

Studies of two track separation

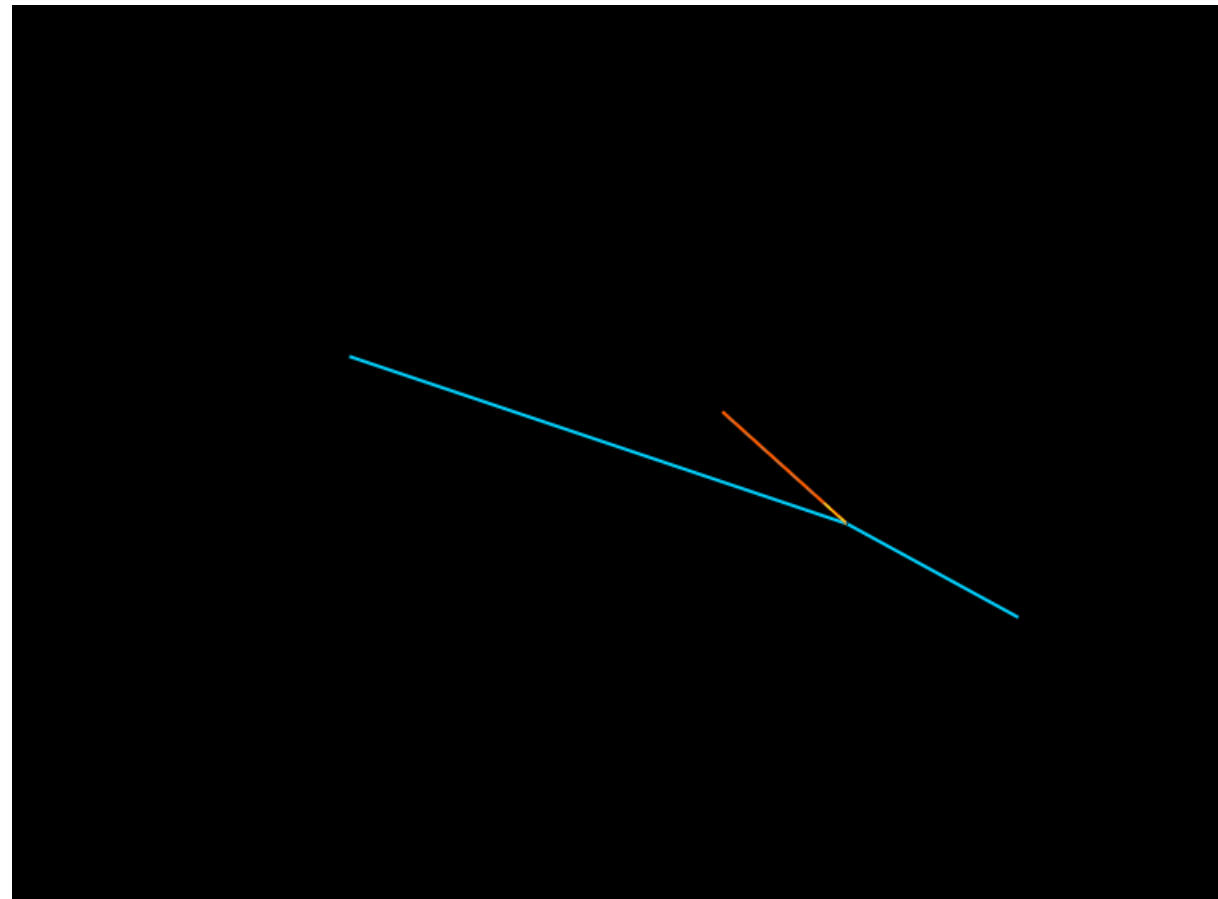
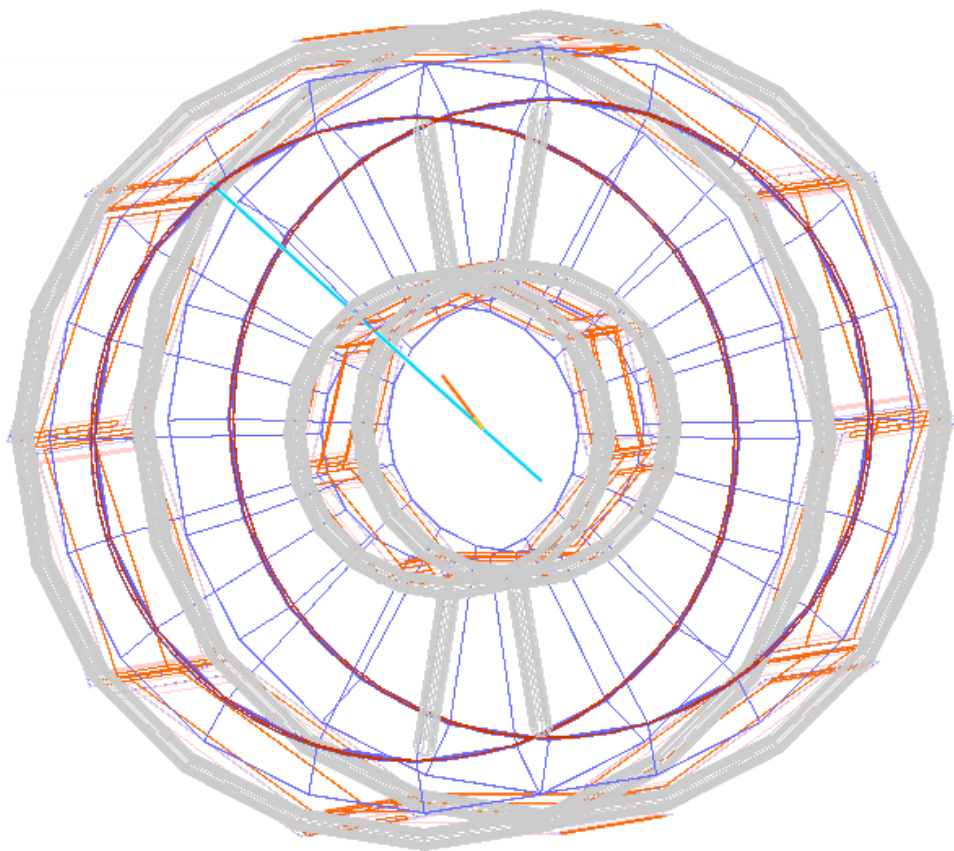
Li Qiuyang, Ruan Manqi, Yao Weimin



Outline

- Introduction of two track separation
- Mainly variables for Closest Distance study
- The influence of changing Trackersize for Closest Distance
- Summary

Introduction



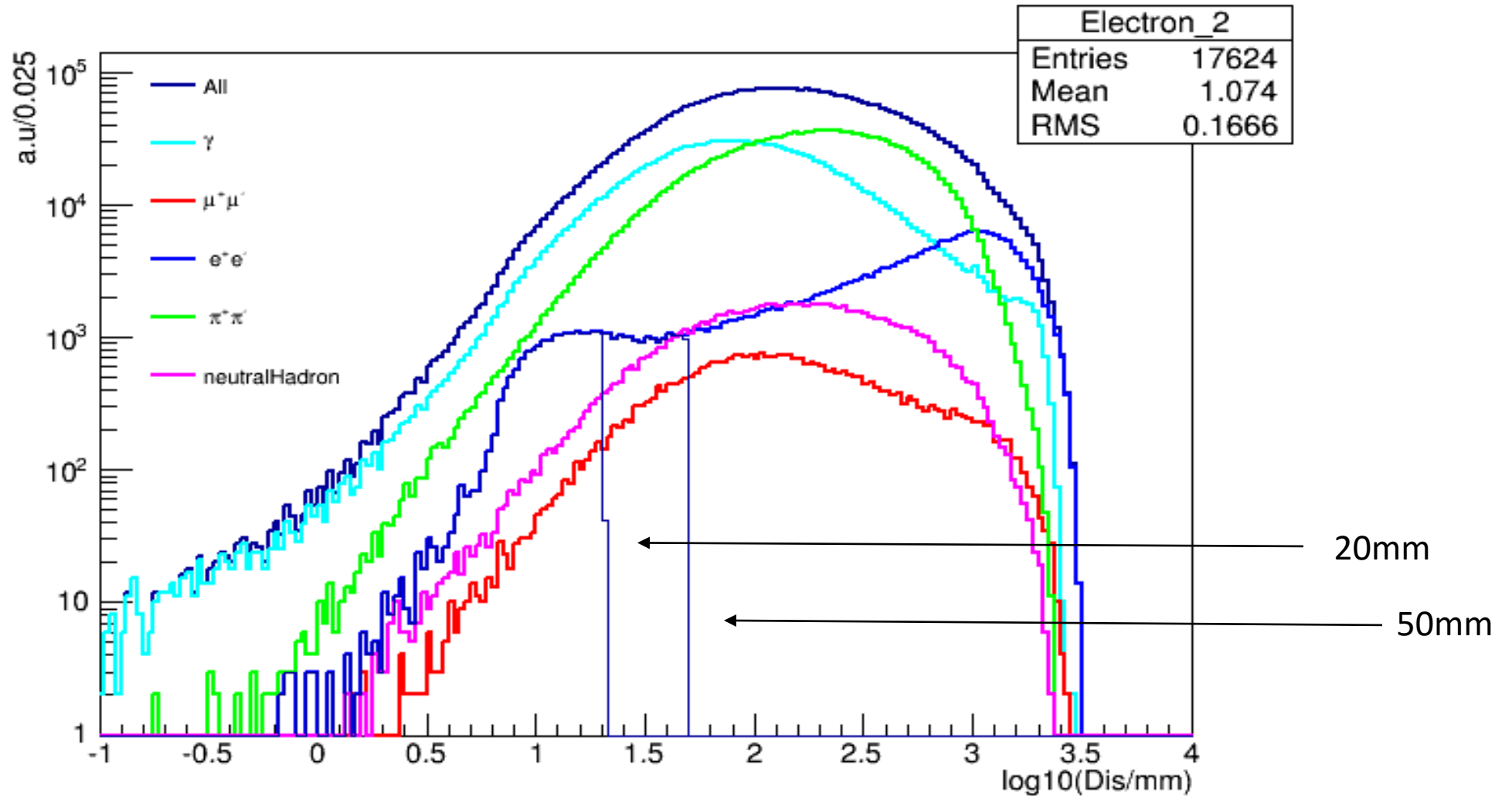
Two closest tracks in Detector (sample: qqH)

Introduction

- Using ffH as the signal(including e1e1h, e2e2h, e3e3h, qqh, nnh)
(sample path :/cefs/data/stdhep/signal/Higgs/E250.Pqqh.whizard195/)
- Changing the Radius(1000, 1200, ...3200mm), Bfield remains 3.5T
- Cut size is set to 20mm & 50mm

Variables

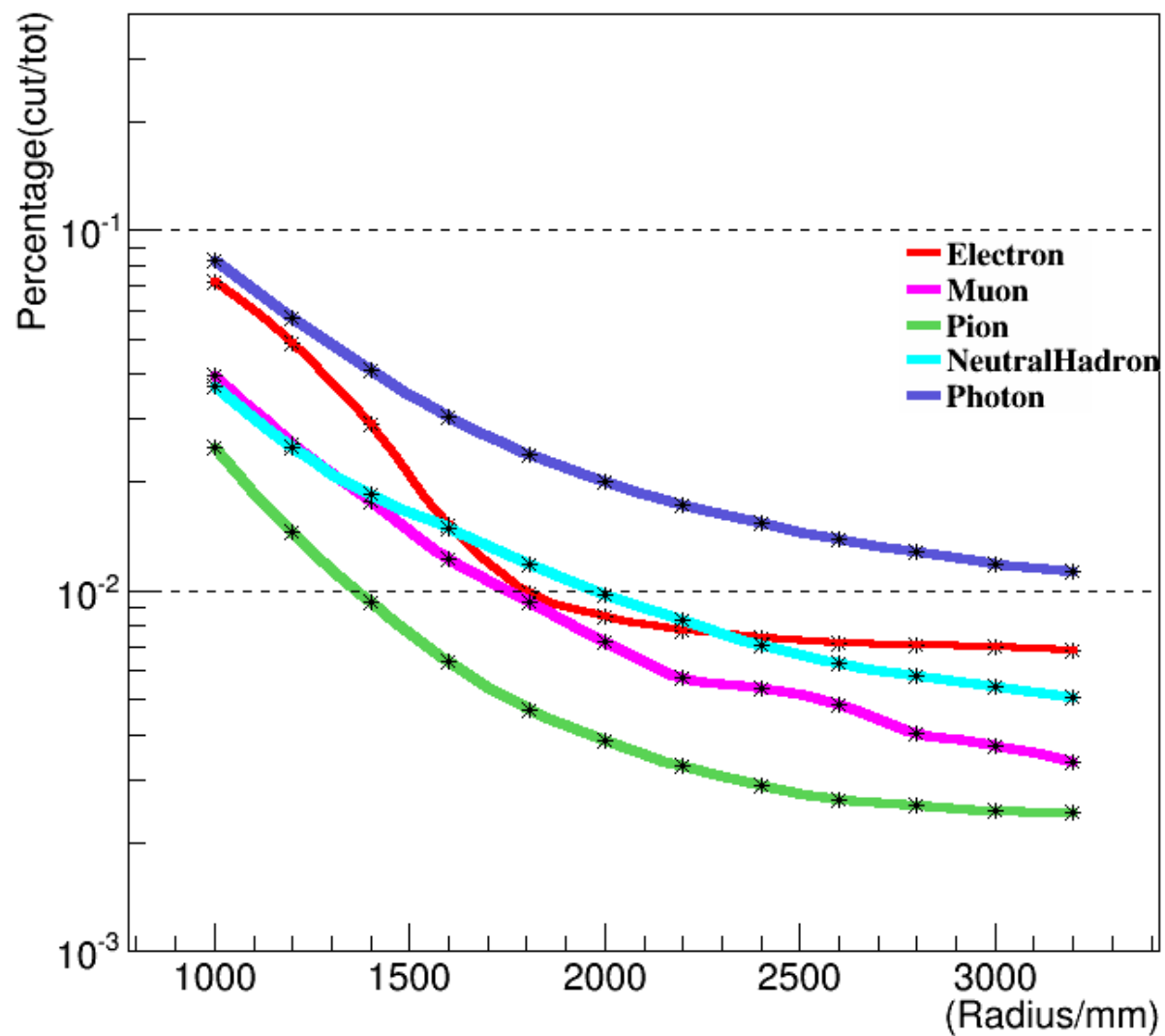
Dis Distribution for ee events at 250 GeV



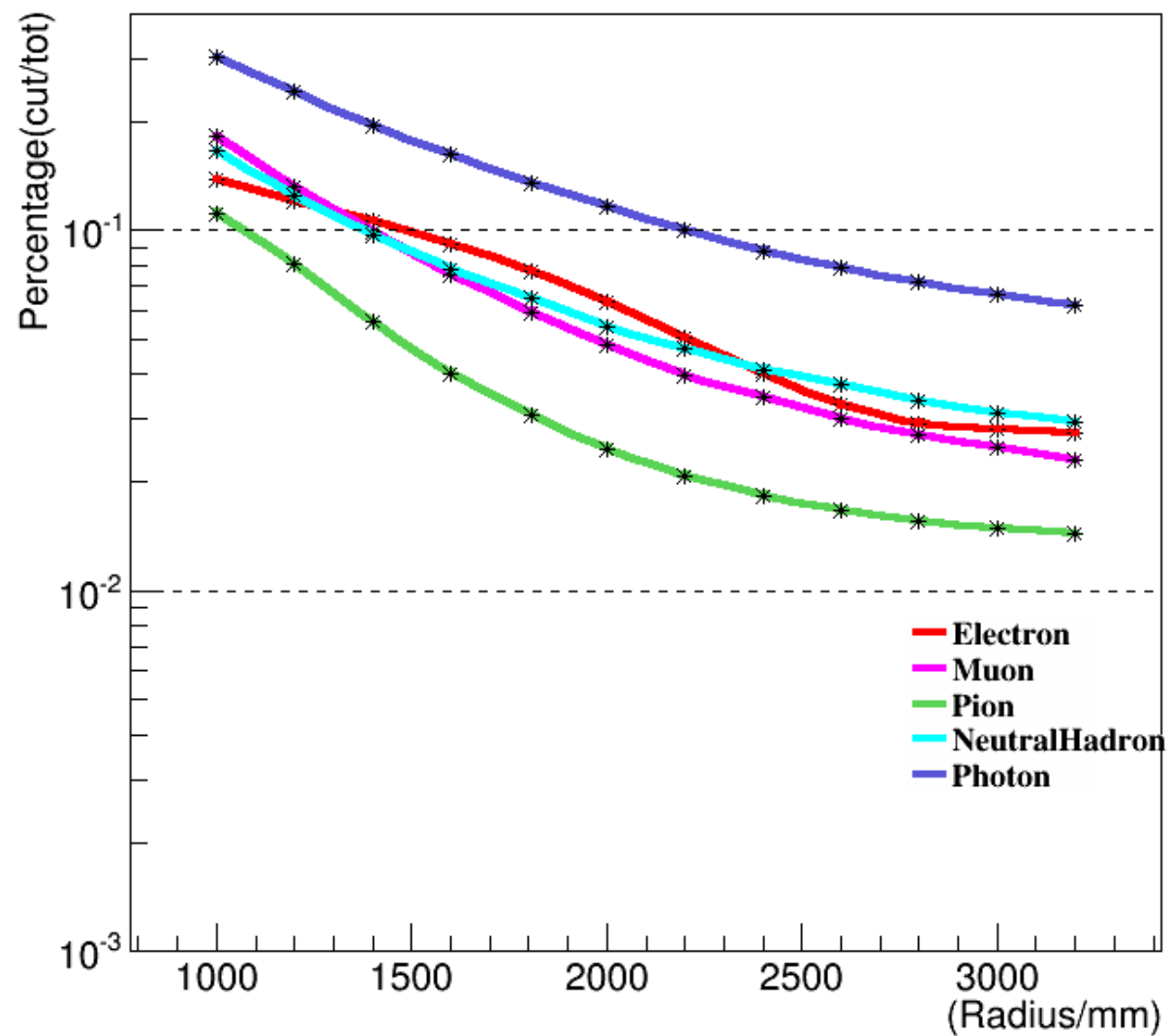
Radius: 1000mm Bfield: 3.5T cut particle: Electron

