Diffractive J/Ψ

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Diffractive QCD Meeting

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Outline

- Data Sample
- Rapidity Gap
- My Results
- Next Step

Data Sample

- Data files on disk for B-physics
- Events selected using the JPSIFLAG selector of BANA and the 2MU skim cuts
- Output files in:

/prj_root/1002/ckm_write/2MU-JPSIFLAG/*

- 2.71638e+06 events

- Loop over muons:

  mu1 variables (η, ϕ, pT, E, charge)

  Loop over muons:

    mu2 variables

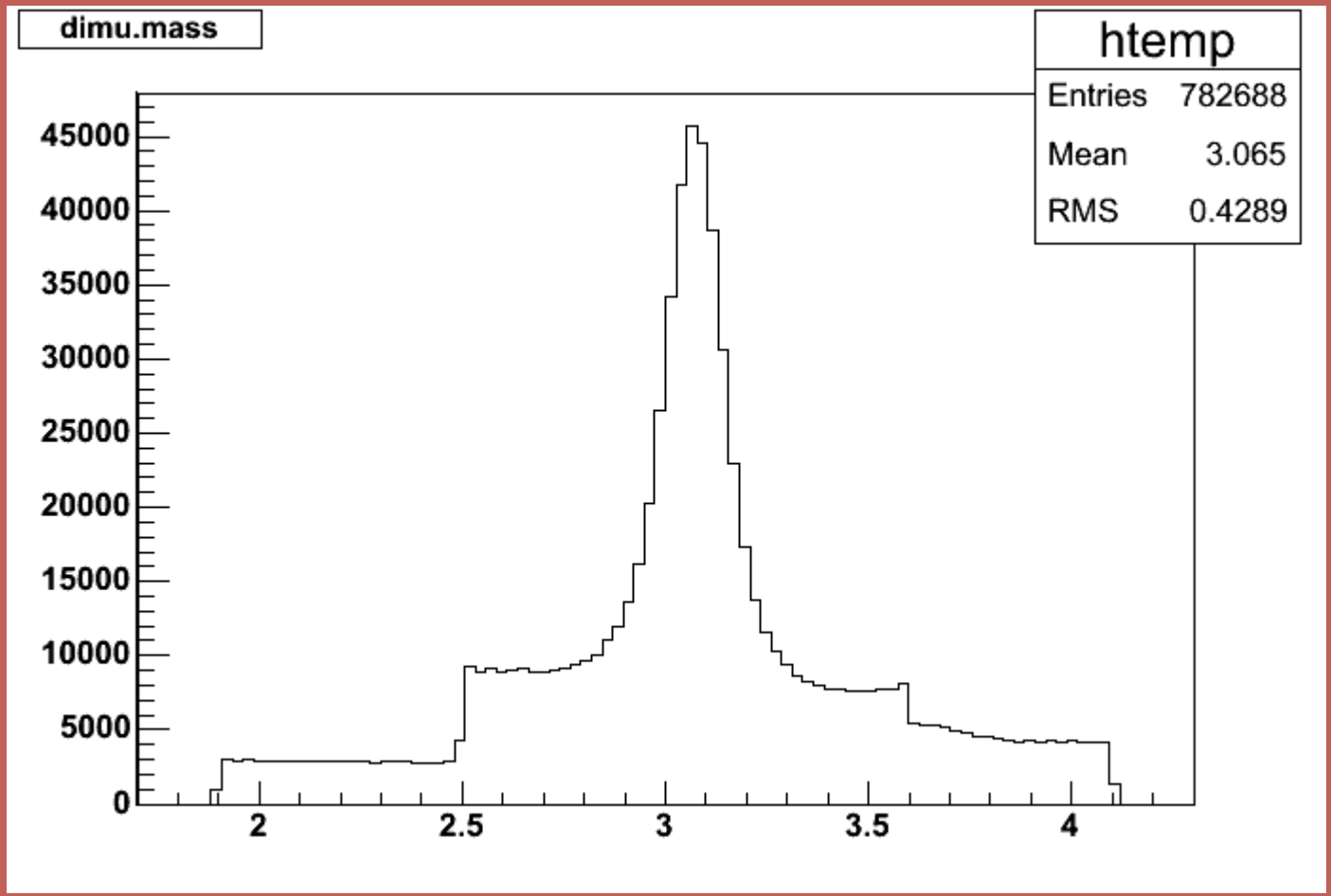
    “mu1+mu2”

