

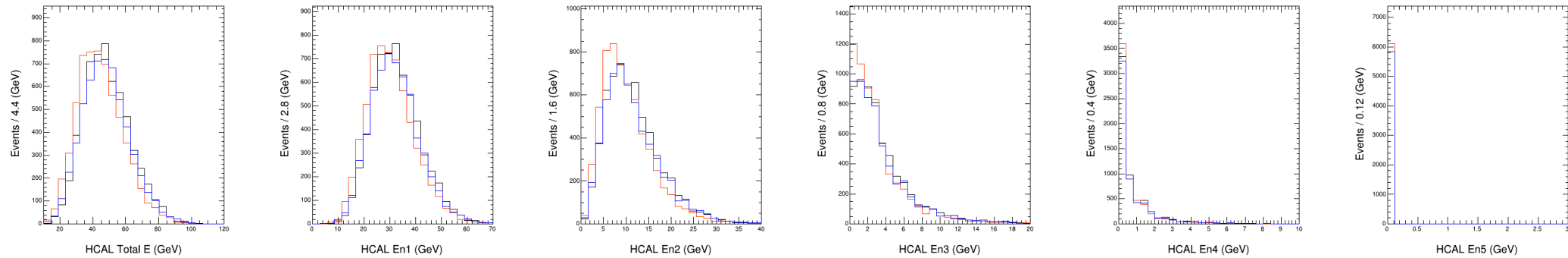
STATUS OF THE ALTERNATIVE COIL INVESTIGATION

Youngmin Yook (yook@ihep.ac.cn) Jul 07, 2012

CEPCv4(reference)

With 90mm Coil

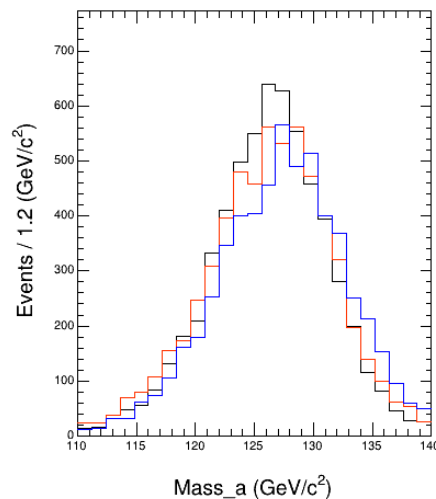
w/o Coil (same total gap btw ECAL & HCAL)



From INNER (\leftarrow) to OUTER (\rightarrow) HCAL layers

- HCAL energy is effected 'only' with the introduction of coil

$$p_T(ISR) < 1\text{GeV}; |\cos\theta_{jet}| < 0.85$$



- The distribution of Higgs Mass seems to depend on existence of the gap
 - Peak shift higher 'with gap'
 - The 'Energy deficit' due to coil is seen by change in skewness
- The reference peak itself is not a clear Gaussian

SUMMARY PLANS QUESTIONS

- To understand the HCAL energy deficit due to the coil
 - I will need to go in deeper to know the effect of the material
 - Is there a way to access the pre-reconstruction level information?
 - Shower details in simulation level
 - **Any reference code will be greatly appreciated (yook@ihep.ac.cn)**
- About the peaks, I want to summarize the tendency
 - Fits in Bifurcated Gaussian
 - Plot mode / left-right resolution in a graph
 - For V4 vs NewConfig w/ and w/o the coil
- Later: change the location of the solenoid 'inside' the HCAL
 - Will need to learn how to make that geometry