eeH

Cut ClosestDistance at 20mm for eeH at 250GeV

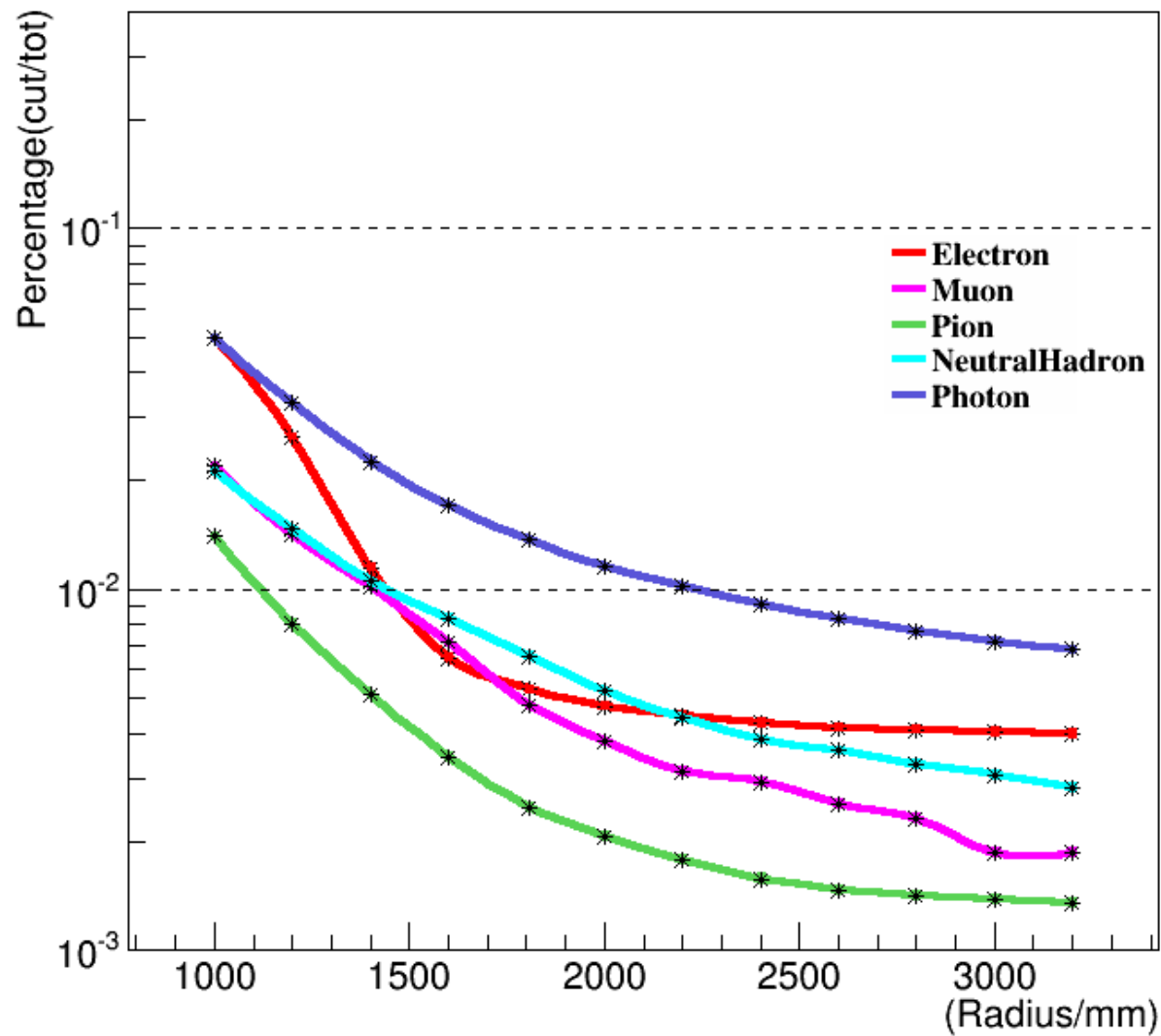


Cut ClosestDistance at 50mm for eeH at 250GeV

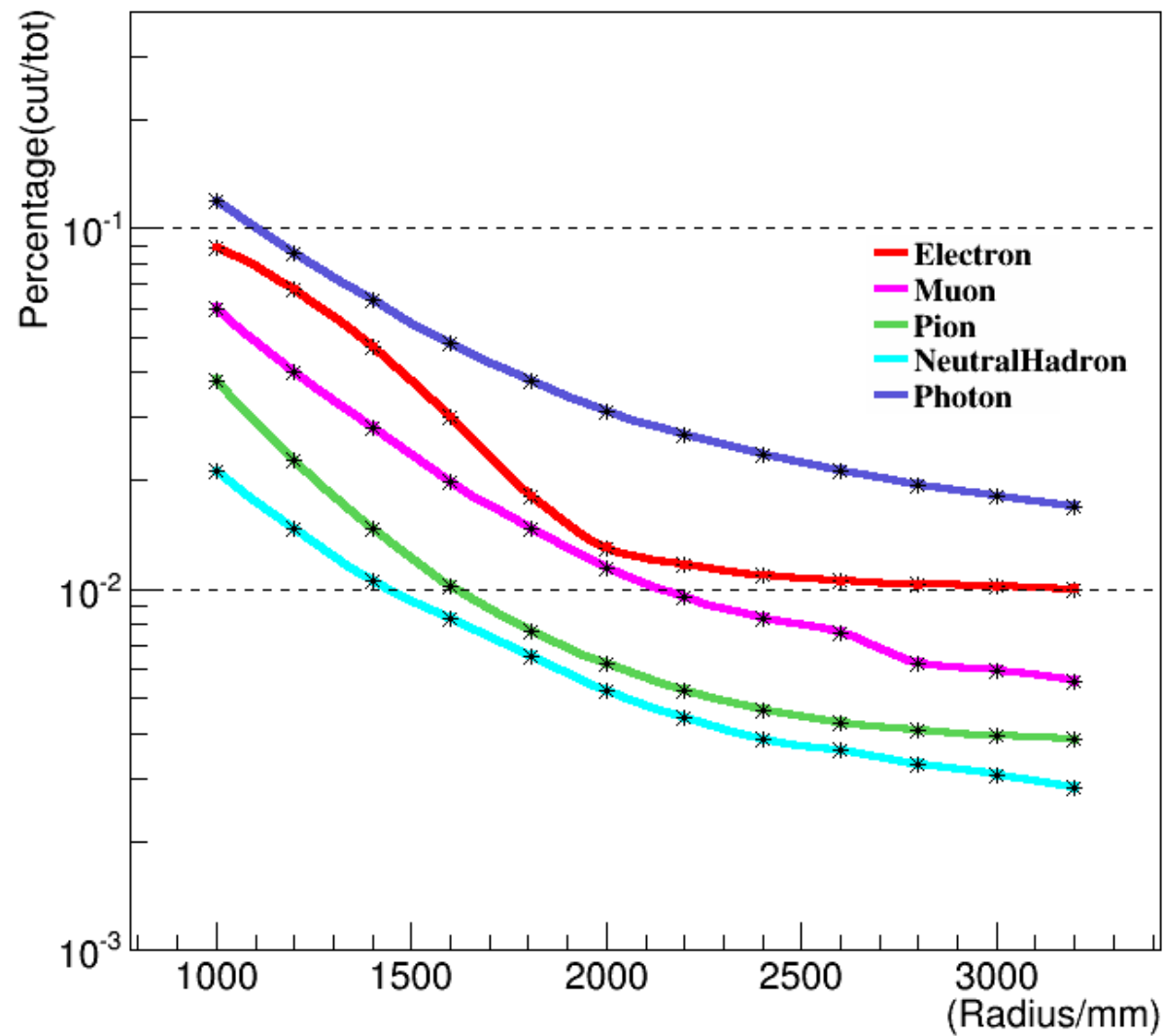


eeH

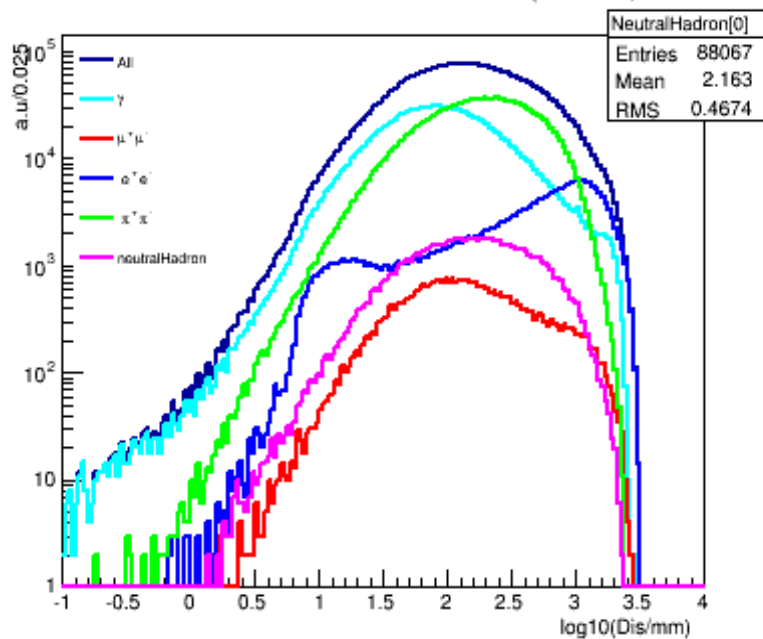
Cut ClosestDistance at 15mm for eeH at 250GeV



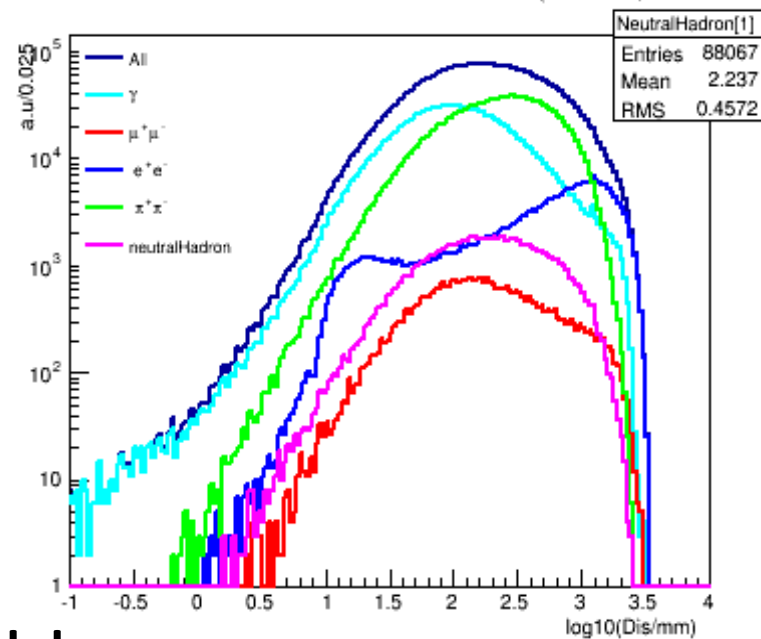
Cut ClosestDistance at 25mm for eeH at 250GeV



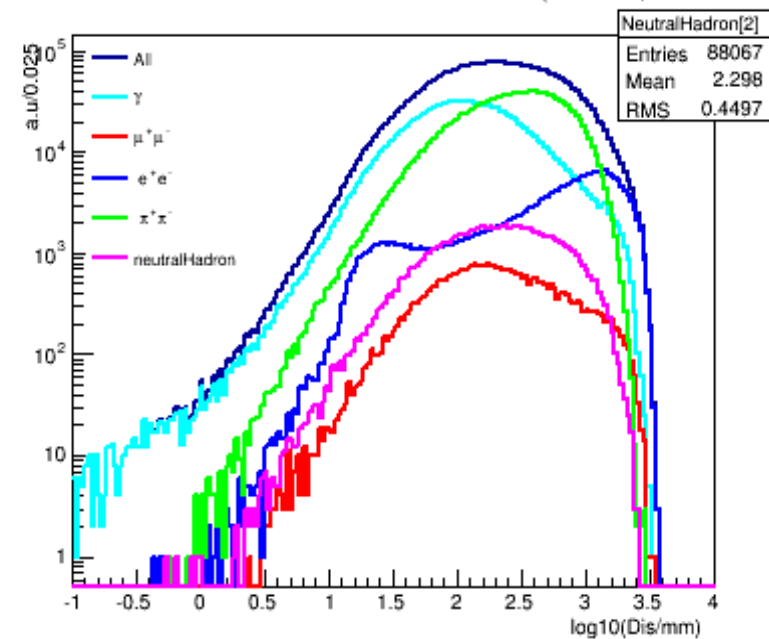
Dis Distribution for ee events at 250 GeV(1000 mm)



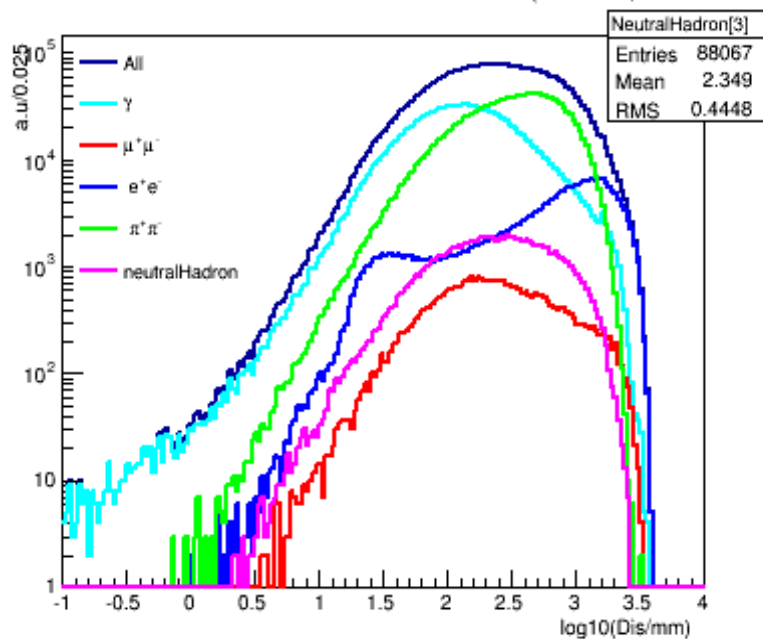
Dis Distribution for ee events at 250 GeV(1200 mm)



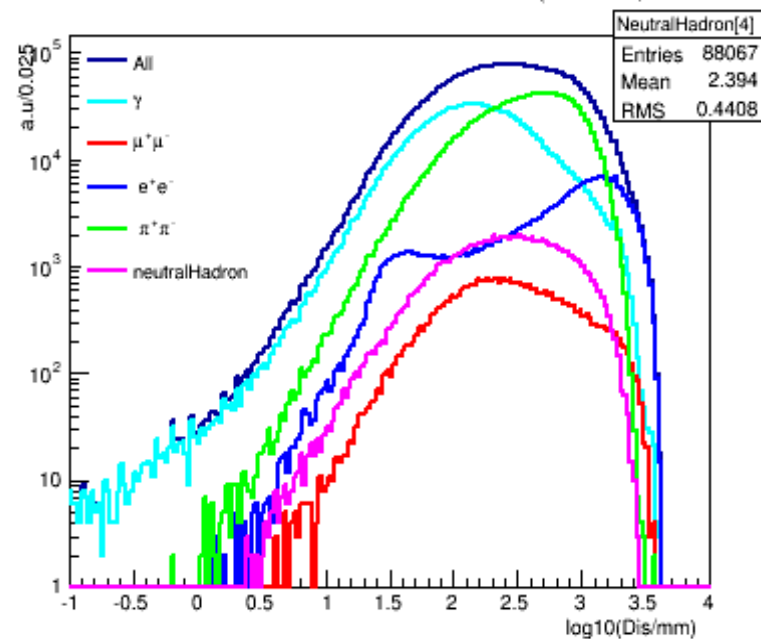
Dis Distribution for ee events at 250 GeV(1400 mm)



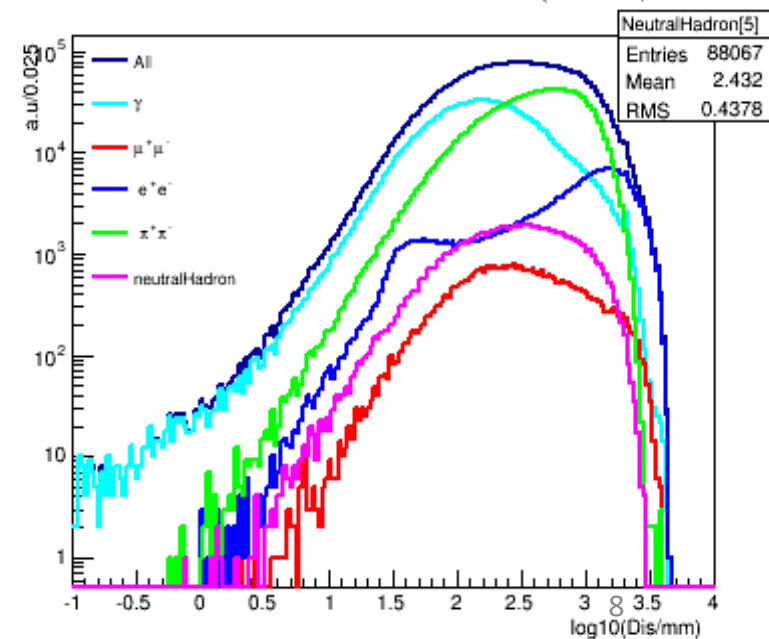
Dis Distribution for ee events at 250 GeV(1600 mm)



Dis Distribution for ee events at 250 GeV(1800 mm)

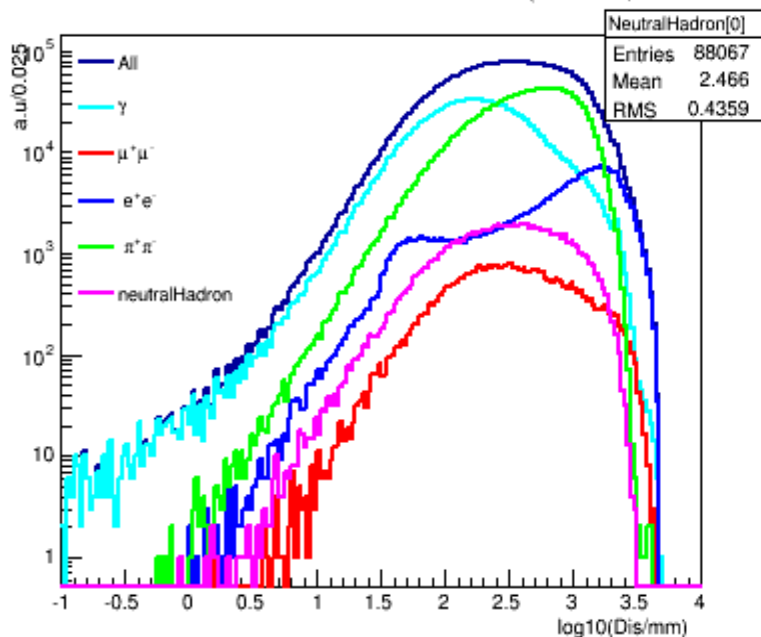


Dis Distribution for ee events at 250 GeV(2000 mm)

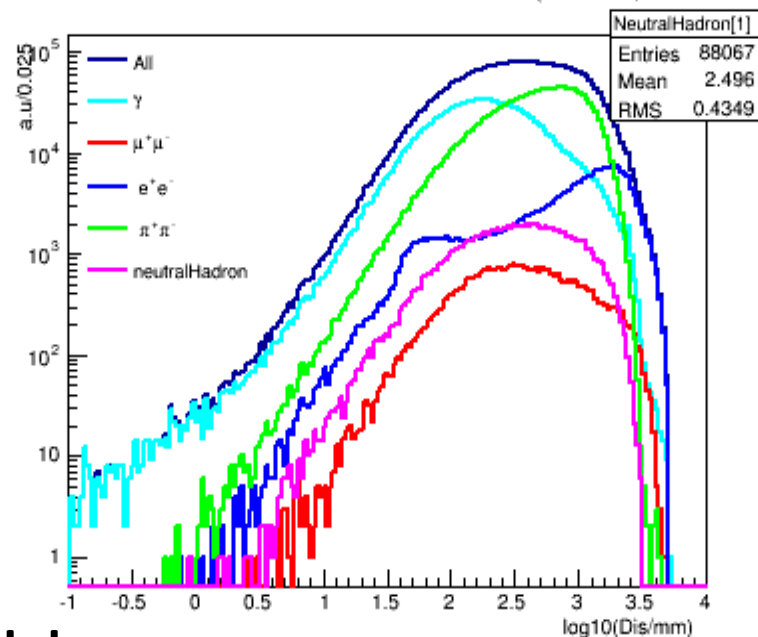


eeH

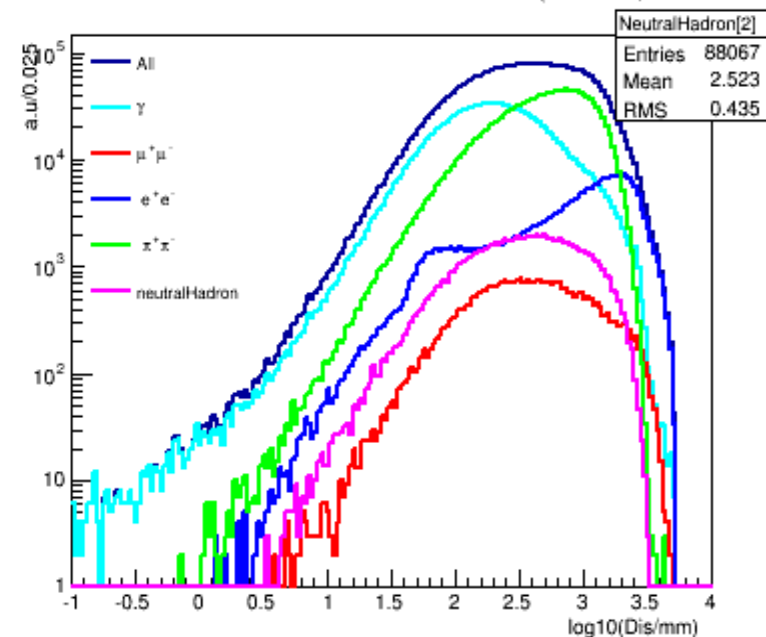
Dis Distribution for ee events at 250 GeV(2200 mm)



Dis Distribution for ee events at 250 GeV(2400 mm)

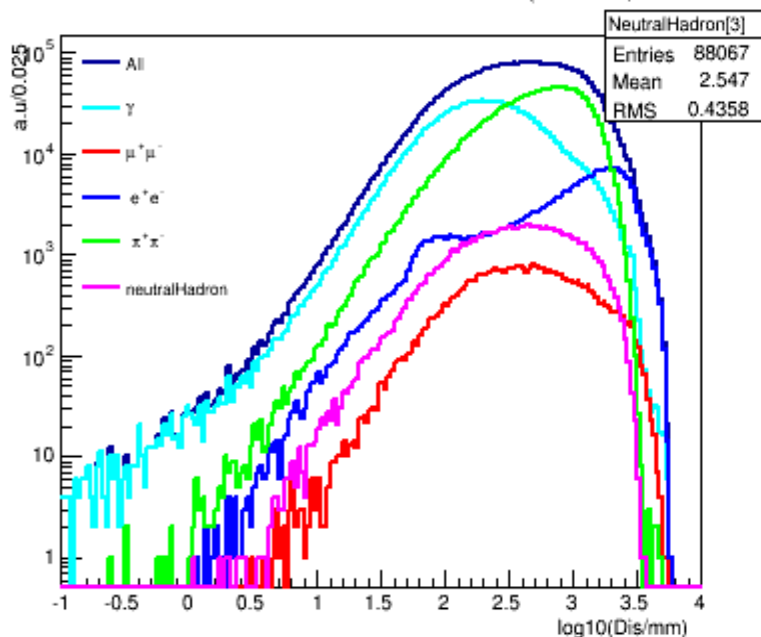


Dis Distribution for ee events at 250 GeV(2600 mm)

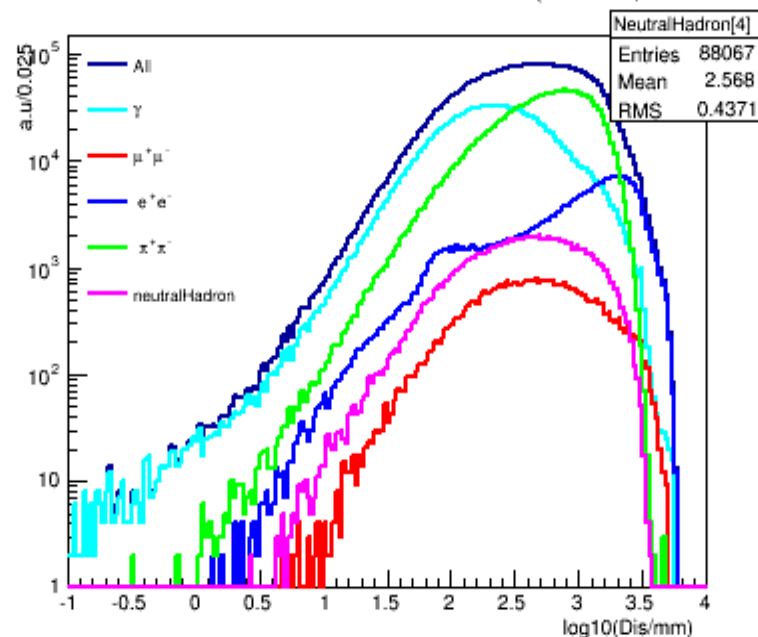


eeH

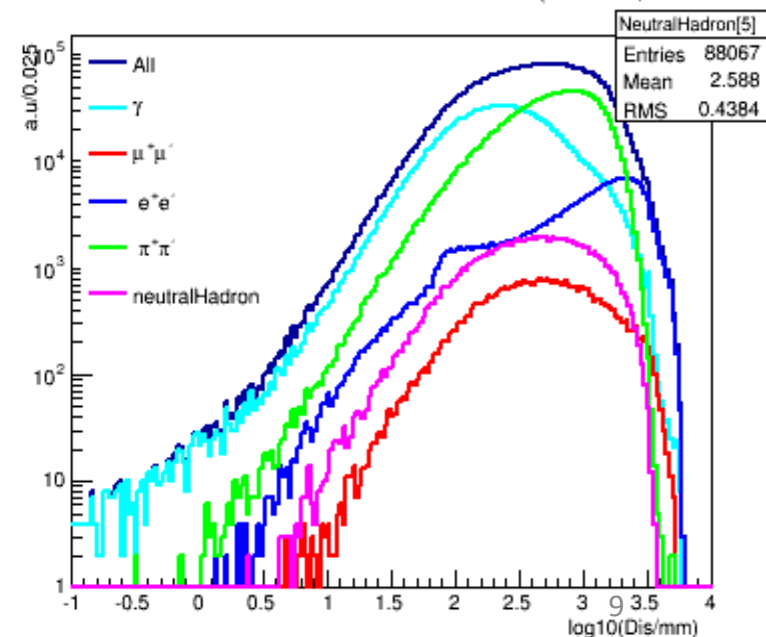
Dis Distribution for ee events at 250 GeV(2800 mm)



Dis Distribution for ee events at 250 GeV(3000 mm)

