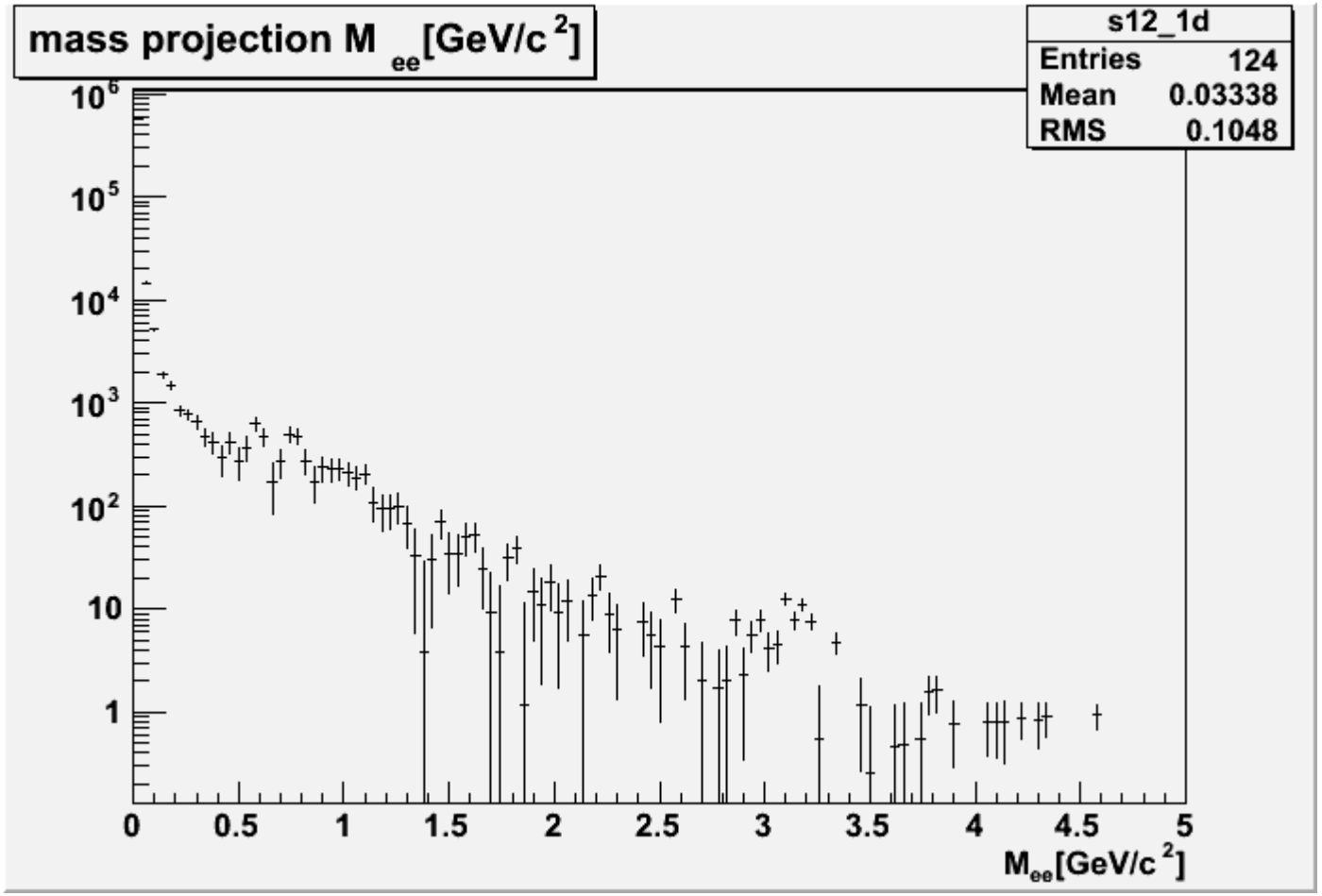
Cutting on Q_ClosestPad && Q_L

40-100%



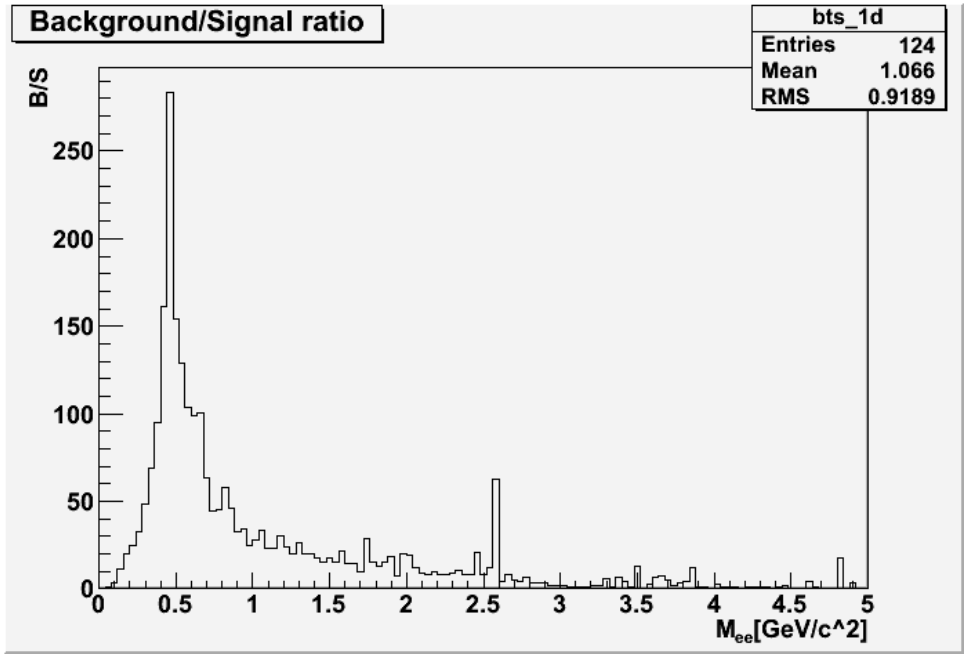
The net signal