    if mu1_charge+mu2_charge=0

    and 2.0<mass<4.0

      DIMUON

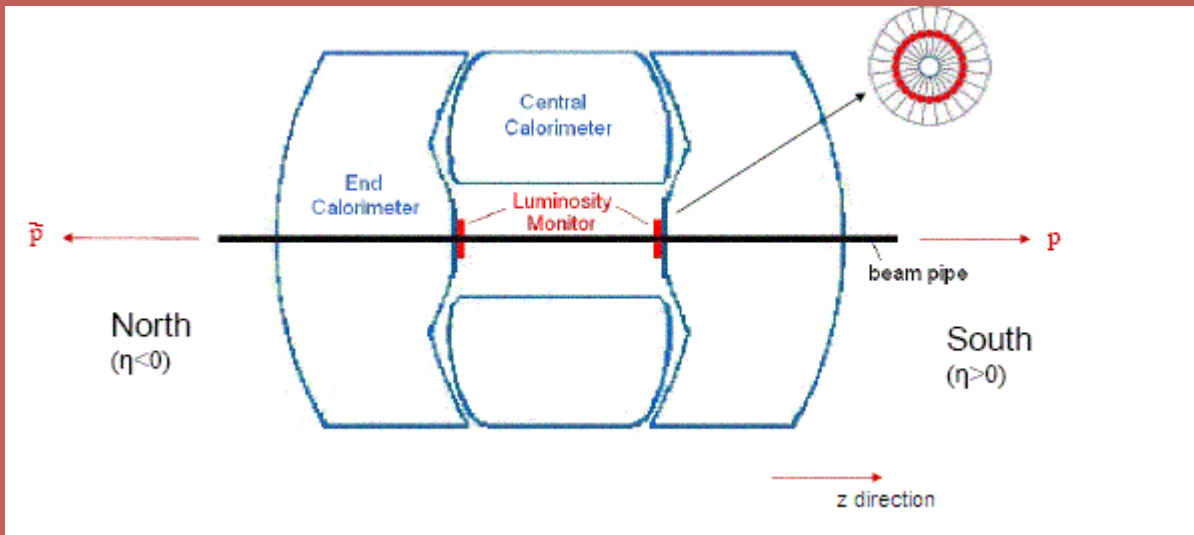
J/Ψ pick of mass:



Rapidity Gap

- Diffractive processes can be identified by their rapidity gaps, which are pseudo-rapidity regions (η) devoid of particles and energy deposition.
- One of the ways to study these gaps is using the gap triggers.
- Gap Triggers require that one or both detectors of the Luminosity Monitor (LM) is off.

- The LM has two detectors, North and South, covering the range $2.7<|\eta|<4.4$



- The outputs from the 24 scintillator wedges are summed leading to an on/off signal for each side

- The gap triggers use L1 condition based on the LM and/or terms:

  1)GapN: LM_North off
  2)GapS: LM_South off
  3)GapNS: both detectors off

- Sometimes the North or South a/o terms are not set when the detector is hit => 'false gaps'

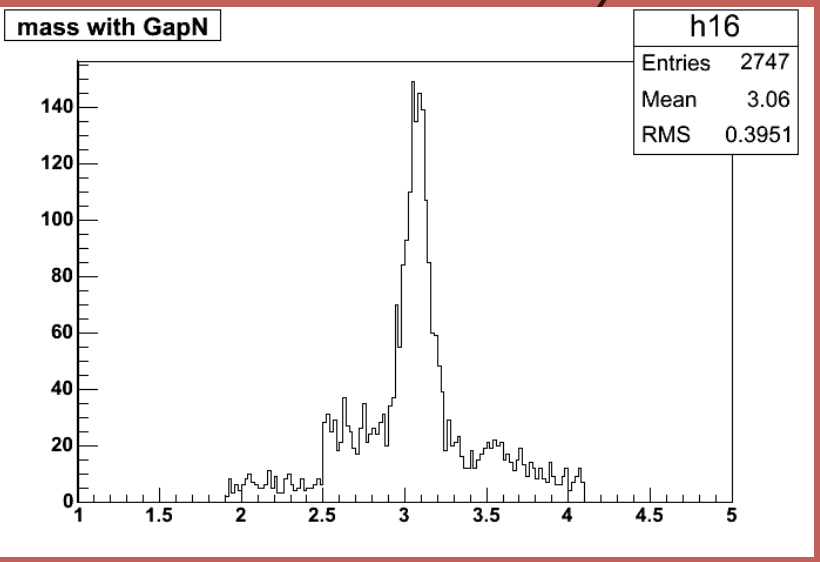
To avoid the use of those false gaps:

1)FastZ: both detector hit in coincidence
2)AHalo: South fired early
3)PHalo: North fired early

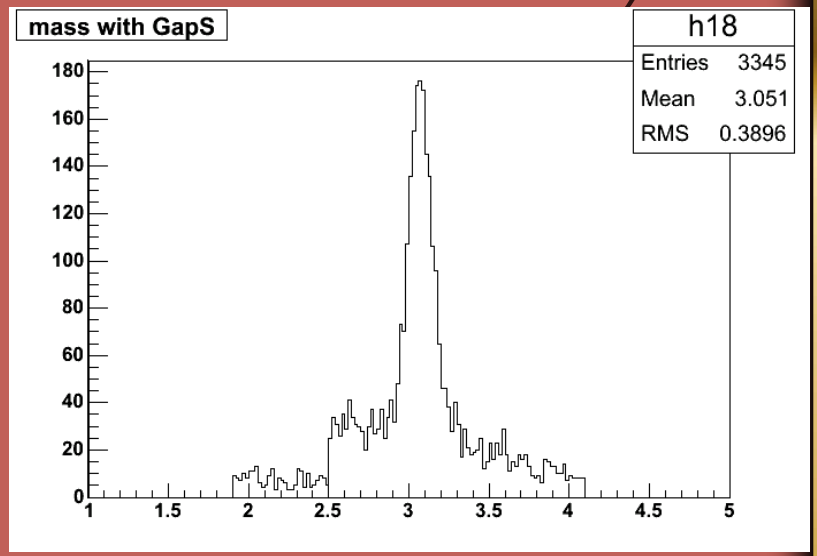
Gap events should not contain these events!!!

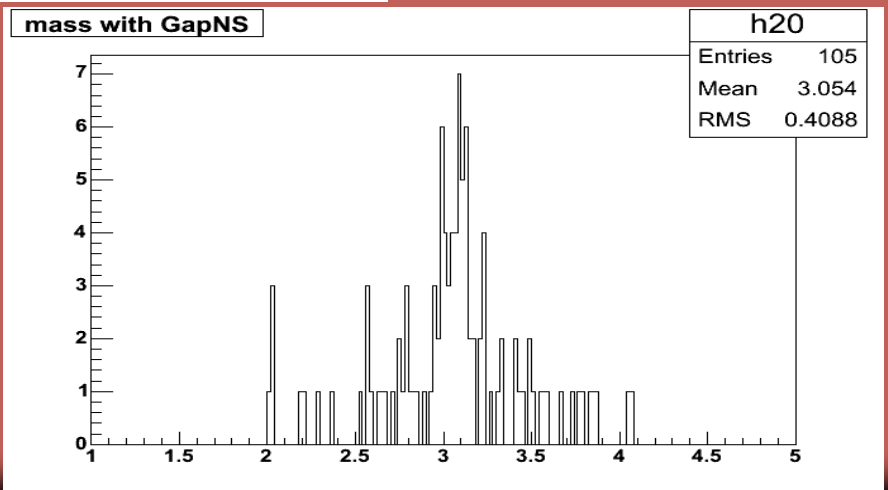
My Results

- North off (FastZ, AHalo and PHalo off)



- South off (FastZ, AHalo and PHalo off)





Next Step

- Improve the J/Ψ selection
- Use the calorimeter cells to look for rapidity gaps