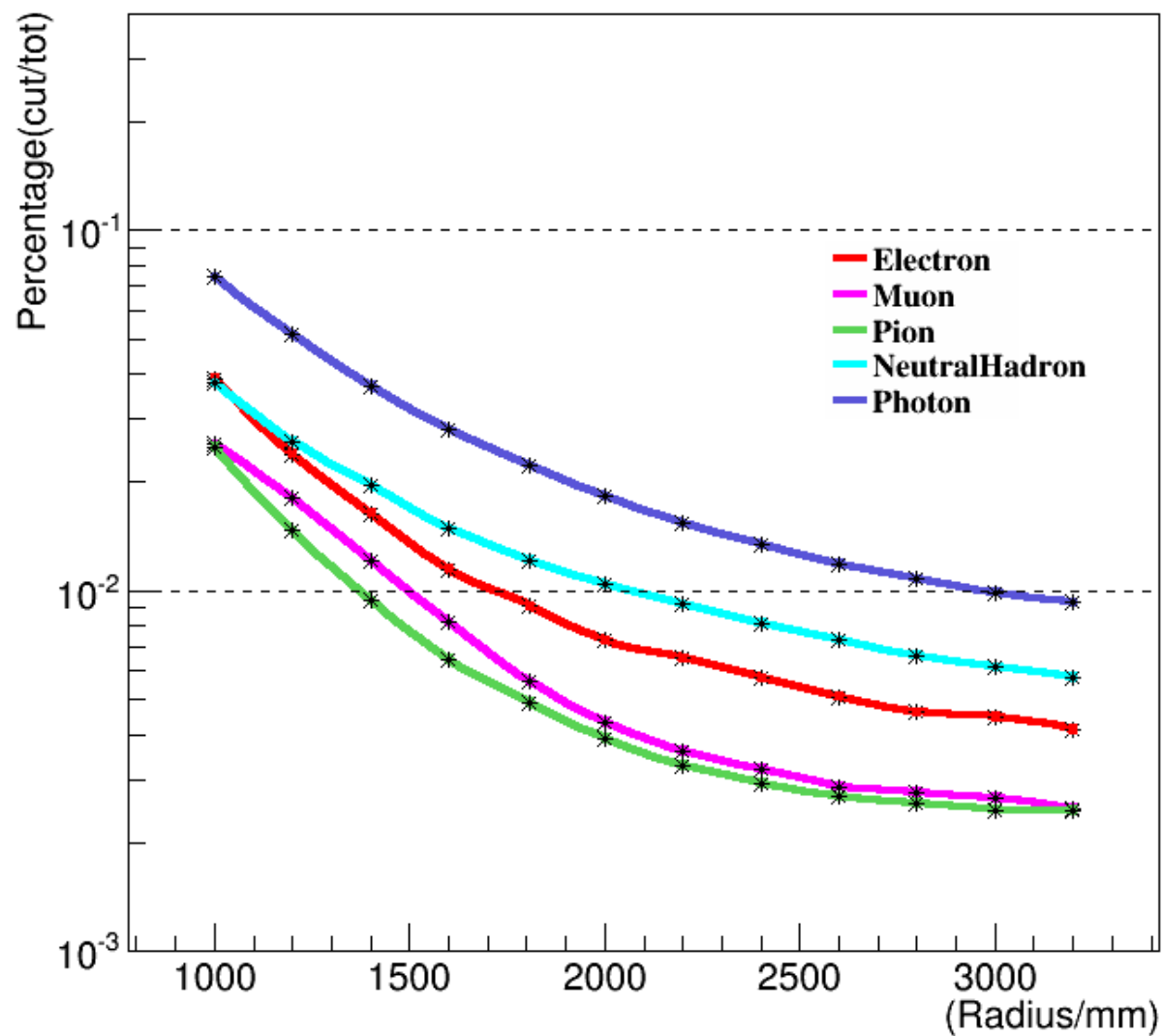


Dis Distribution for ee events at 250 GeV(3200 mm)

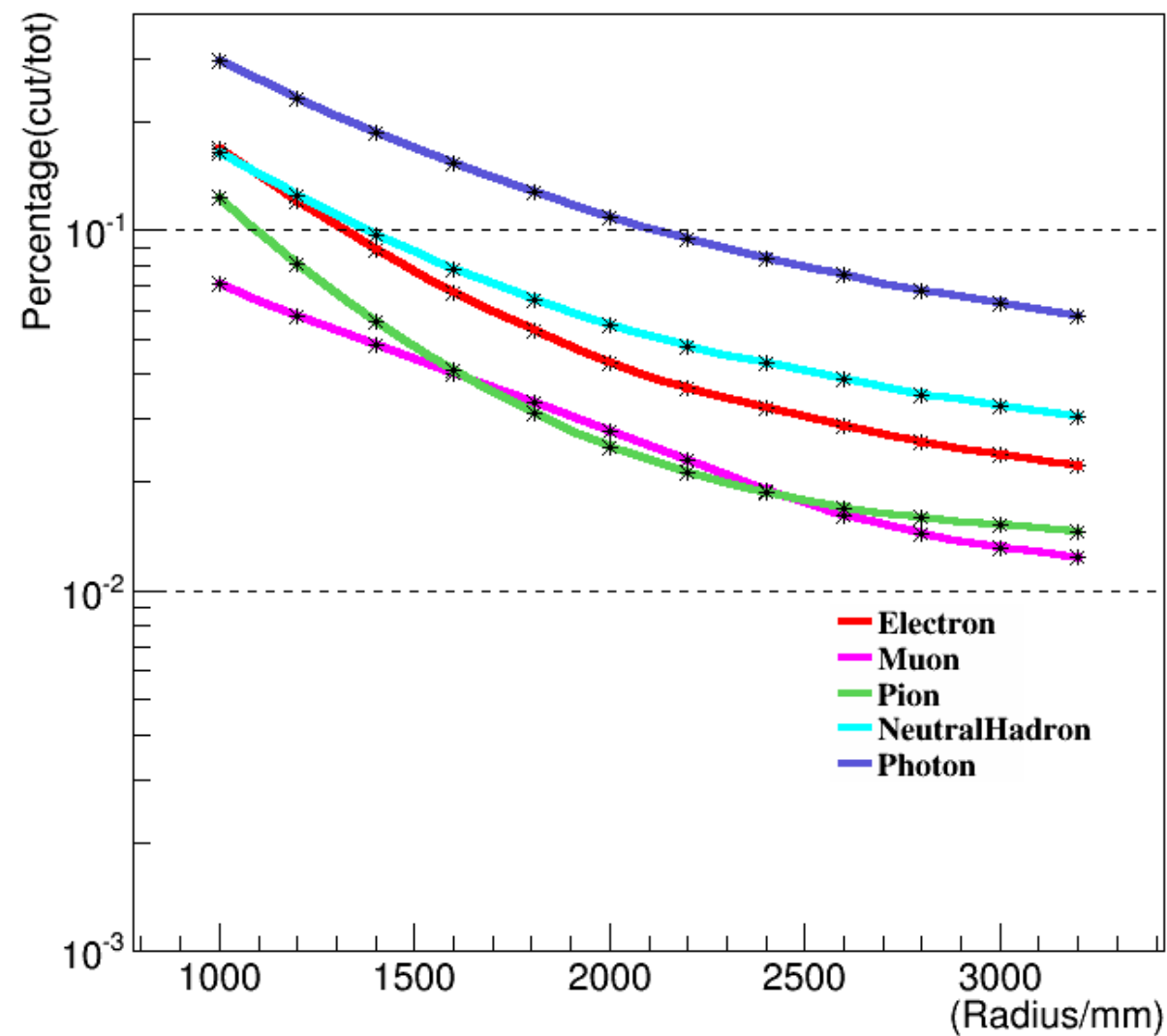


mumuH

Cut ClosestDistance at 20mm for mumuH at 250GeV

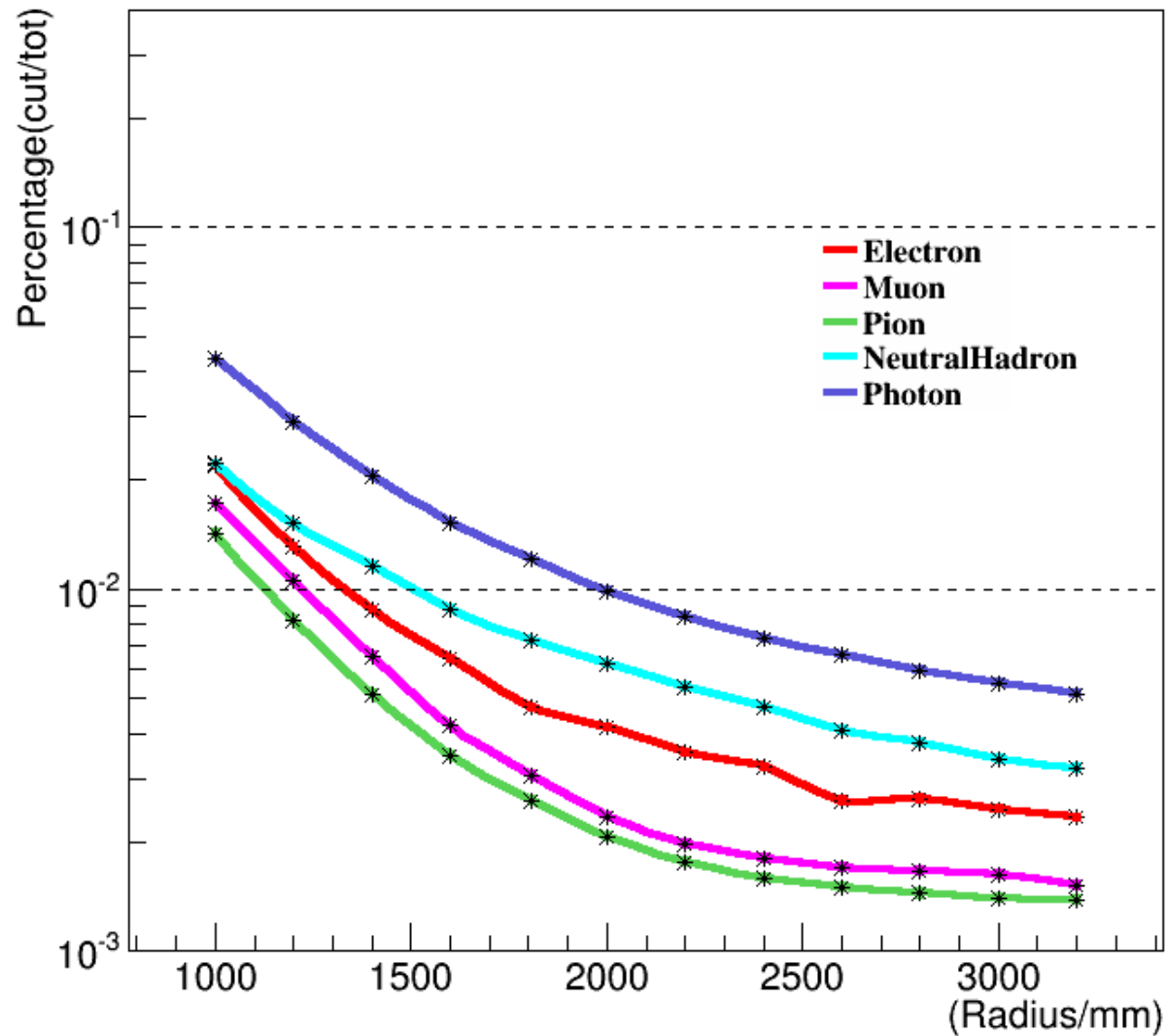


Cut ClosestDistance at 50mm for mumuH at 250GeV

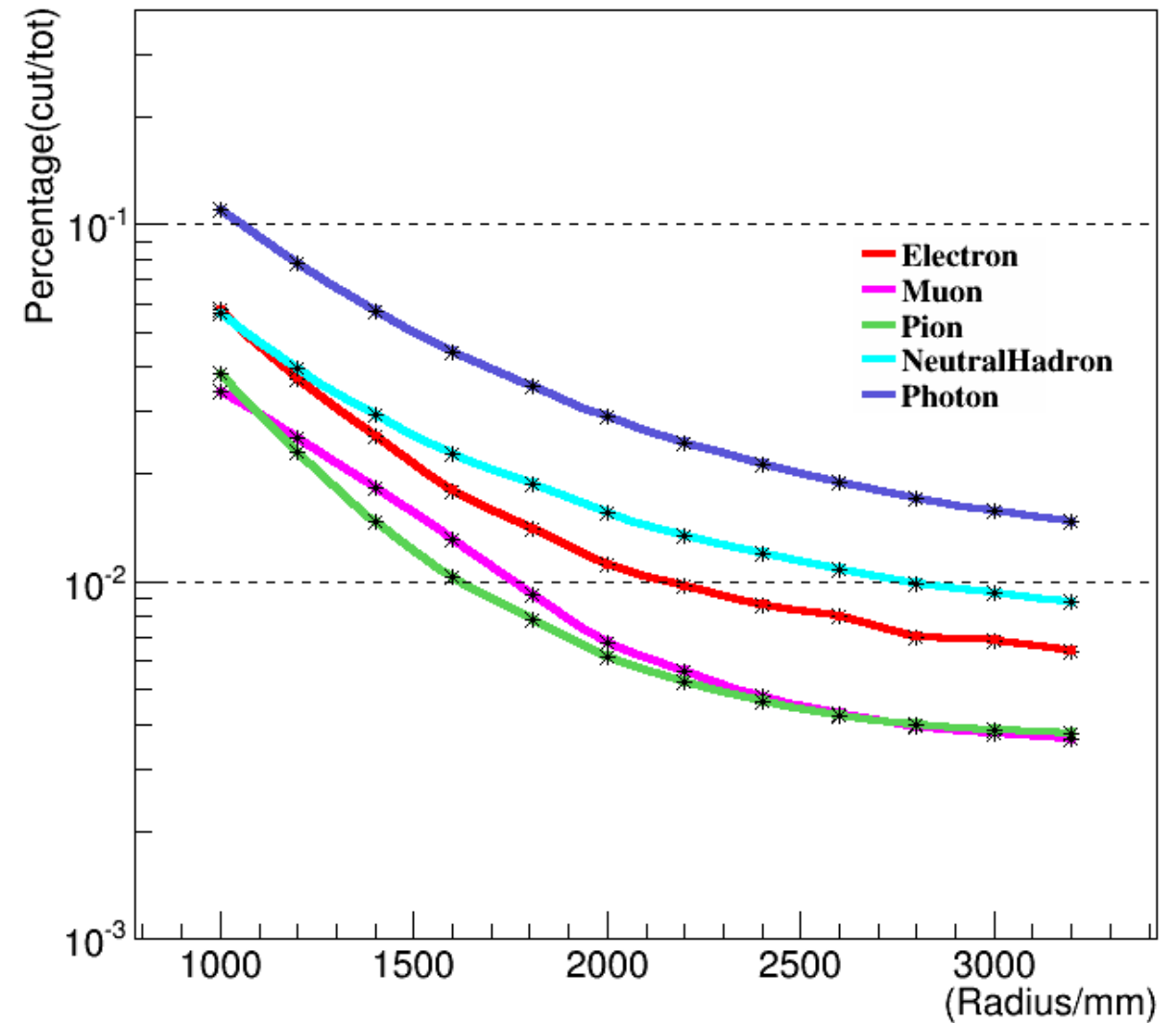


mumuH

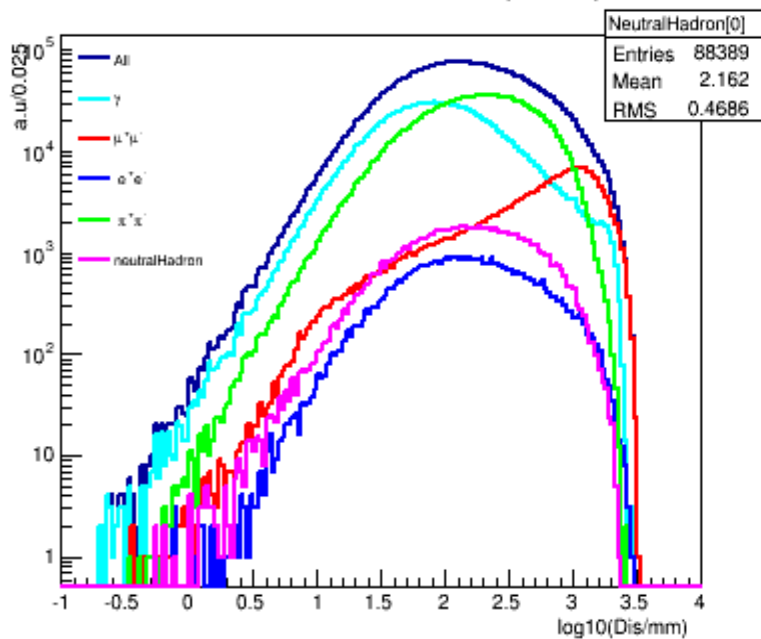
Cut ClosestDistance at 15mm for mumuH at 250GeV



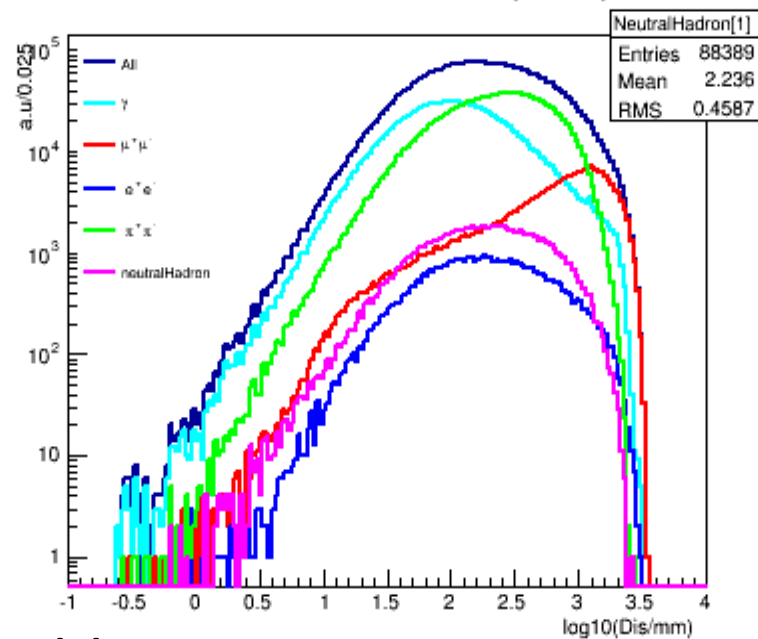
Cut ClosestDistance at 25mm for mumuH at 250GeV



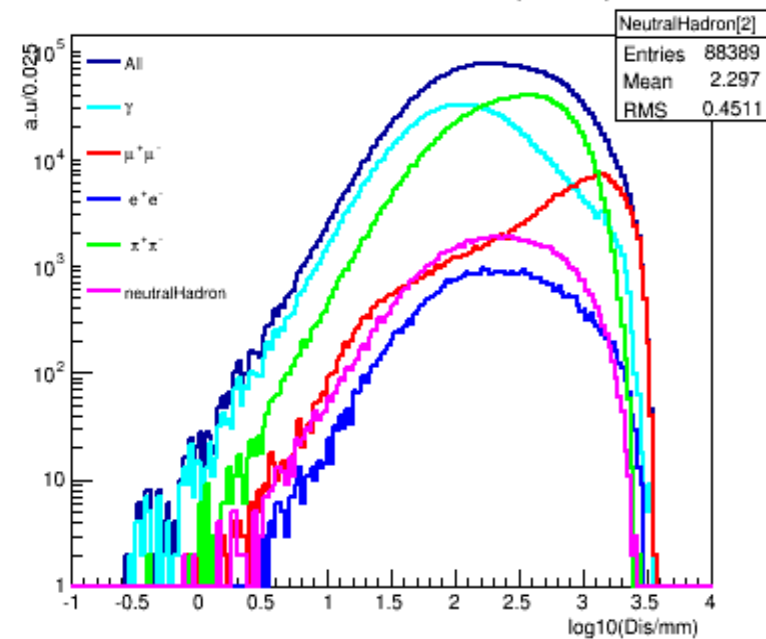
Dis Distribution for mumu events at 250 GeV(1000 mm)



Dis Distribution for mumu events at 250 GeV(1200 mm)

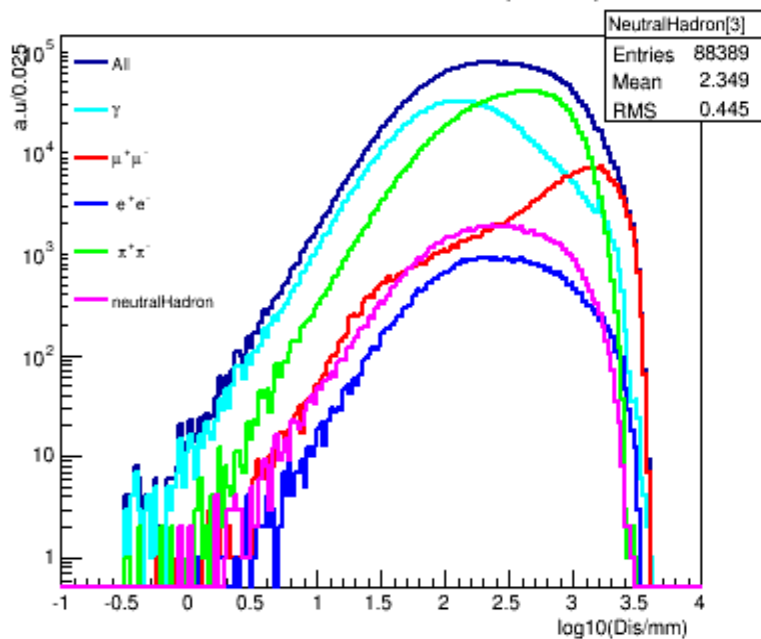


Dis Distribution for mumu events at 250 GeV(1400 mm)

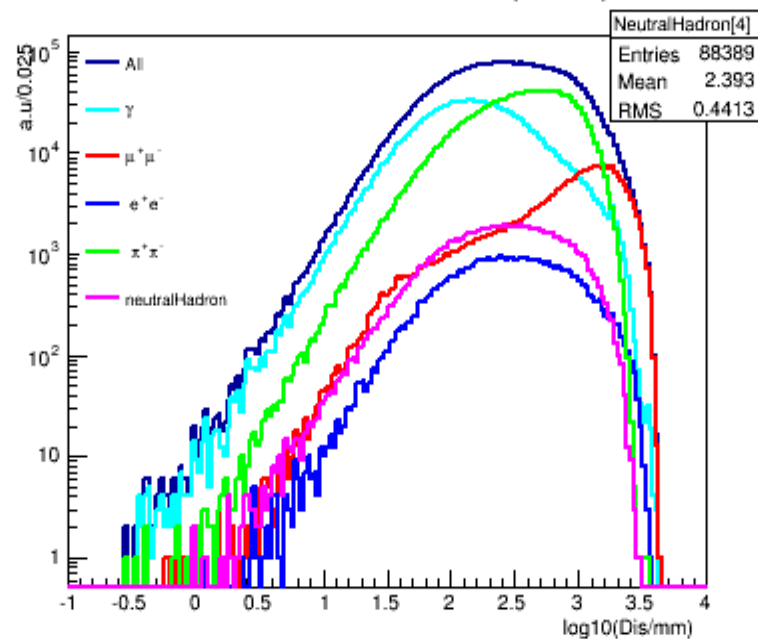


mumuH

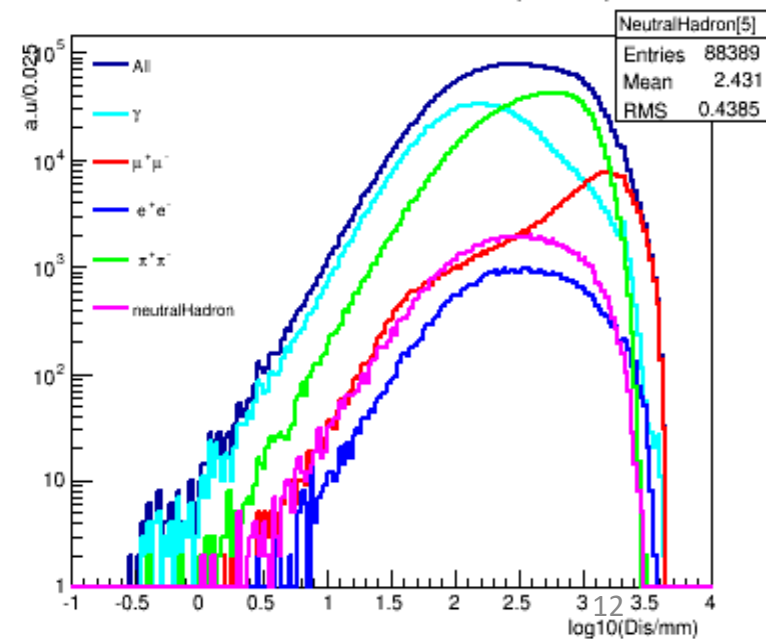
Dis Distribution for mumu events at 250 GeV(1600 mm)