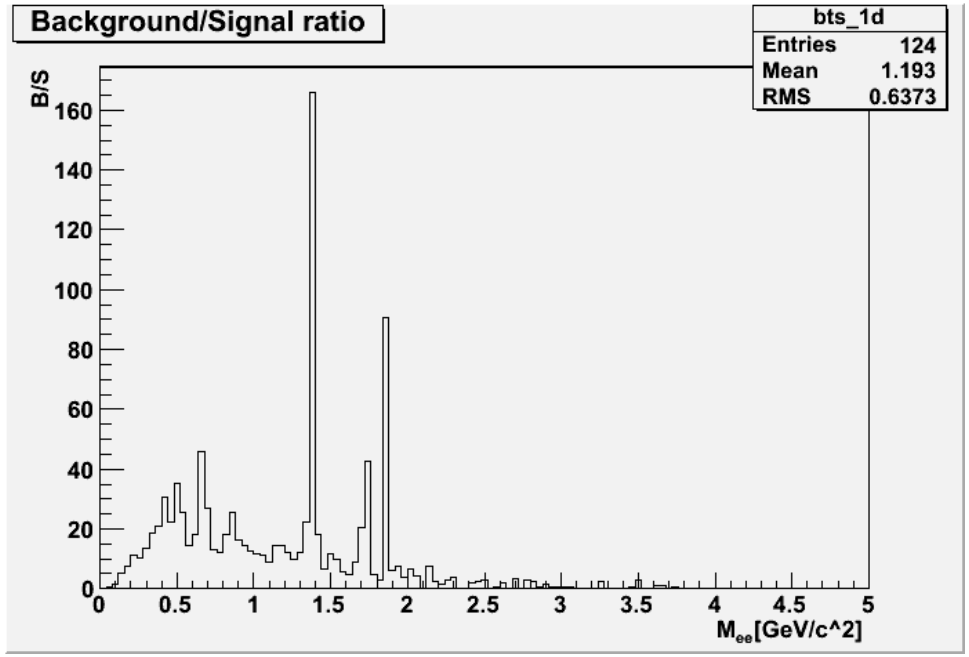
40-100%



B/S comparison w & w/o HBD

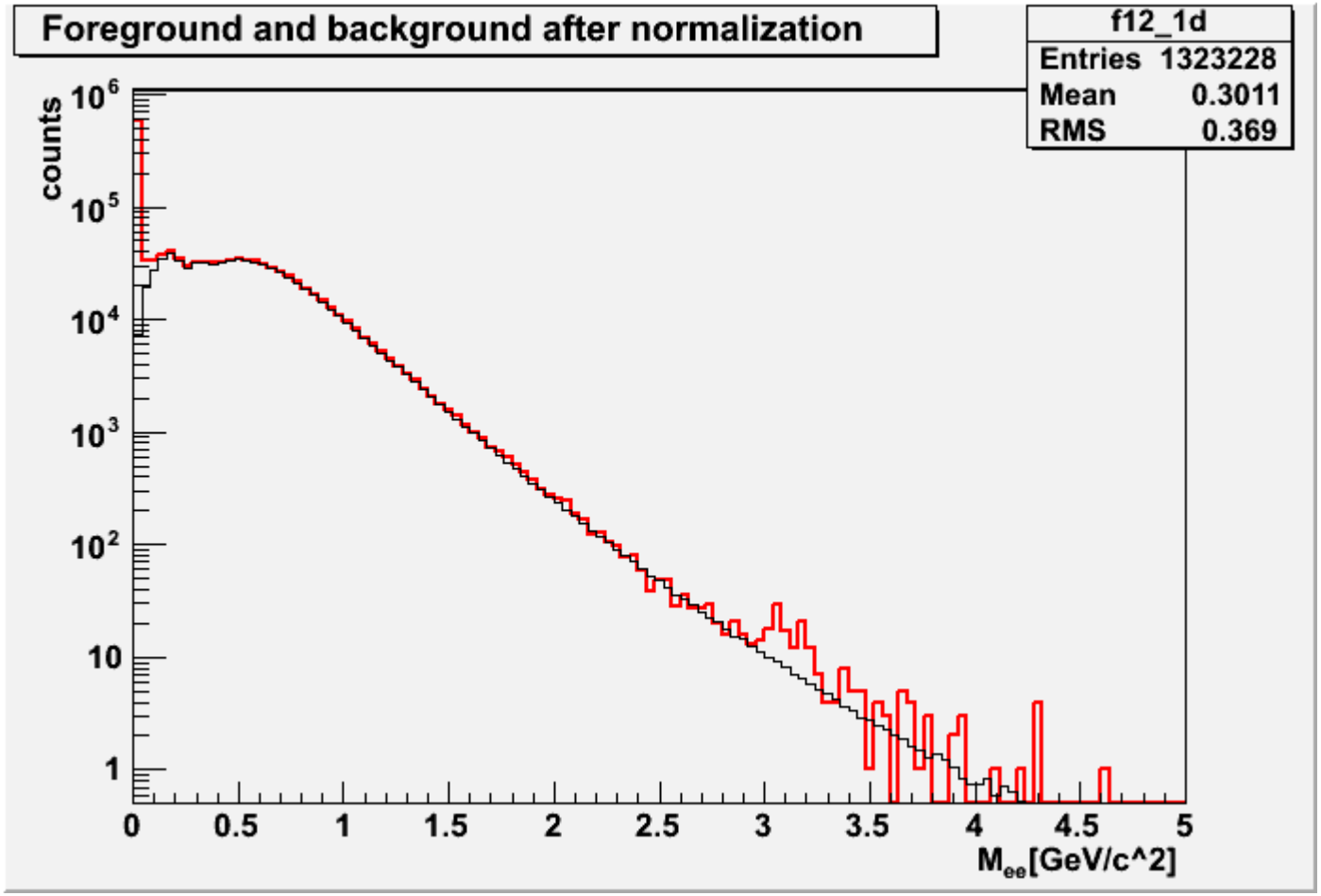
40-100%





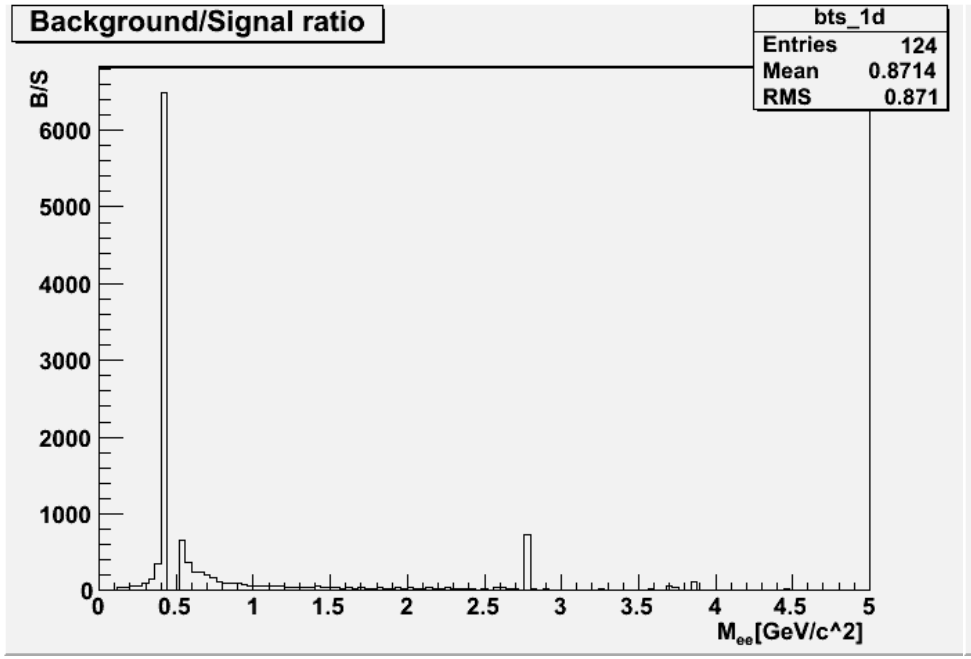