Dis Distribution for mumu events at 250 GeV(1800 mm)

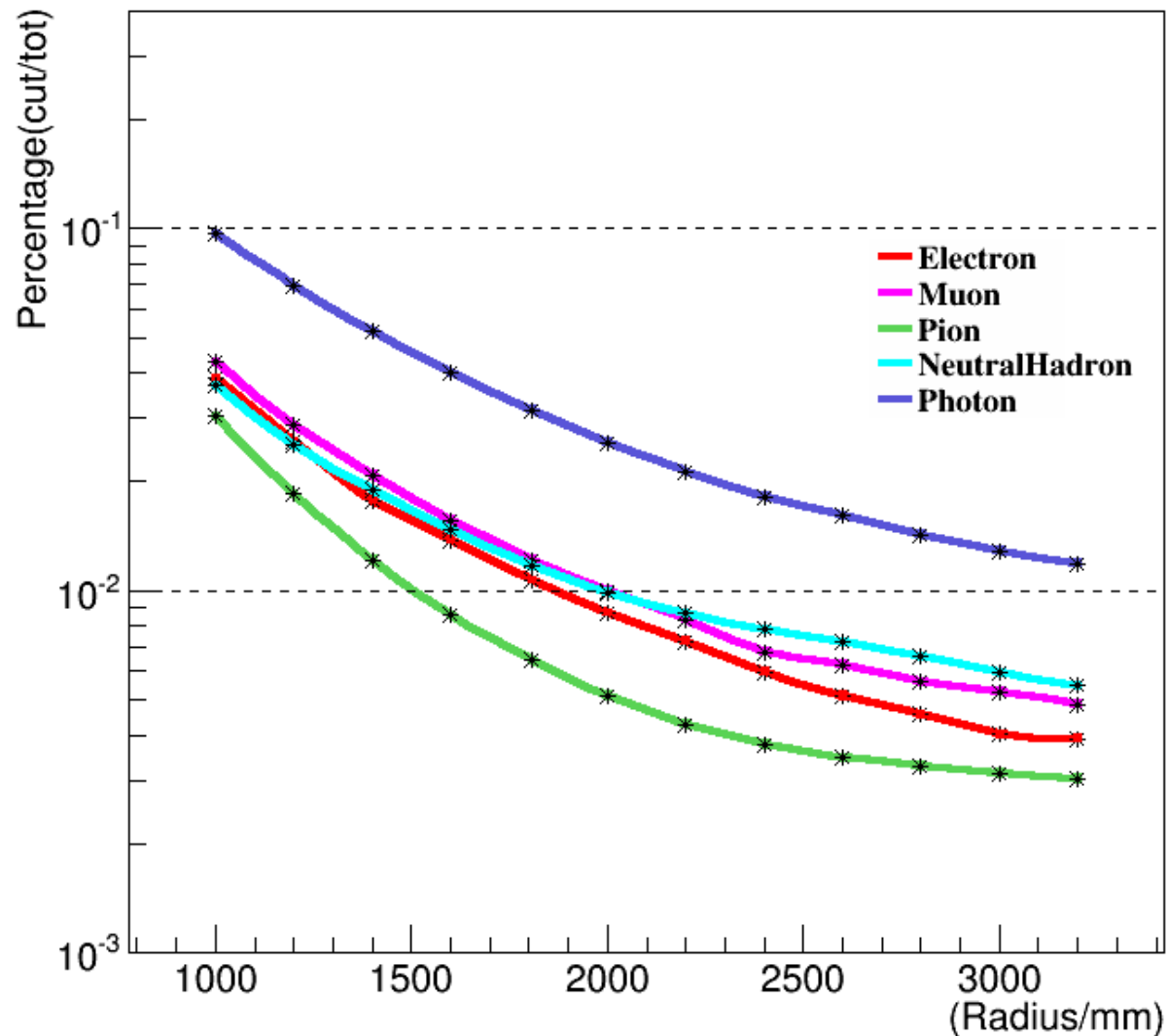


Dis Distribution for mumu events at 250 GeV(2000 mm)

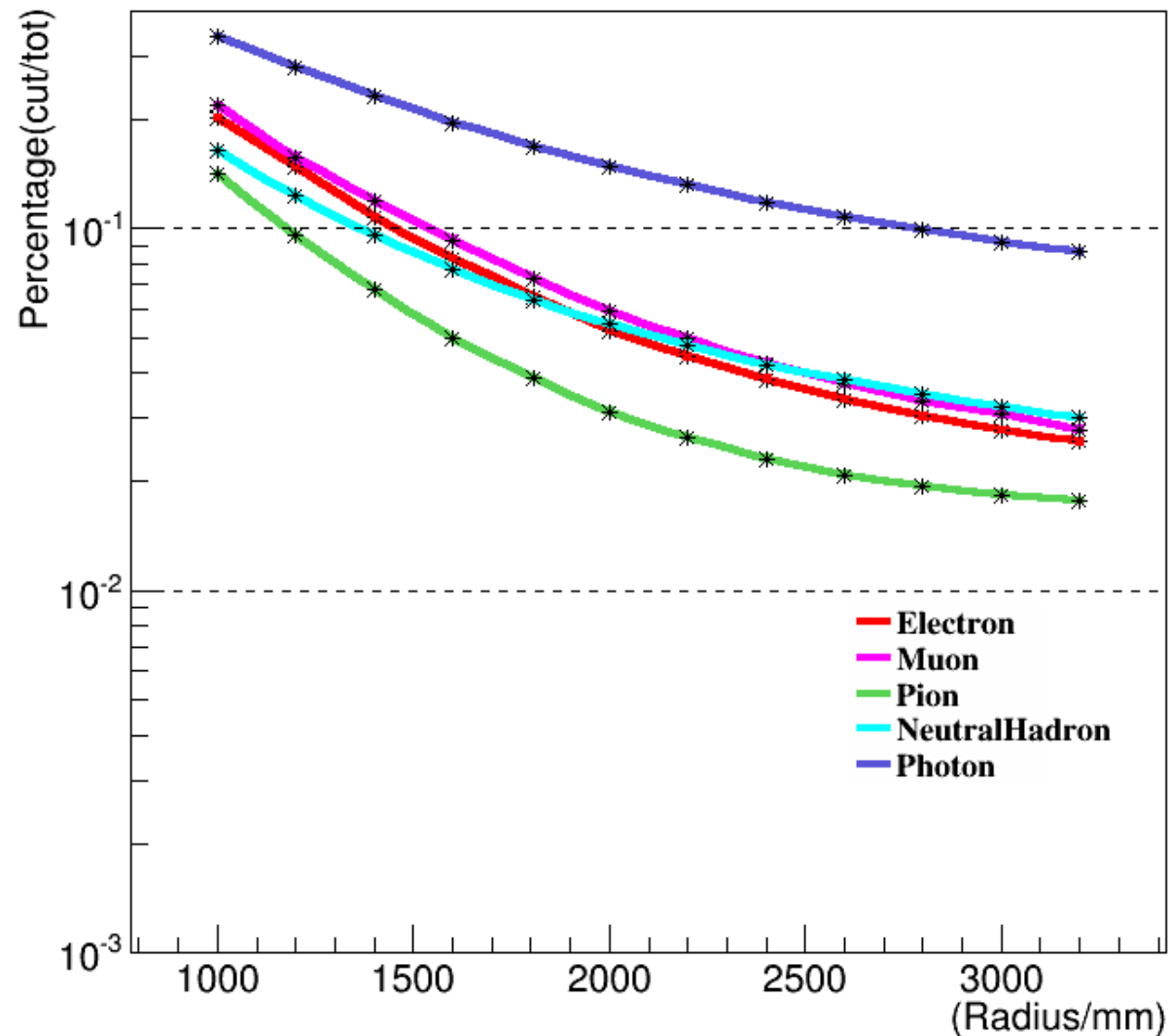


tautauH

Cut ClosestDistance at 20mm for tautauH at 250GeV

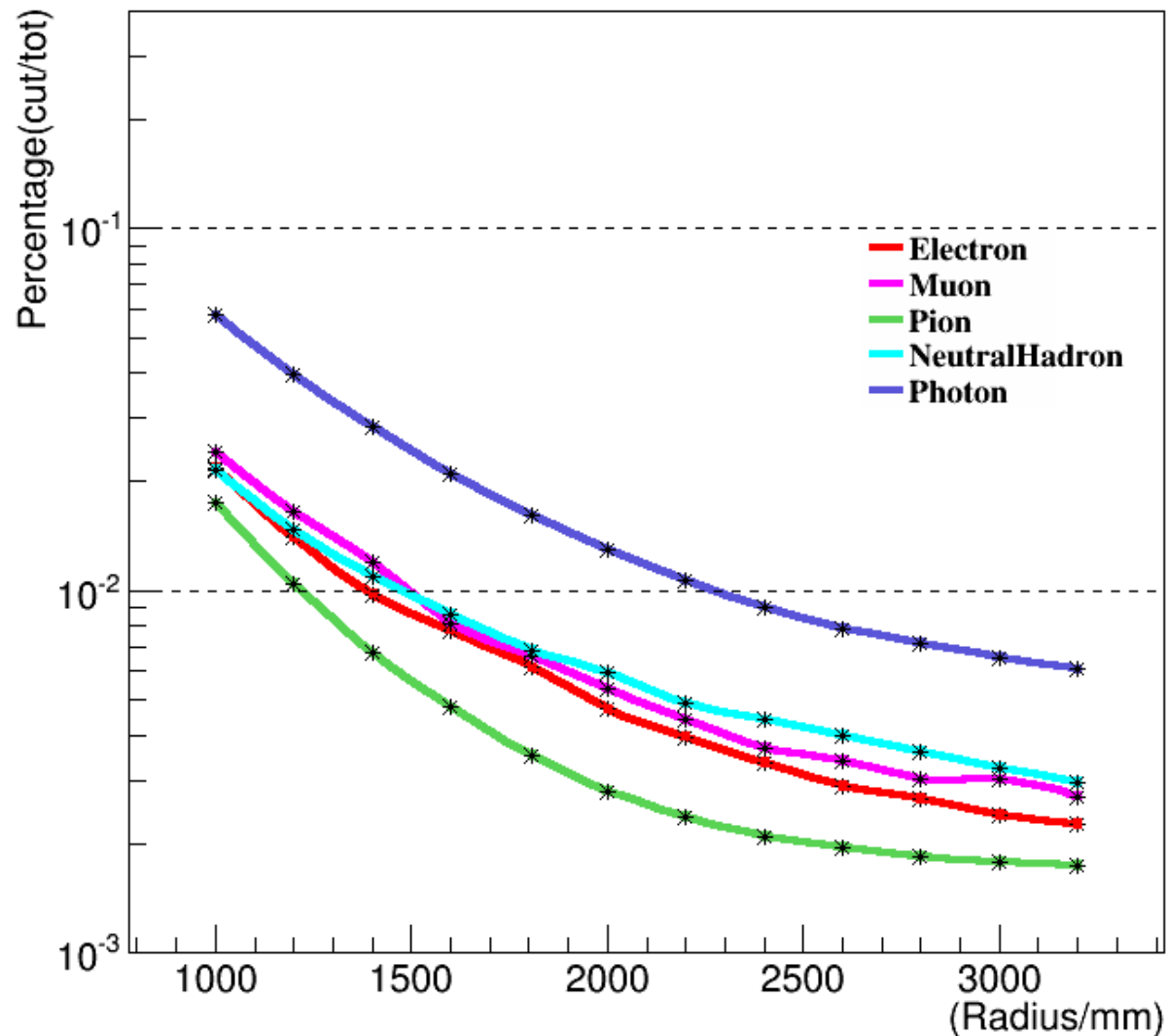


Cut ClosestDistance at 50mm for tautauH at 250GeV

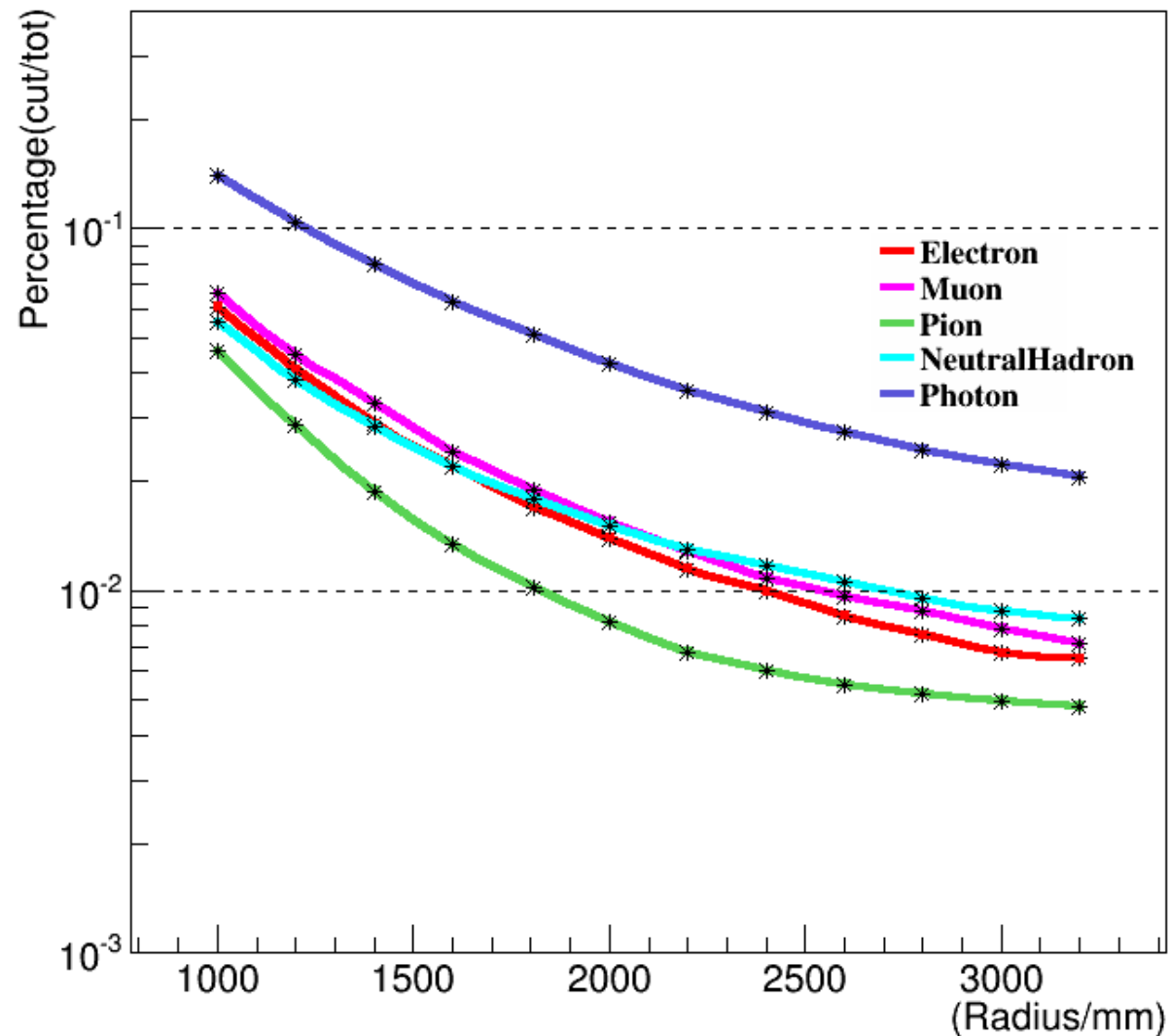


tautauH

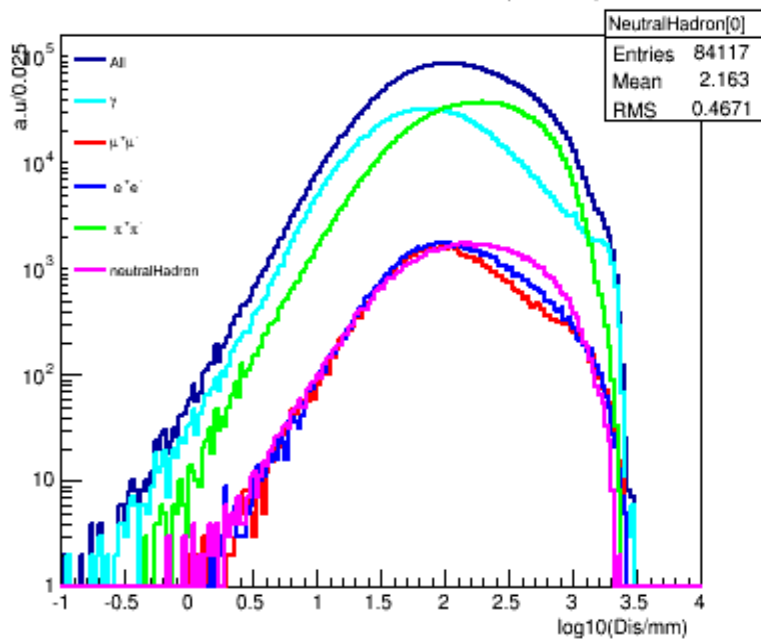
Cut ClosestDistance at 15mm for tautauH at 250GeV



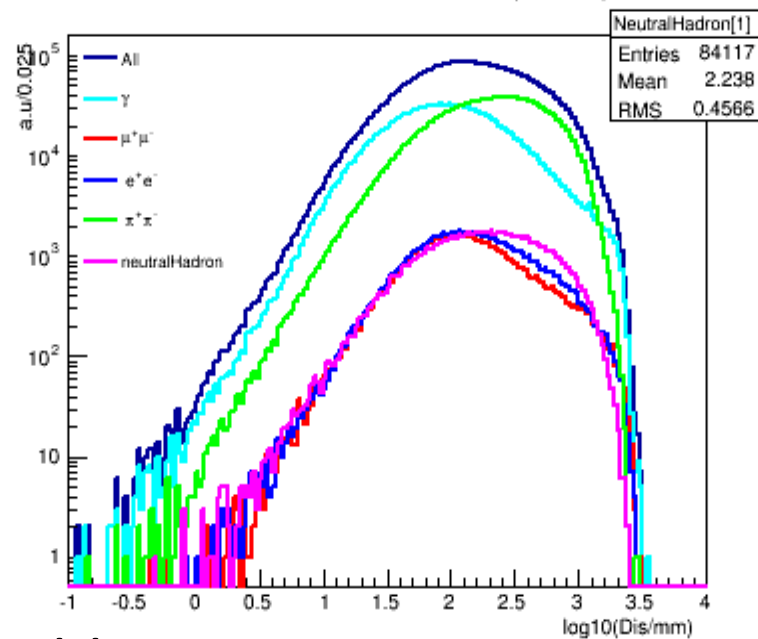
Cut ClosestDistance at 25mm for tautauH at 250GeV



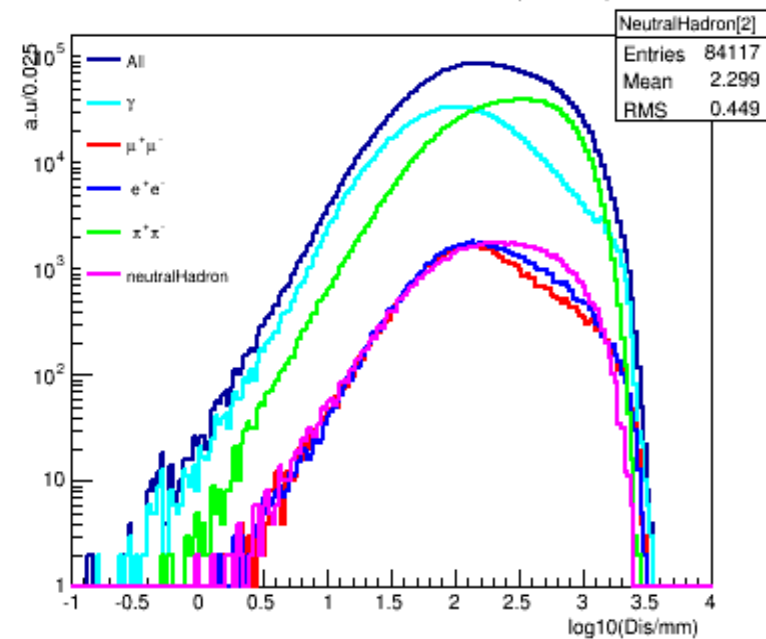
Dis Distribution for tautau events at 250 GeV(1000 mm)



Dis Distribution for tautau events at 250 GeV(1200 mm)

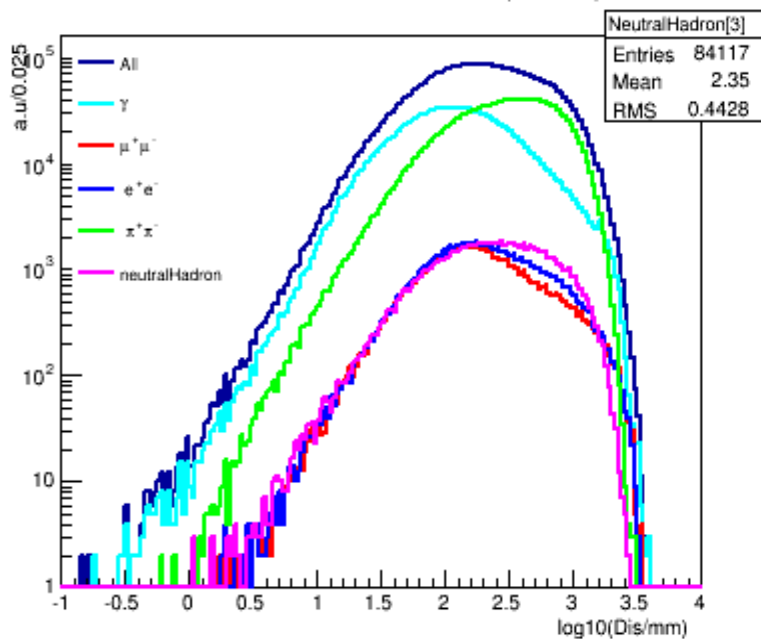


Dis Distribution for tautau events at 250 GeV(1400 mm)

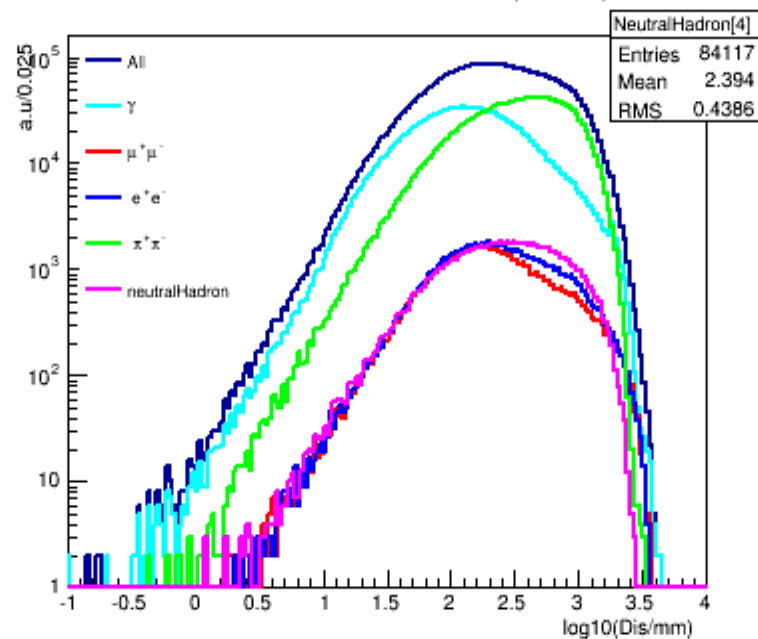


tautauH

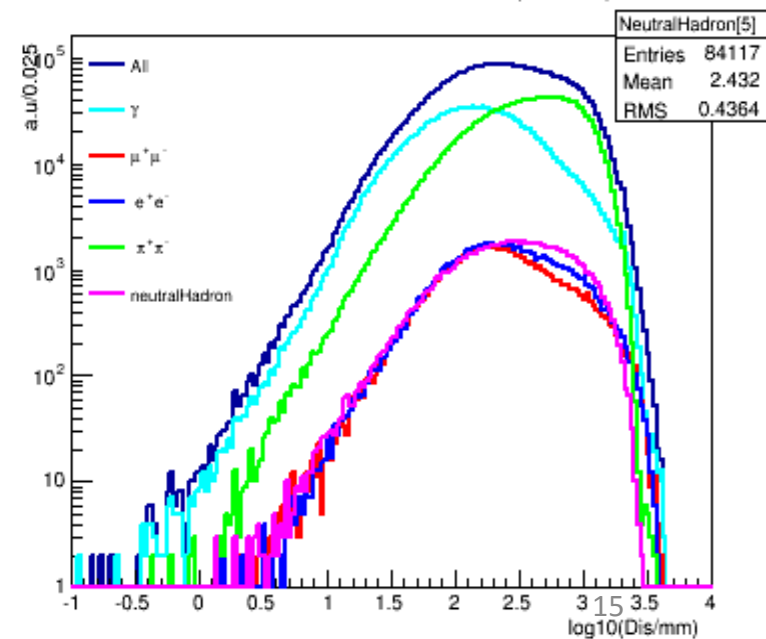
Dis Distribution for tautau events at 250 GeV(1600 mm)



Dis Distribution for tautau events at 250 GeV(1800 mm)

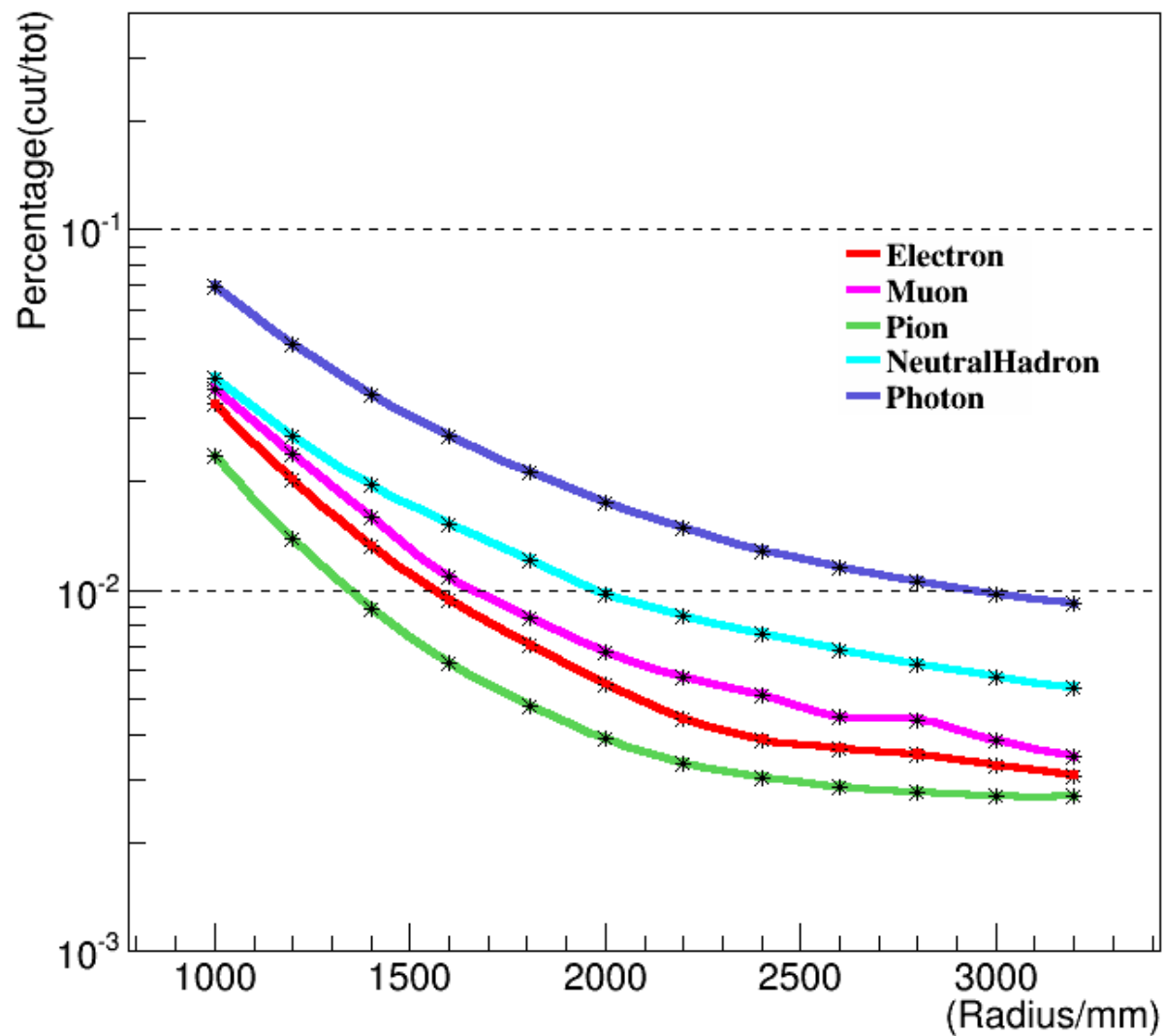


Dis Distribution for tautau events at 250 GeV(2000 mm)

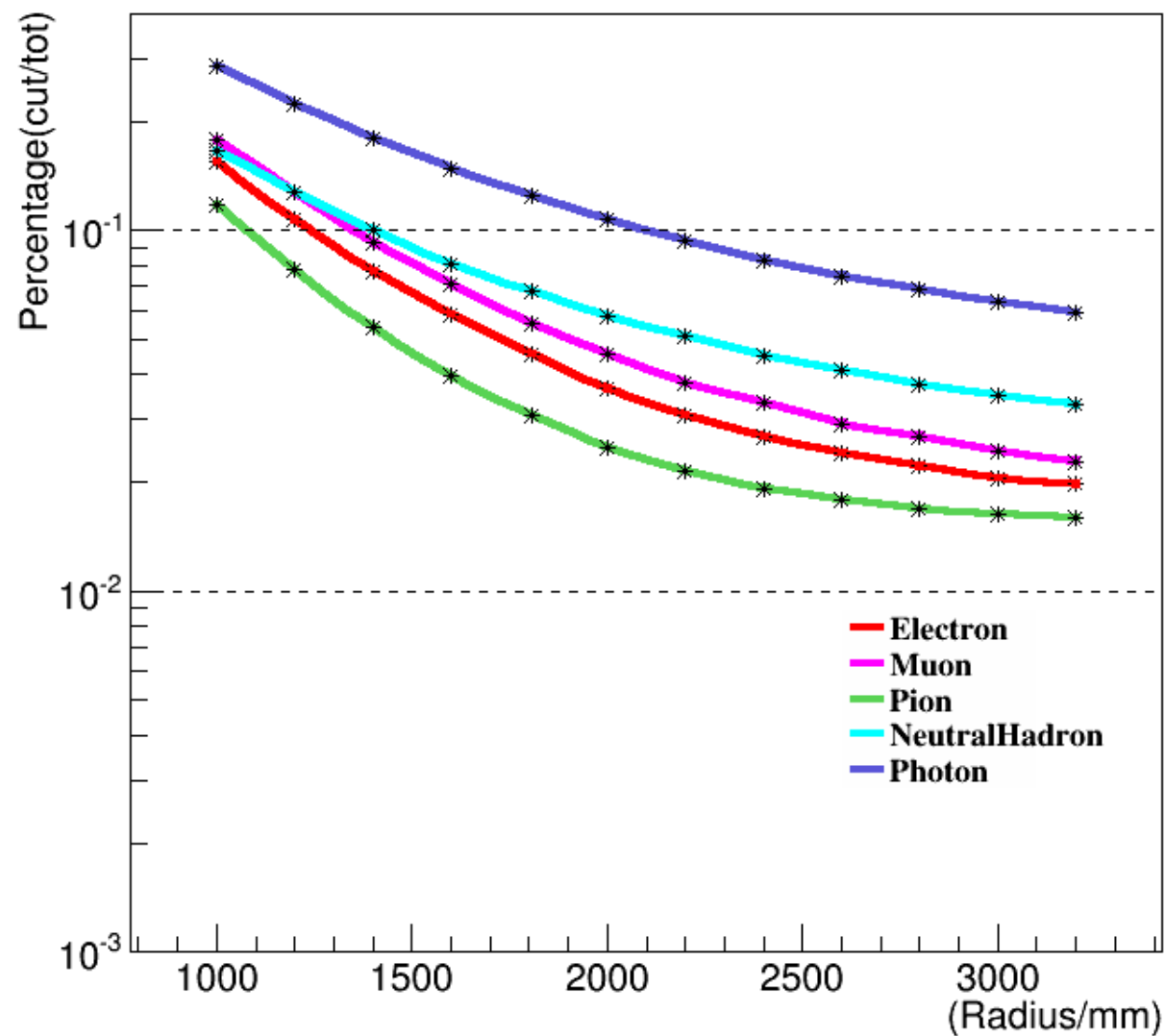


qqH

Cut ClosestDistance at 20mm for qqH at 250GeV

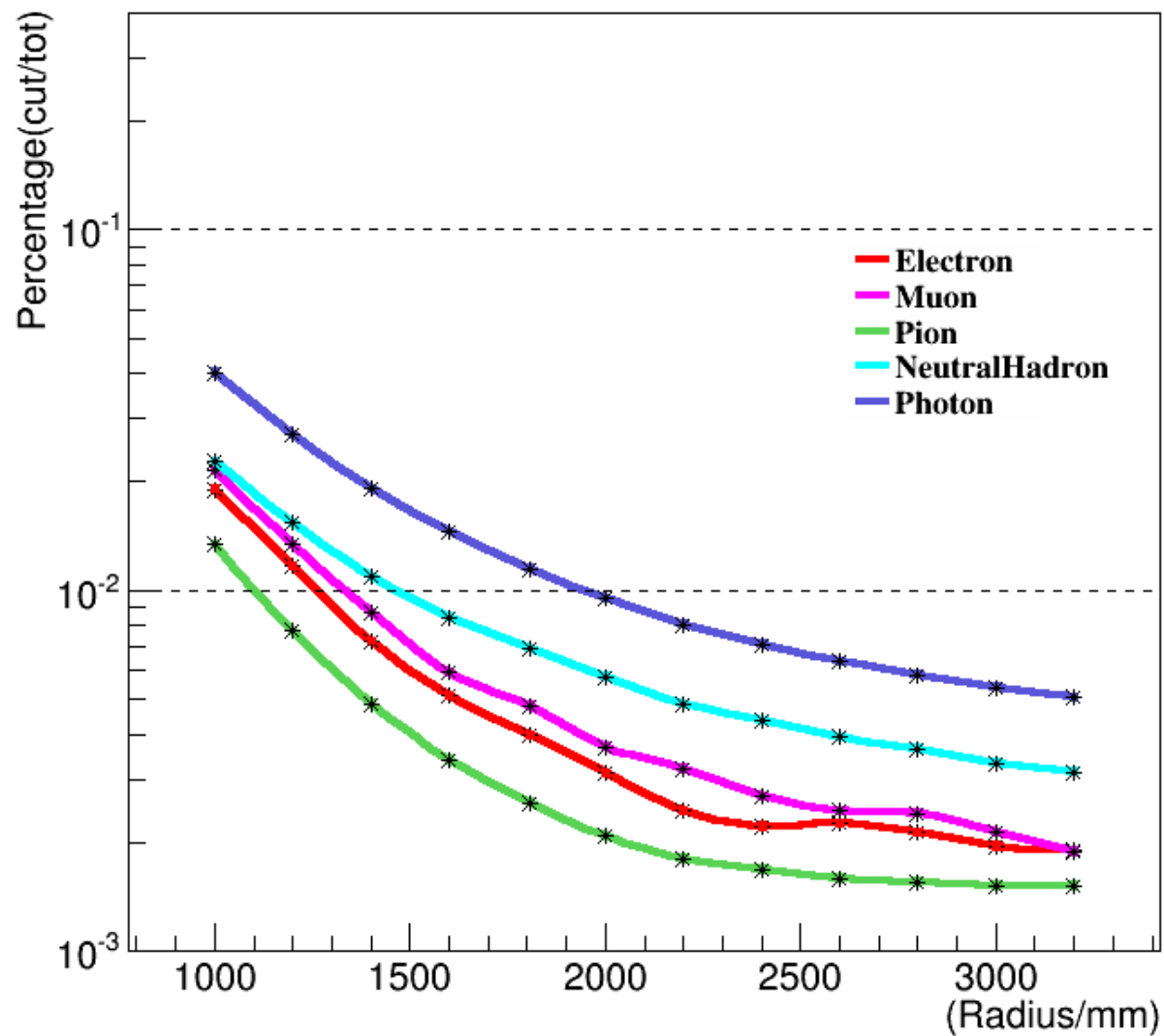


Cut ClosestDistance at 50mm for qqH at 250GeV

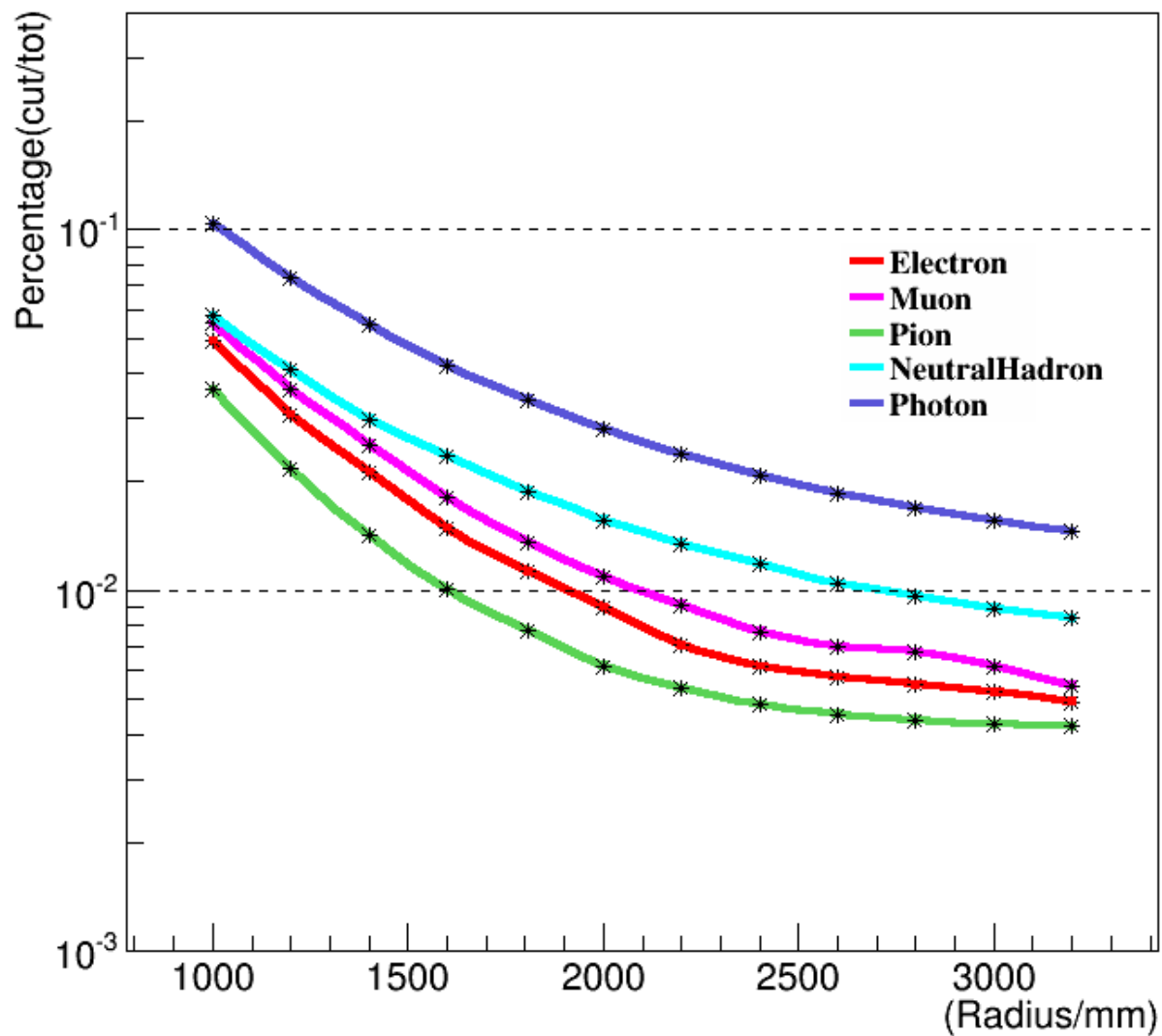


qqH

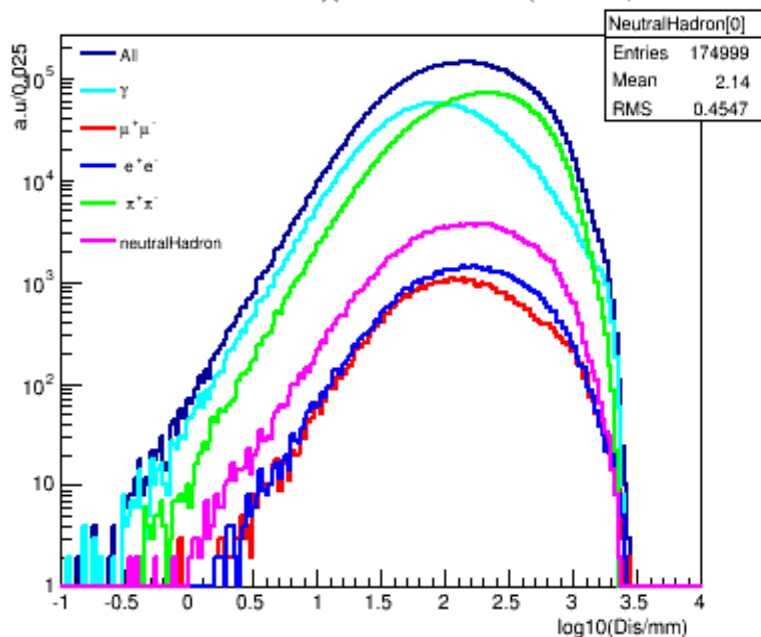
Cut ClosestDistance at 15mm for qqH at 250GeV



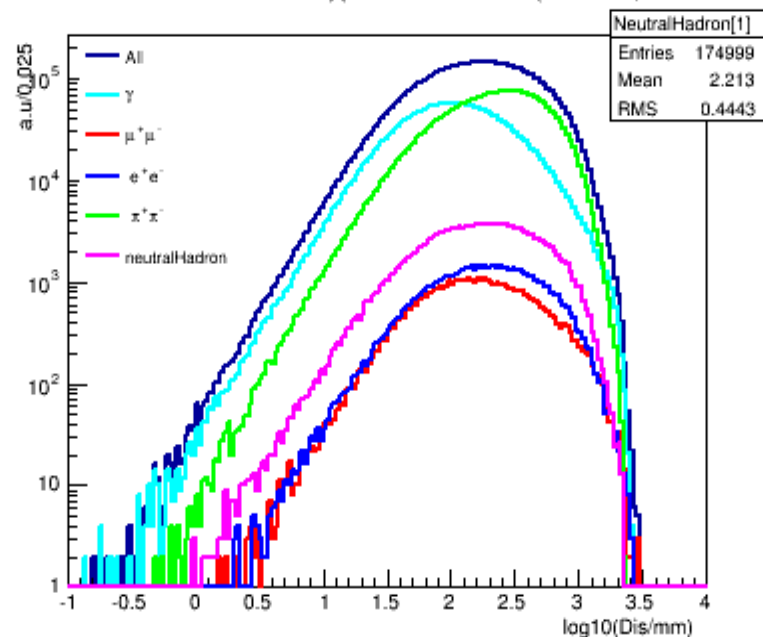
Cut ClosestDistance at 25mm for qqH at 250GeV



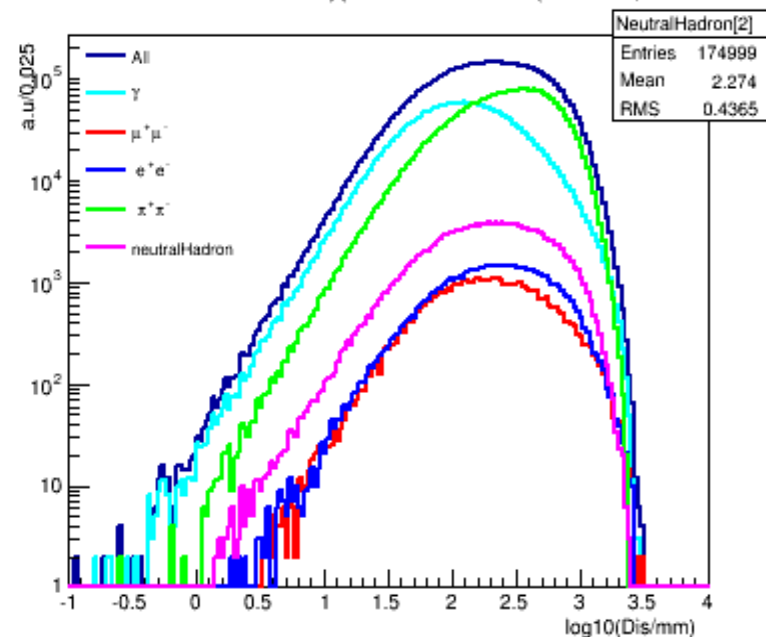
Dis Distribution for qq events at 250 GeV(1000 mm)