FG and BG with HBD cuts

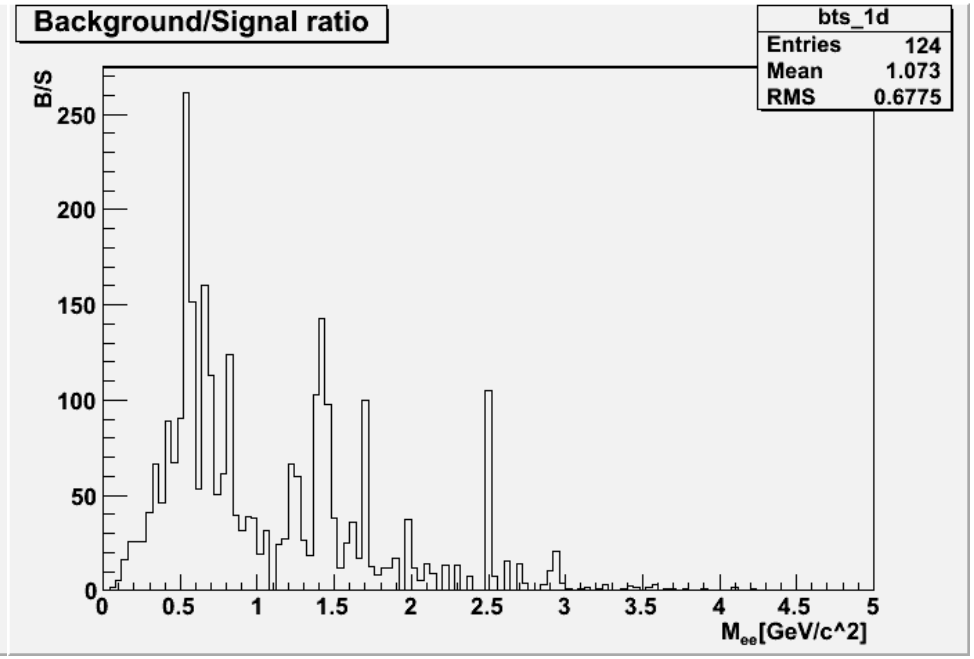
20-40%



B/S comparison w & w/o HBD cuts

20-40%





TTD

- More detailed look at normalization
- Validation of a set of HBD cuts that can be reproduced in RD
- Efficiency calculations for HBD variables and C.A EiD
- Further QA and EiD cut tuning
- etcetera