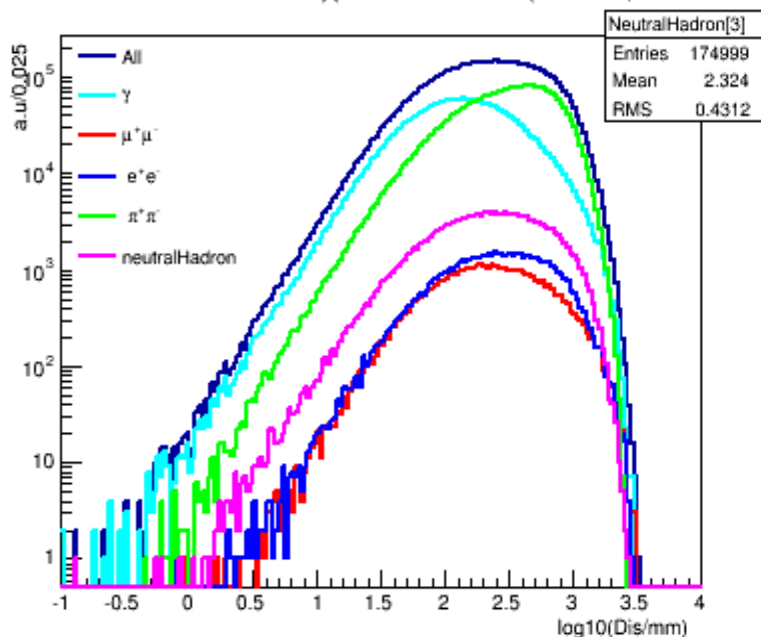
Dis Distribution for qq events at 250 GeV(1200 mm)



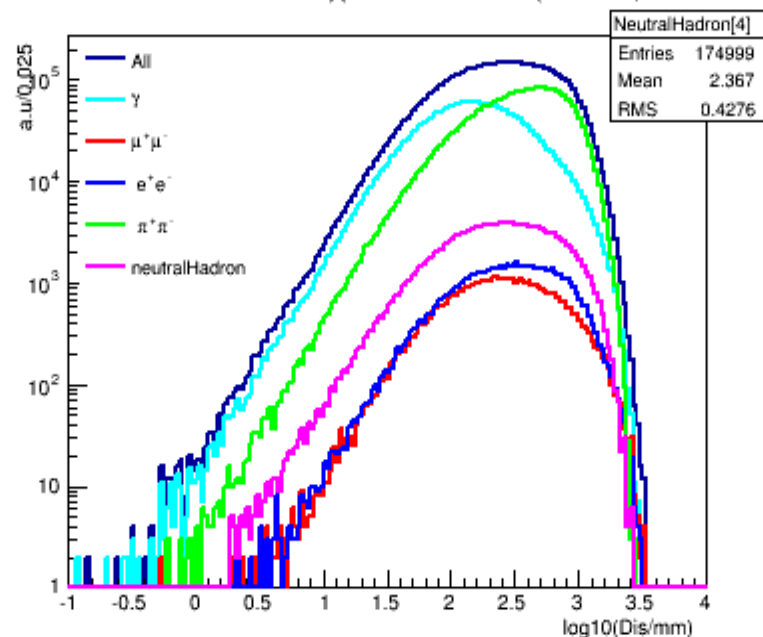
Dis Distribution for qq events at 250 GeV(1400 mm)



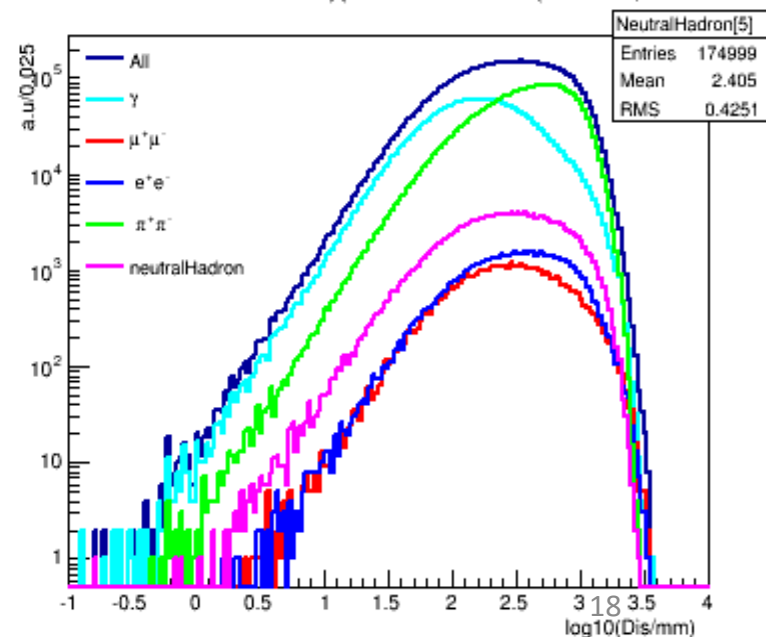
Dis Distribution for qq events at 250 GeV(1600 mm)



Dis Distribution for qq events at 250 GeV(1800 mm)



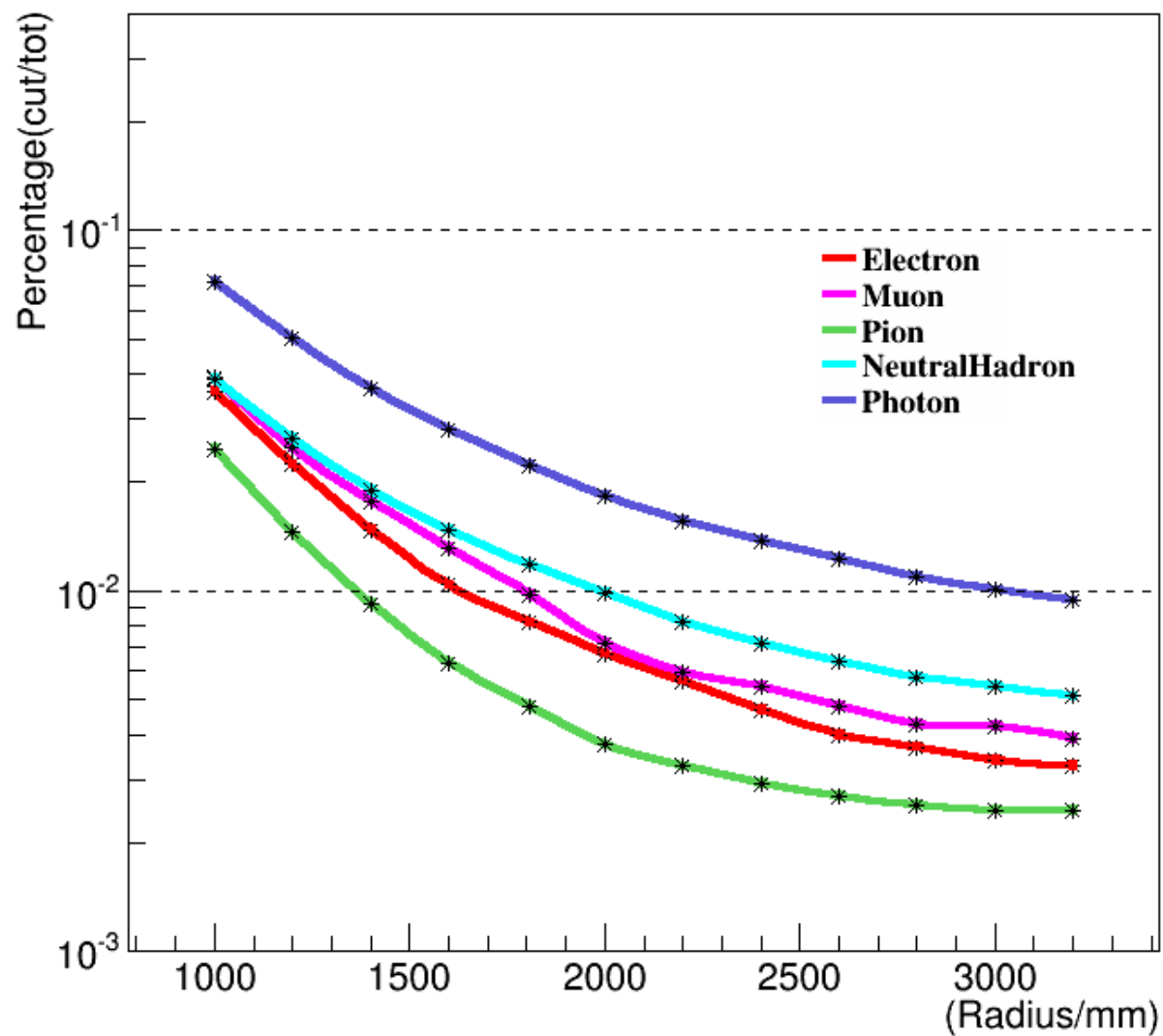
Dis Distribution for qq events at 250 GeV(2000 mm)



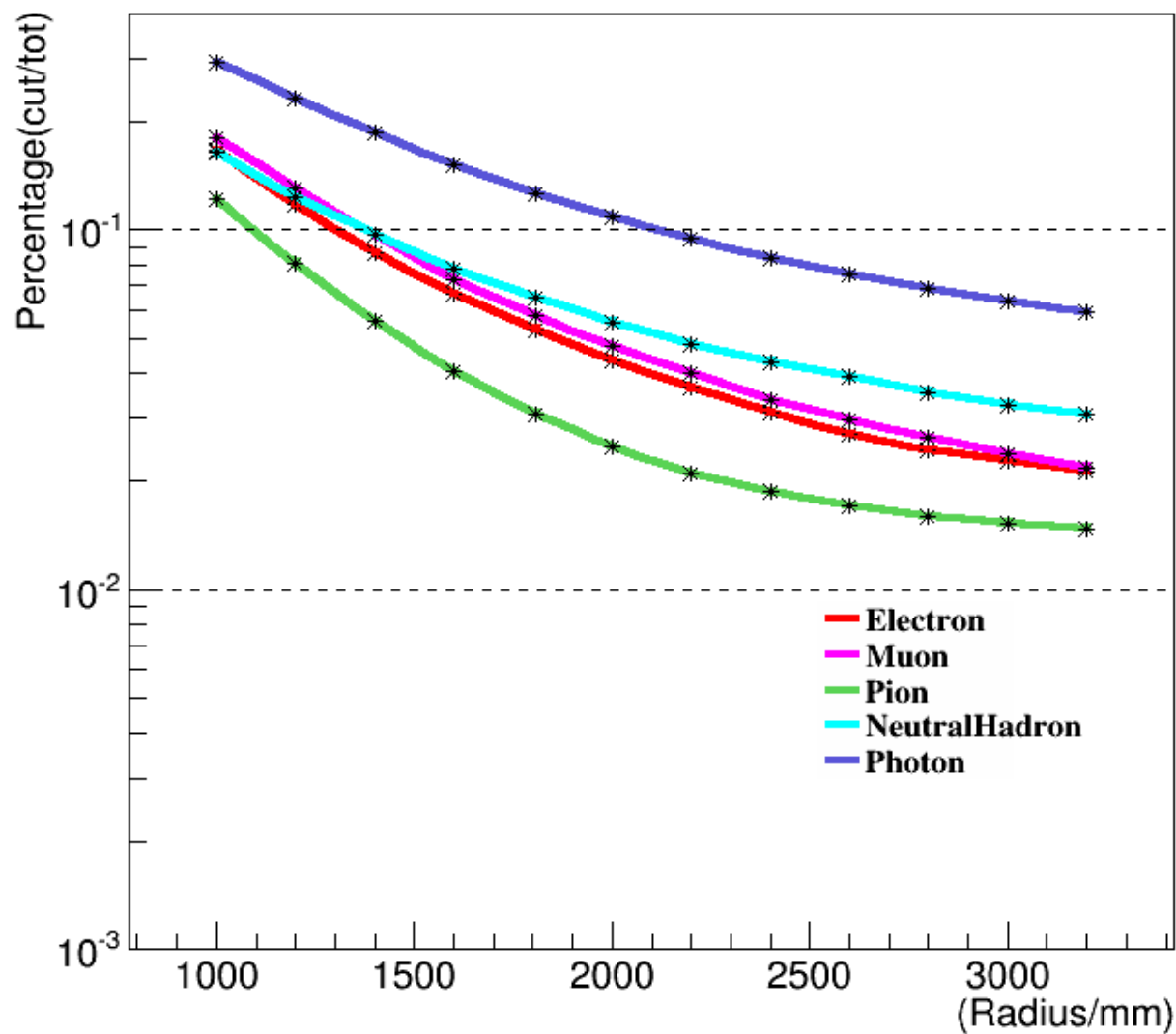
qqH

nnH

Cut ClosestDistance at 20mm for nnH at 250GeV

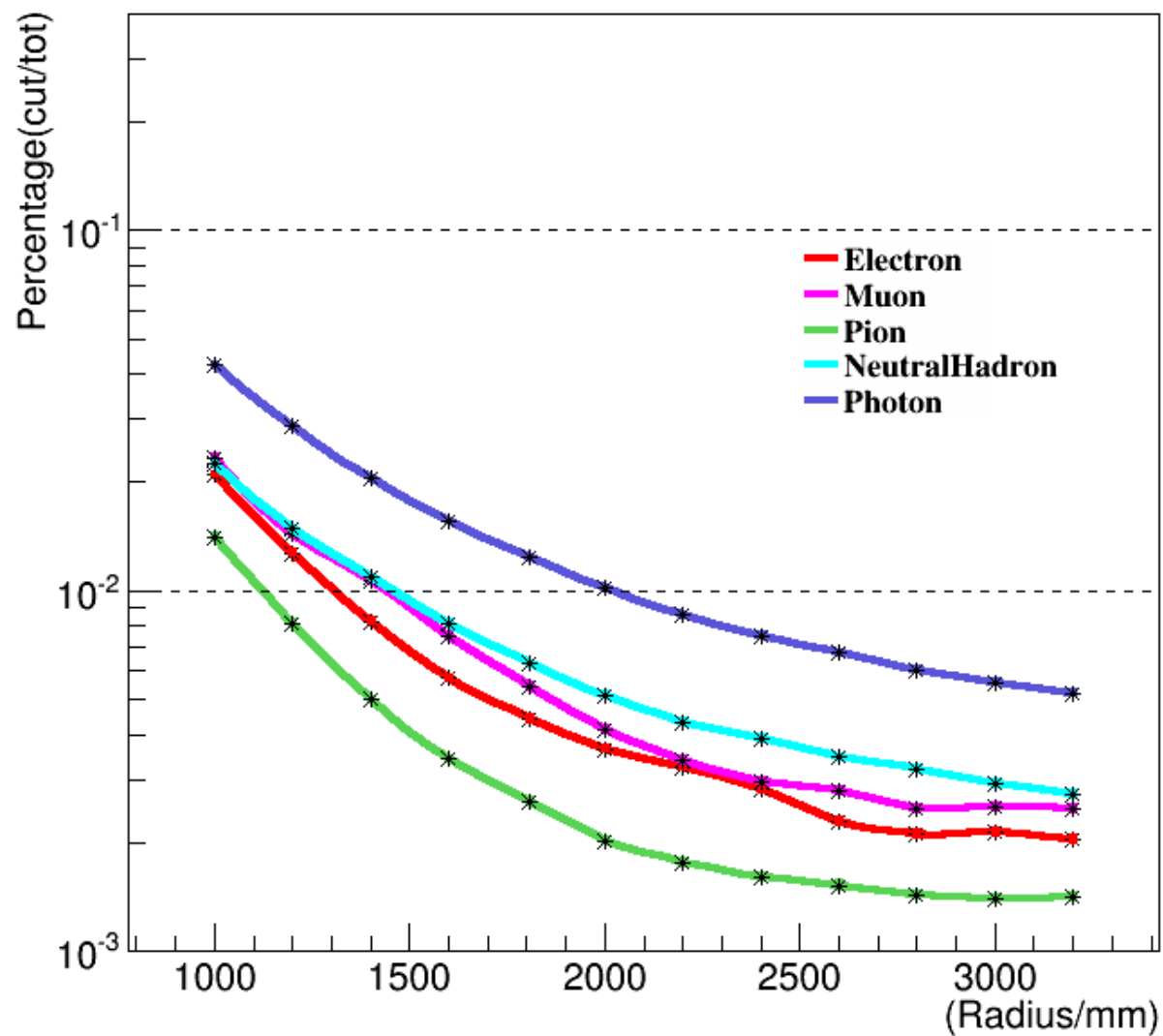


Cut ClosestDistance at 50mm for nnH at 250GeV

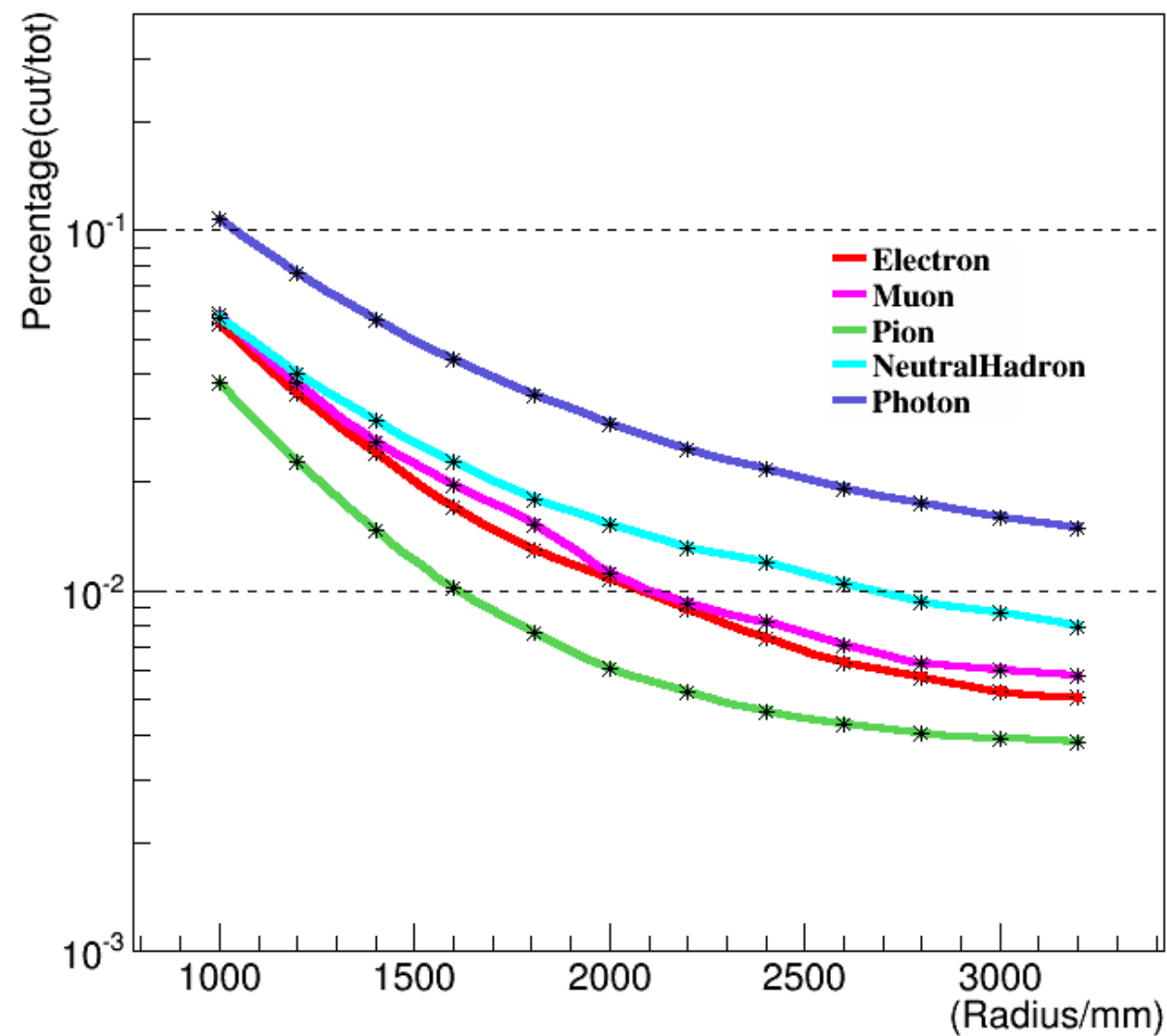


nnH

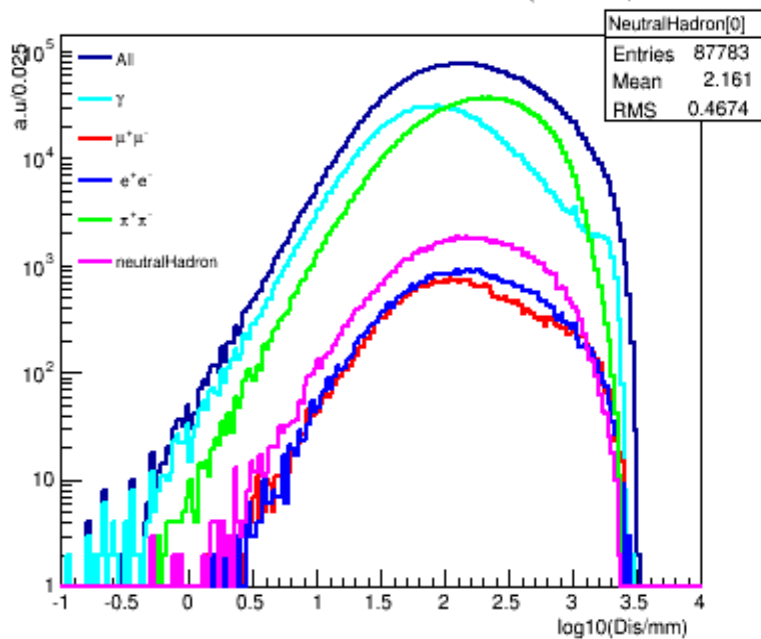
Cut ClosestDistance at 15mm for nnH at 250GeV



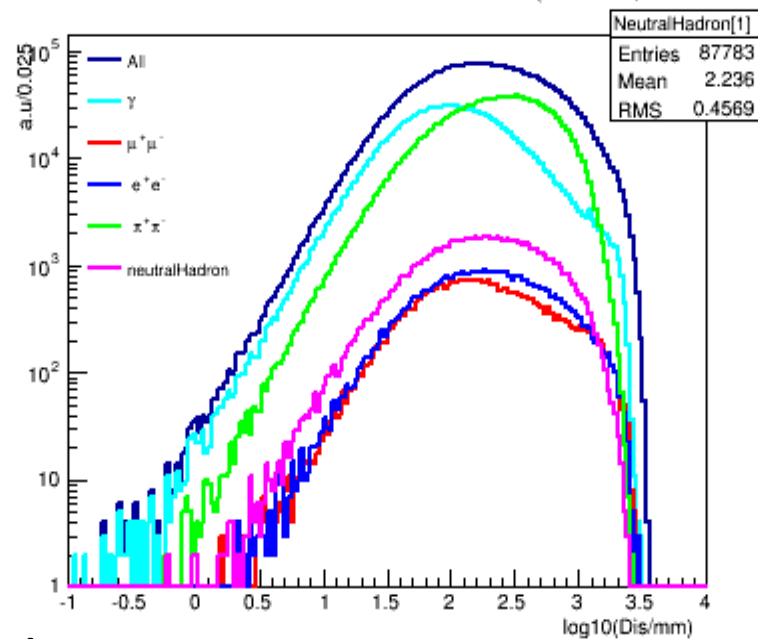
Cut ClosestDistance at 25mm for nnH at 250GeV



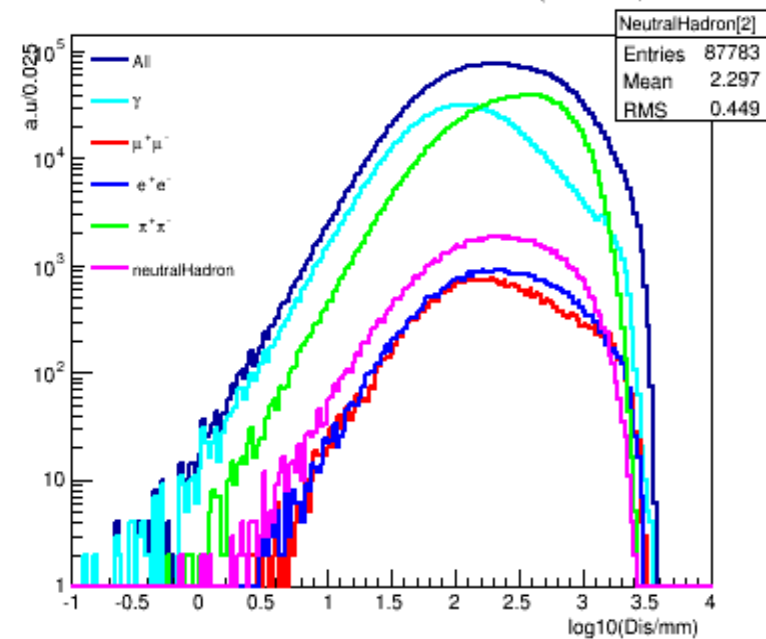
Dis Distribution for nn events at 250 GeV(1000 mm)



Dis Distribution for nn events at 250 GeV(1200 mm)

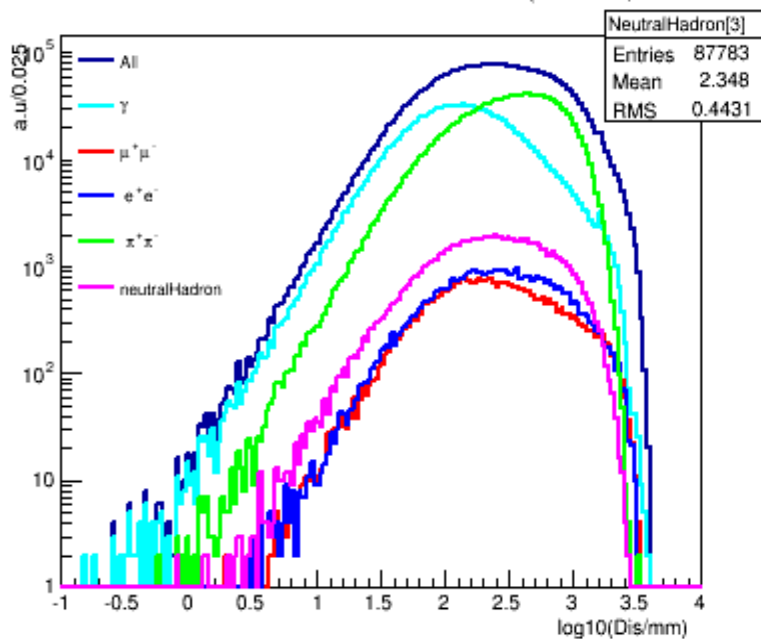


Dis Distribution for nn events at 250 GeV(1400 mm)

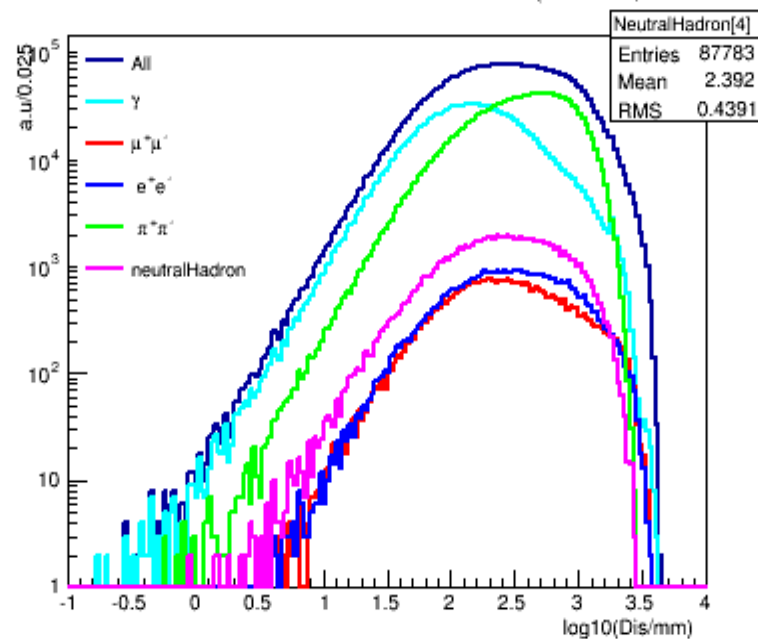


nnH

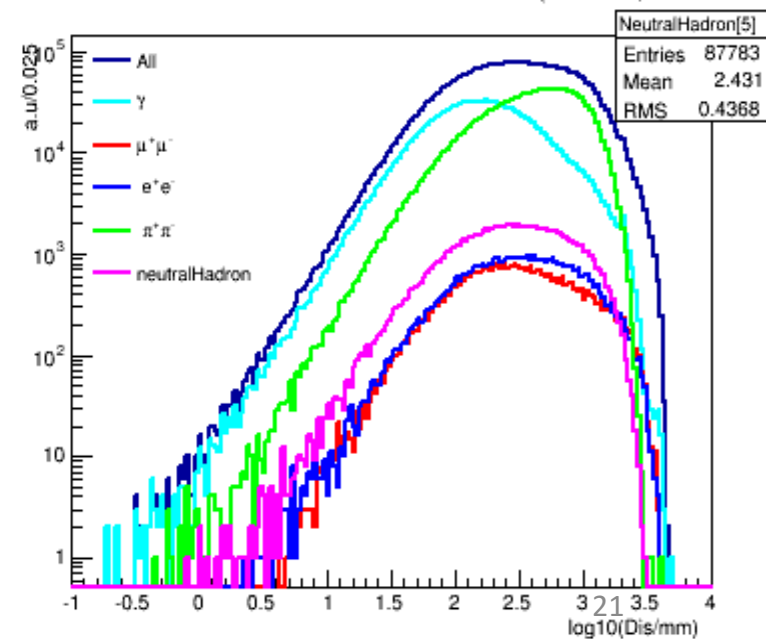
Dis Distribution for nn events at 250 GeV(1600 mm)



Dis Distribution for nn events at 250 GeV(1800 mm)



Dis Distribution for nn events at 250 GeV(2000 mm)



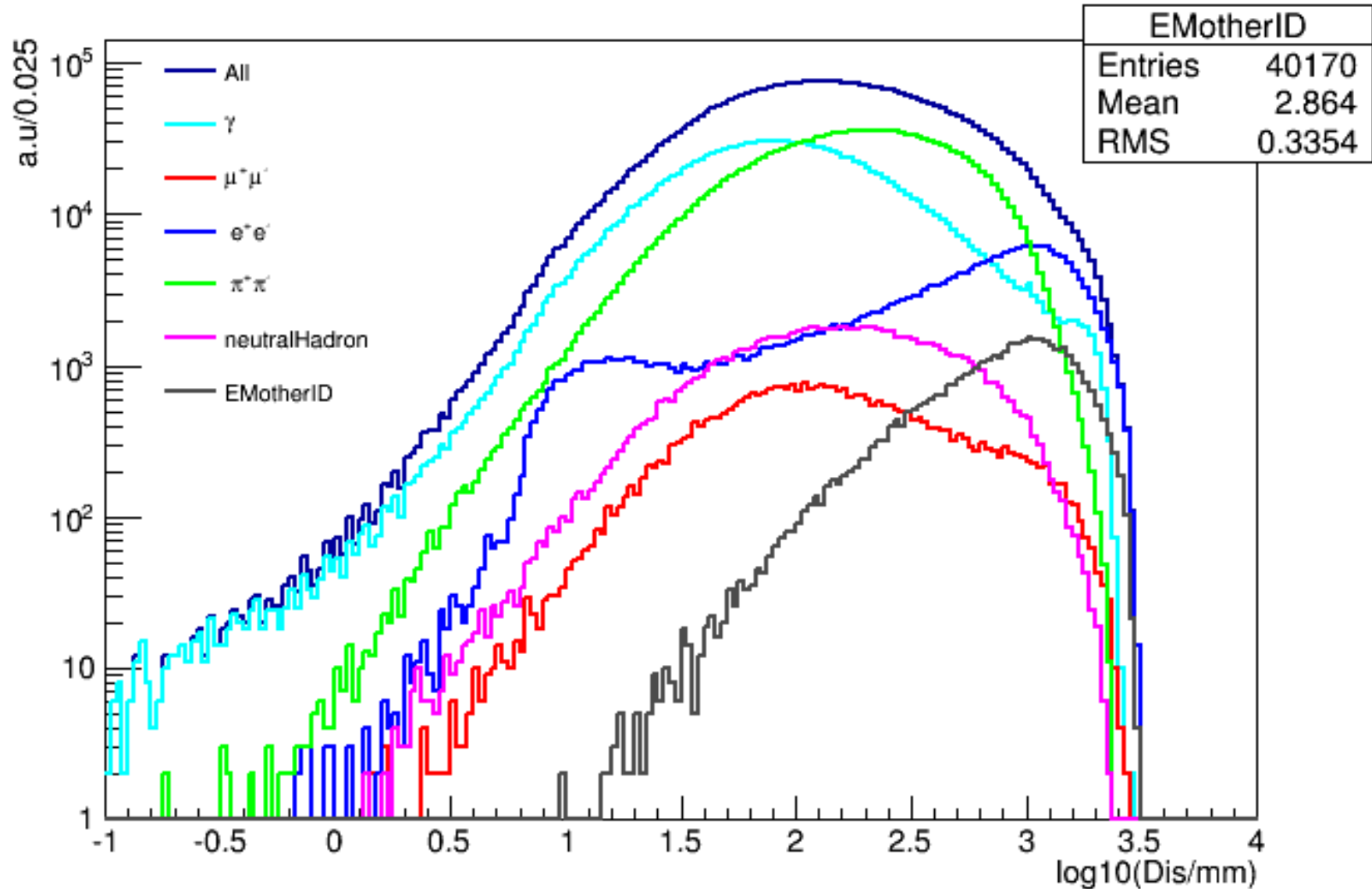
Summary

- There still have some problems in the above plots, and need more discussion
- Changing Bfield is the next step(2T, 2.5T, ...), and Radius remains as the default(1808mm)
- Find a better way to optimize the Tracksize&Bfield

THANKS

Back up

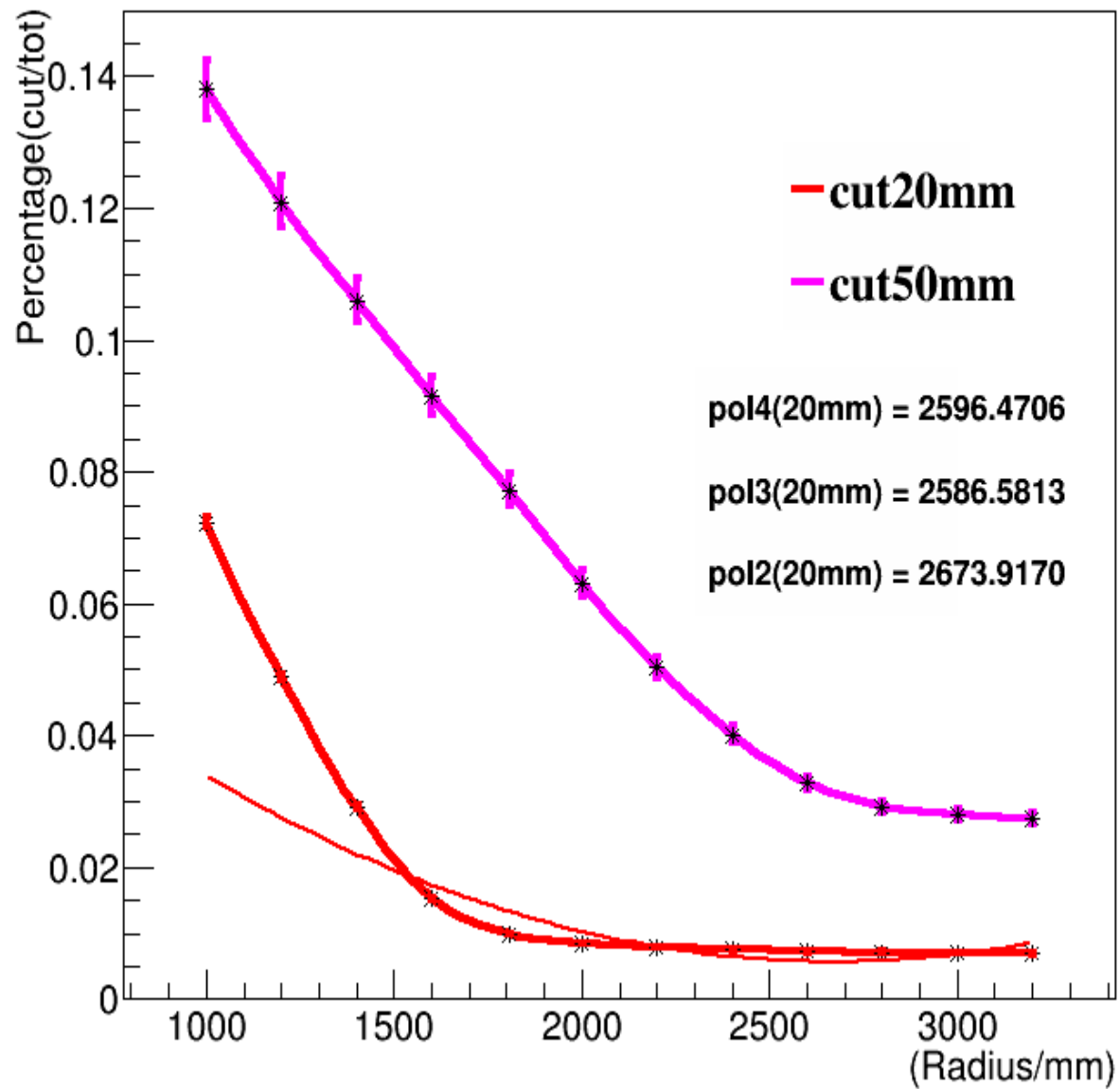
Dis Distribution for ee events at 250 GeV



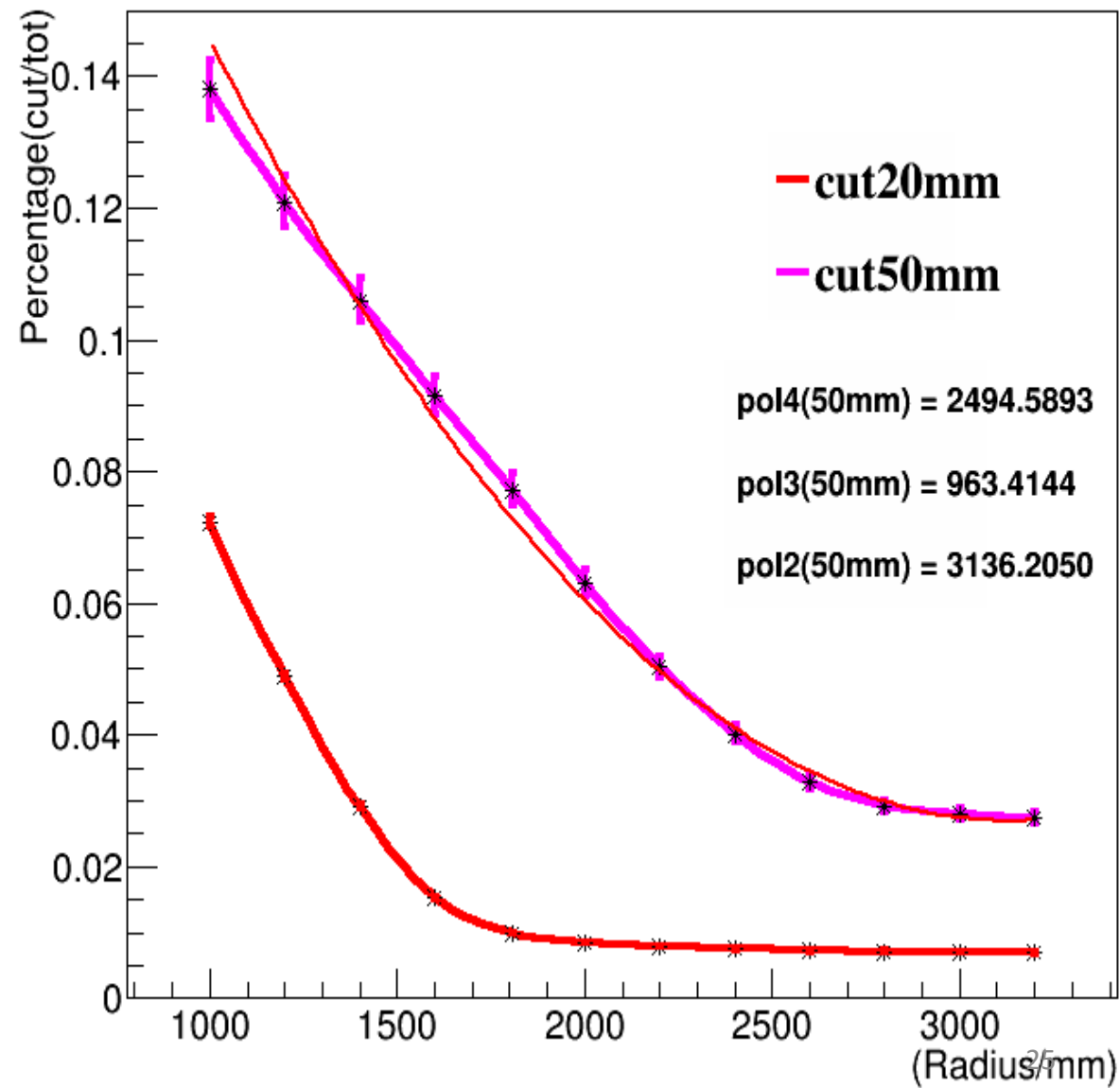
Radius: 1000mm Bfield: 3.5T cut particle: Electron

Back up

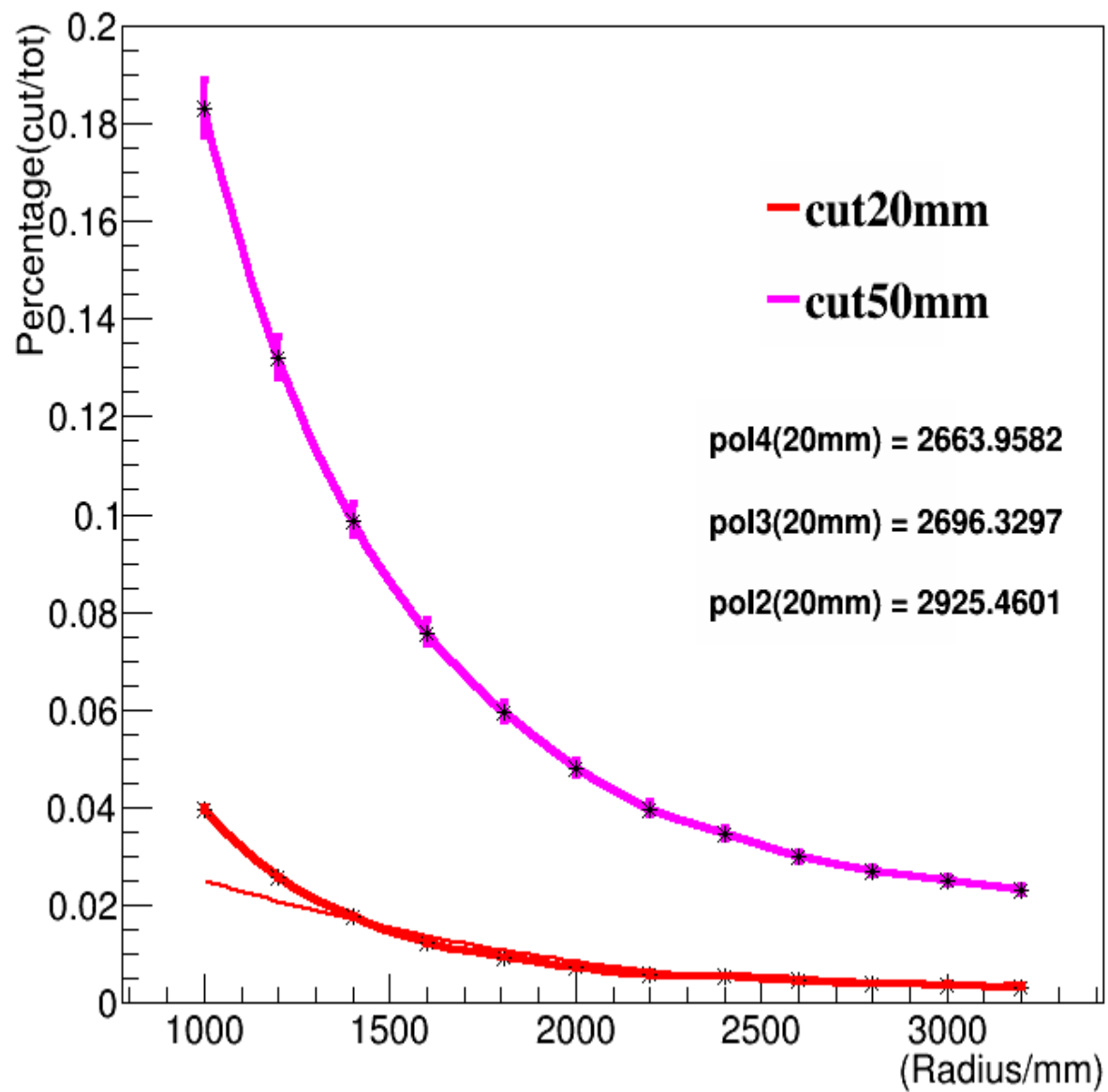
Changing Radius for eeH events at 250 GeV(Electron)



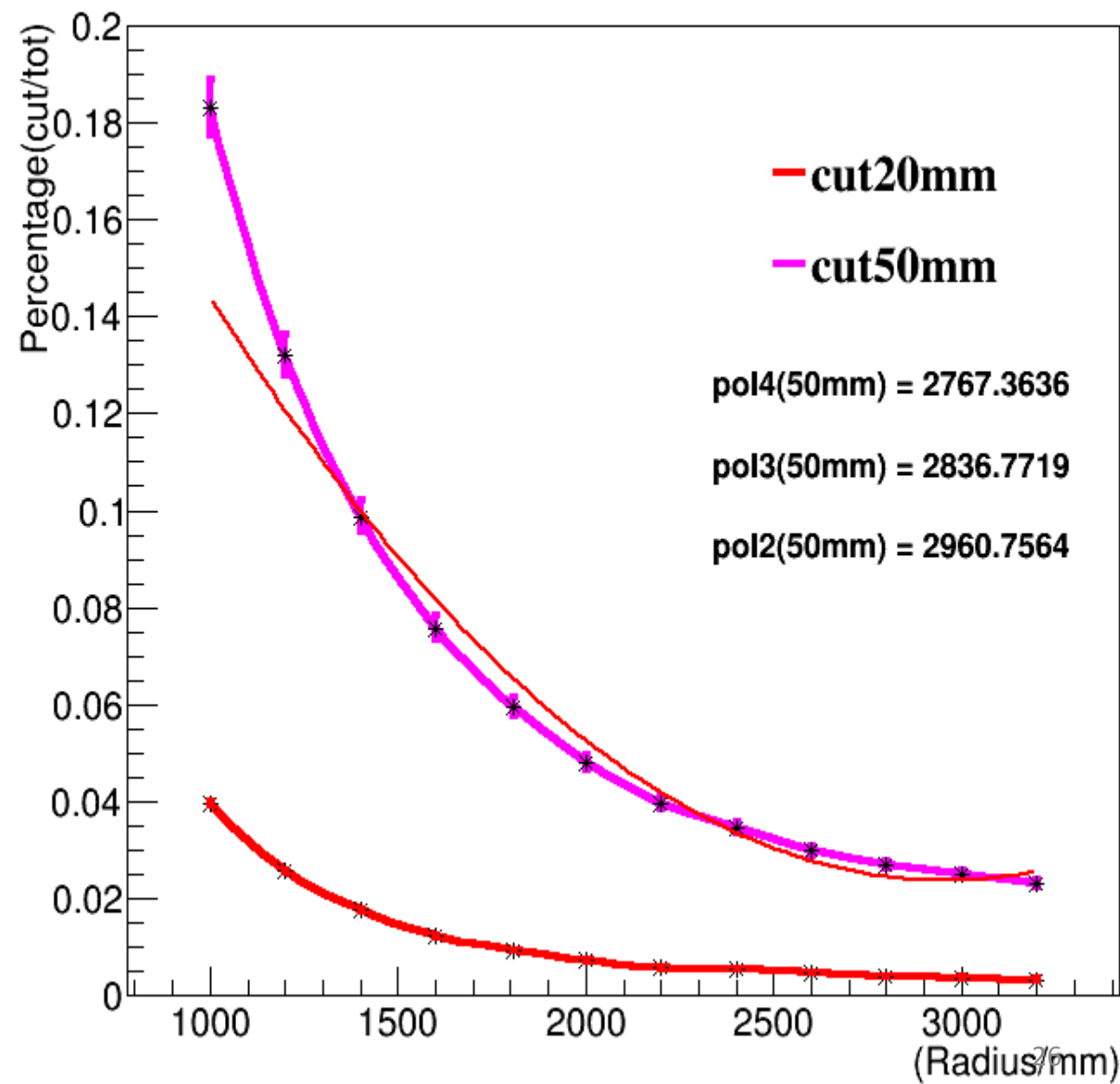
Changing Radius for eeH events at 250 GeV(Electron)



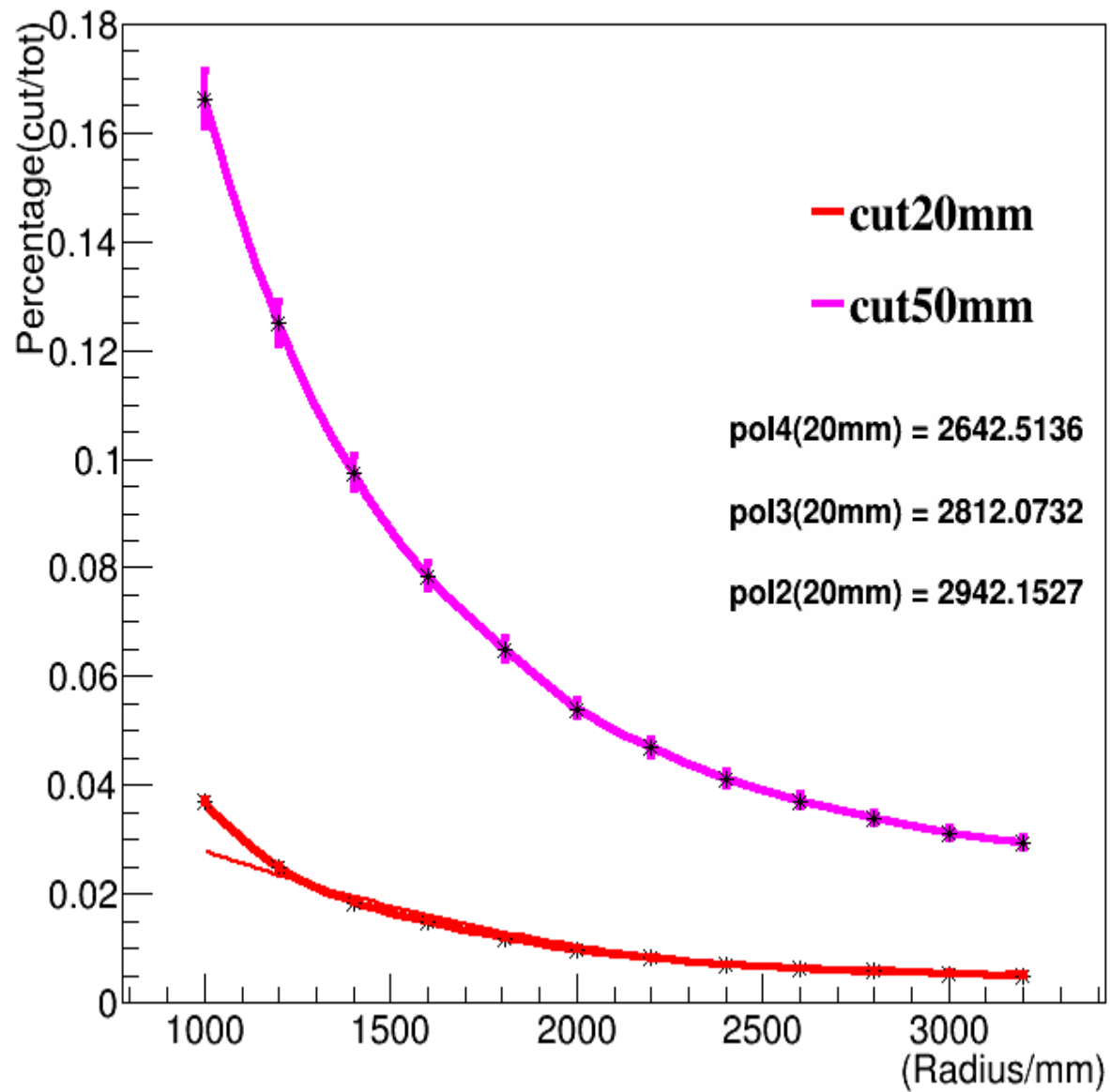
Changing Radius for eeH events at 250 GeV(Muon)



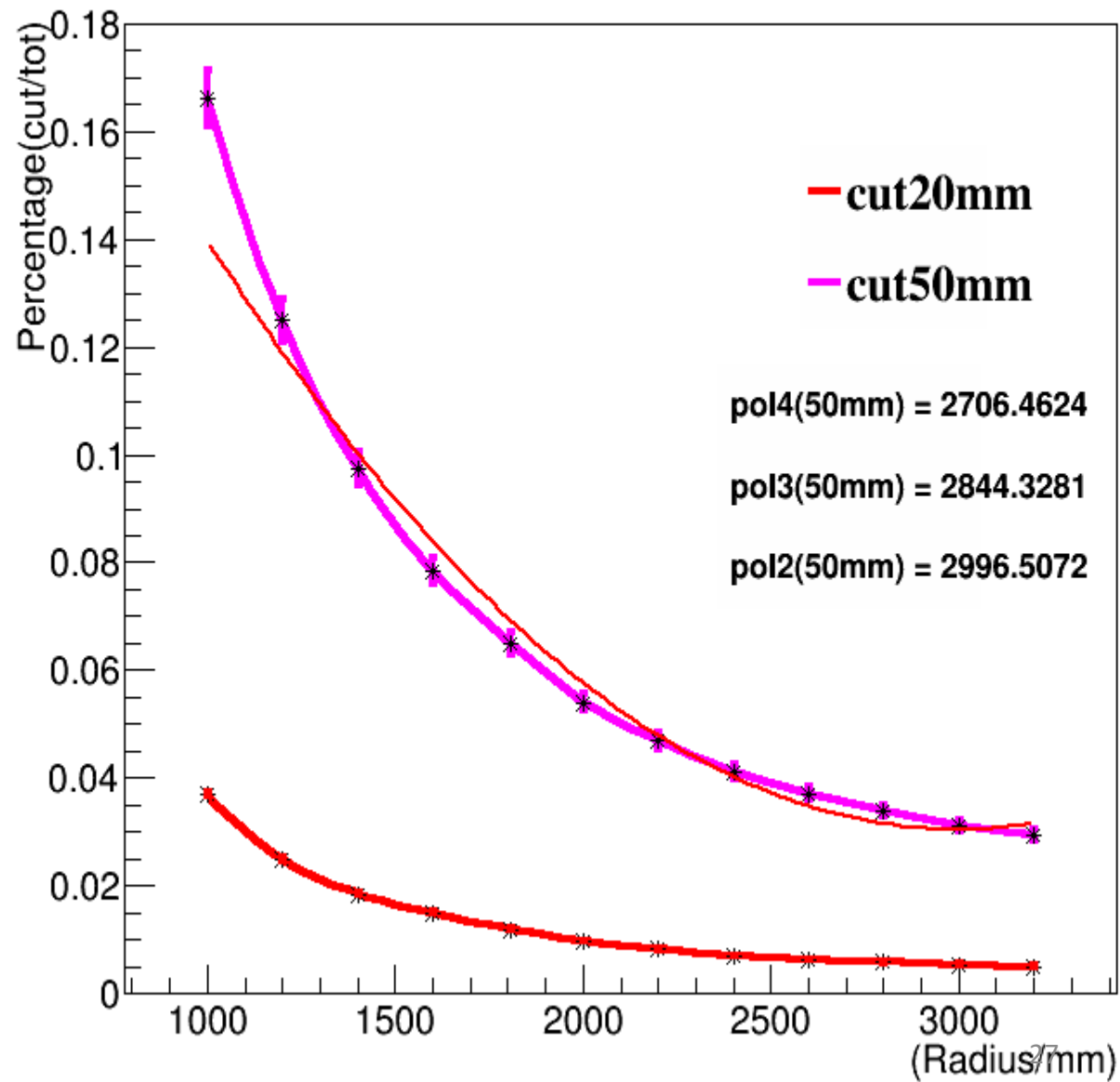
Changing Radius for eeH events at 250 GeV(Muon)



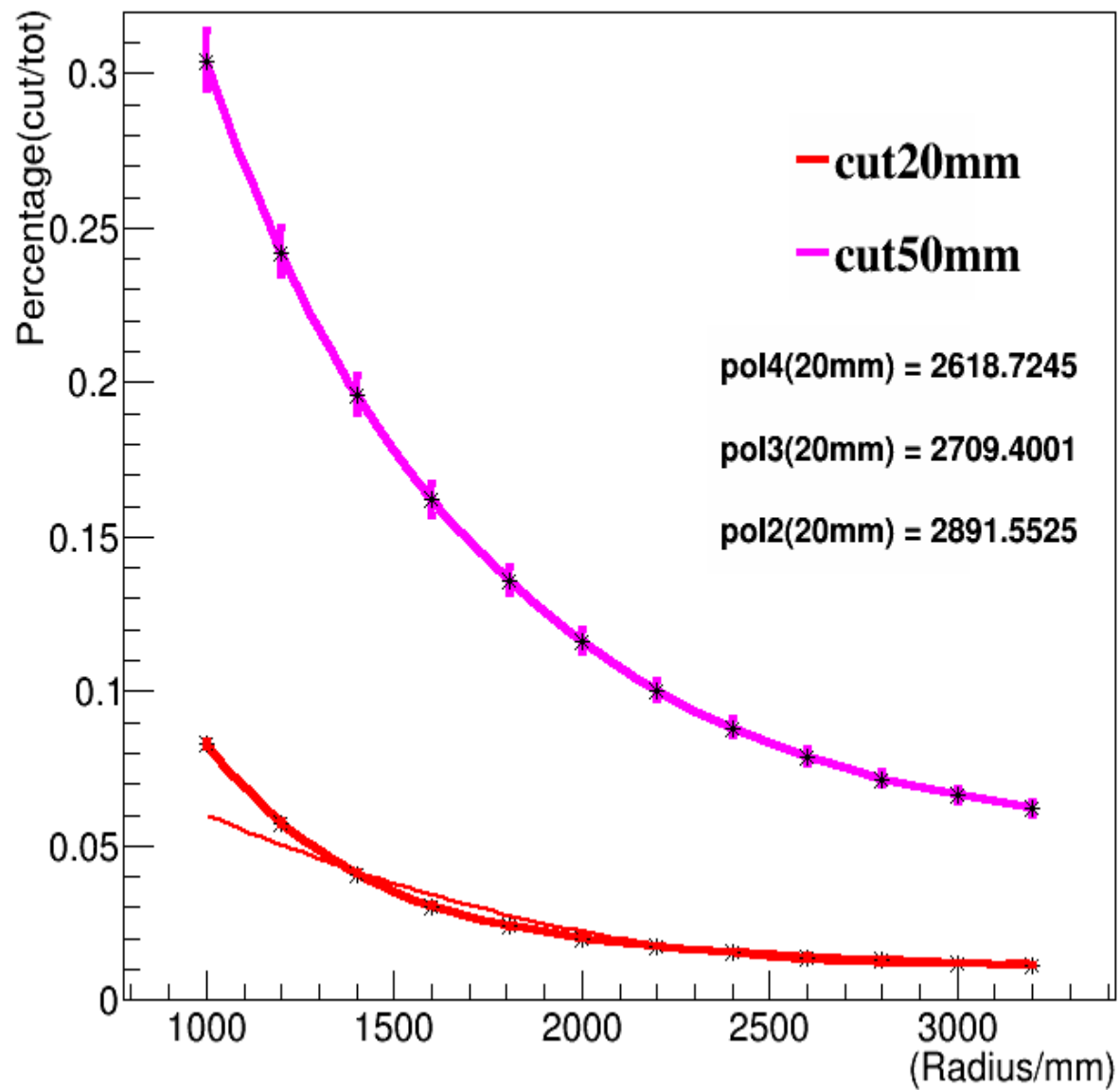
Changing Radius for eeH events at 250 GeV(NeutralHadron)



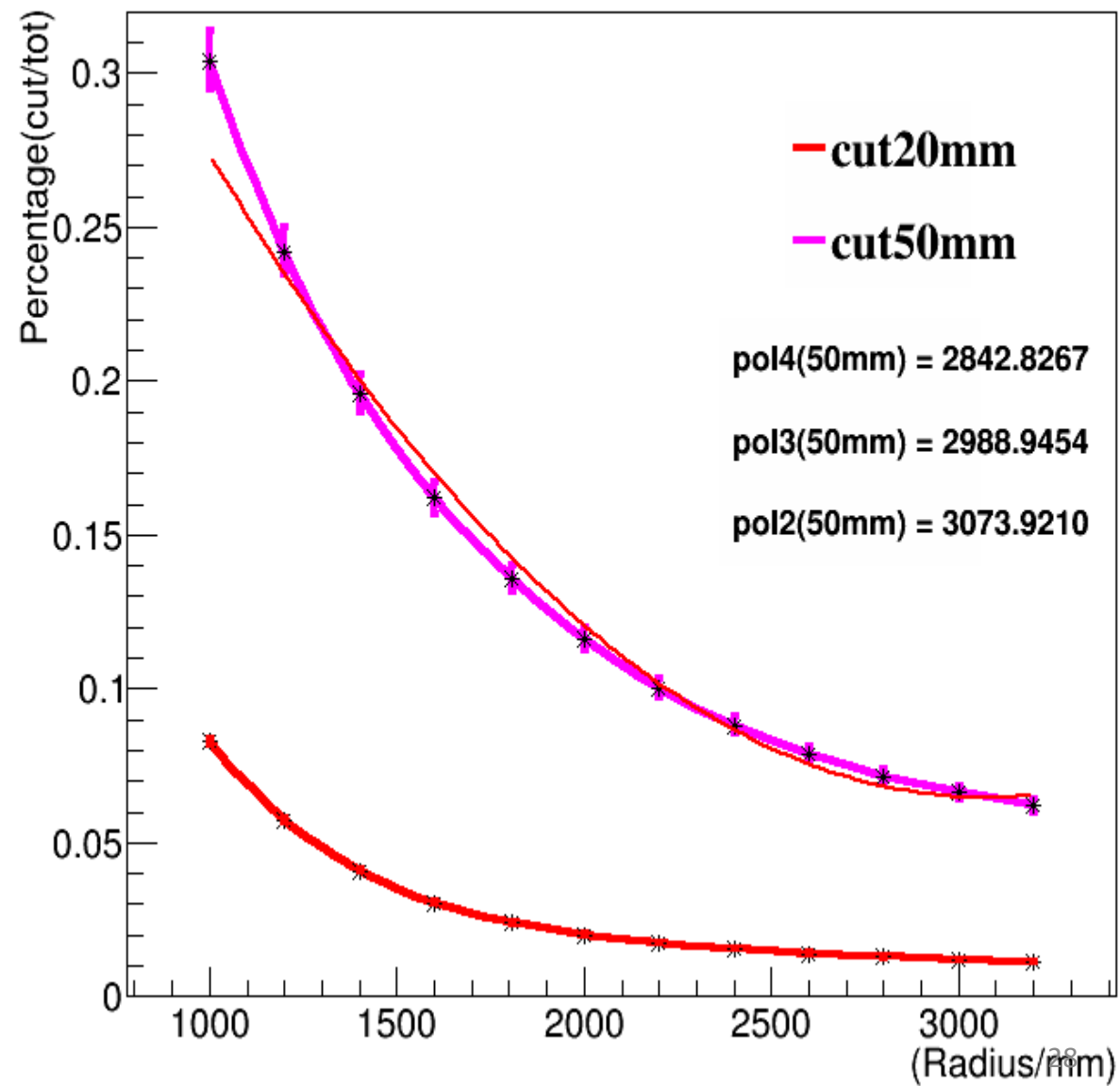
Changing Radius for eeH events at 250 GeV(NeutralHadron)



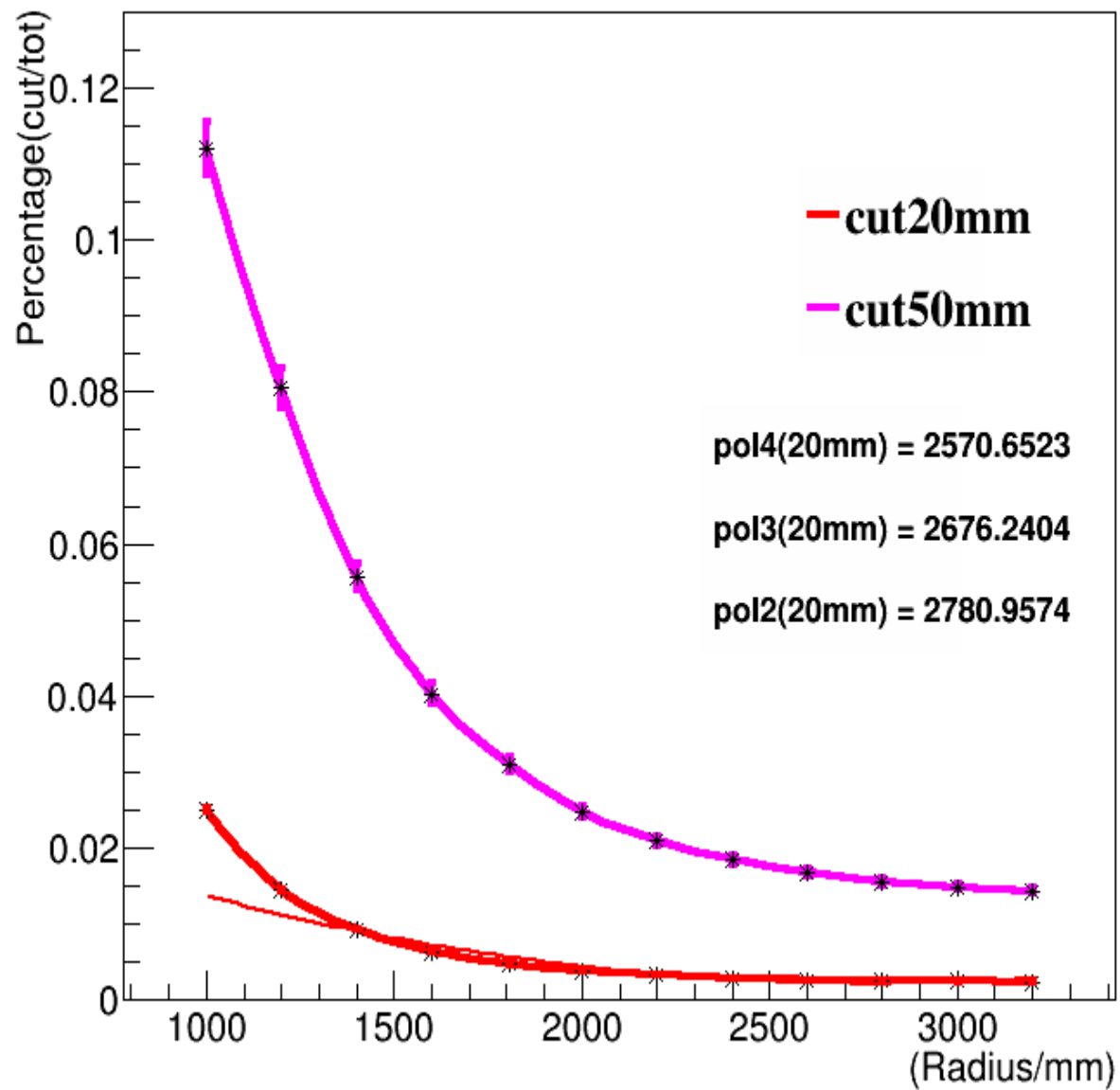
Changing Radius for eeH events at 250 GeV(Photon)



Changing Radius for eeH events at 250 GeV(Photon)



Changing Radius for eeH events at 250 GeV(Pion)



Changing Radius for eeH events at 250 GeV(Pion)

