

CEPC ECAL SW Meeting

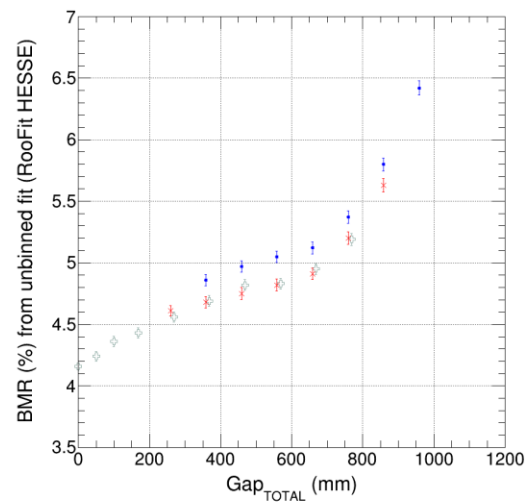
Alternative coil placement BMR study

<Updates on the no-coil case / some questions on the mass shift>

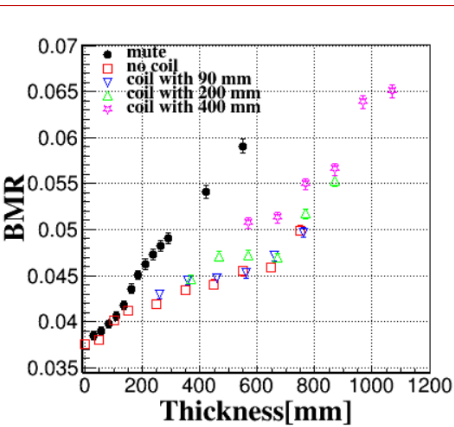
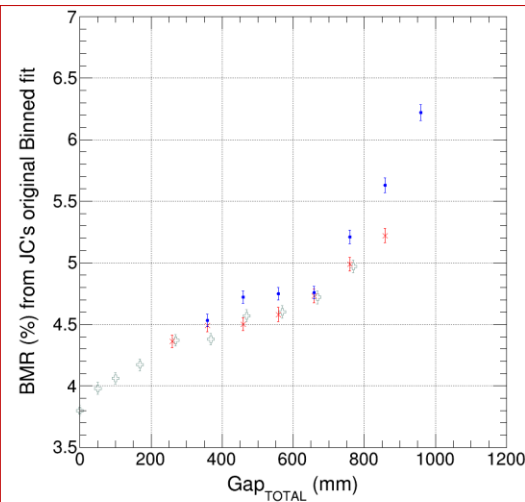
March 31st, 2021: Youngmin Yook: yook@ihep.ac.cn

Updates on the no-coil case

Unbinned

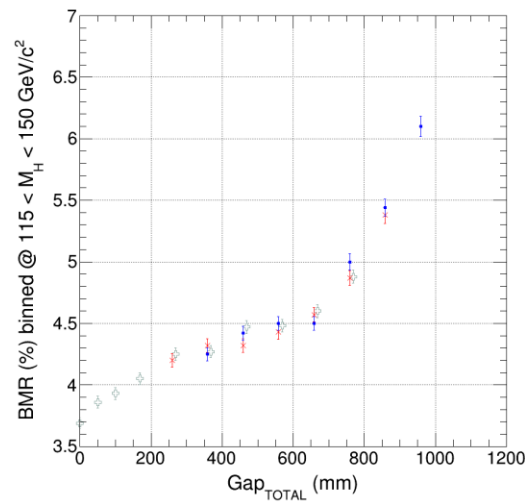
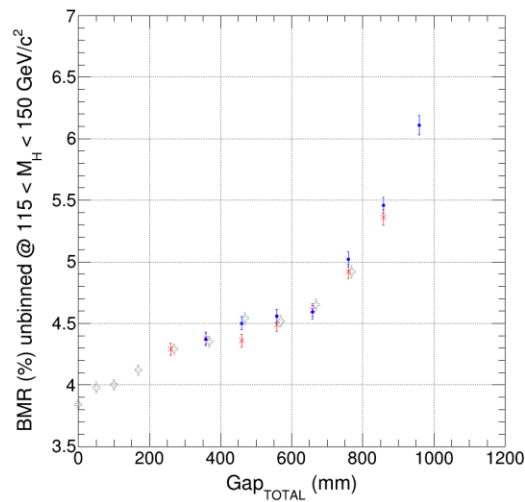


Binned



- Debugged setups in the DB for the No-Coil case.
- Close enough to proceed on I guess.

Truncated



```
PROC=gg; #Layer=40; Cell Size=10mm

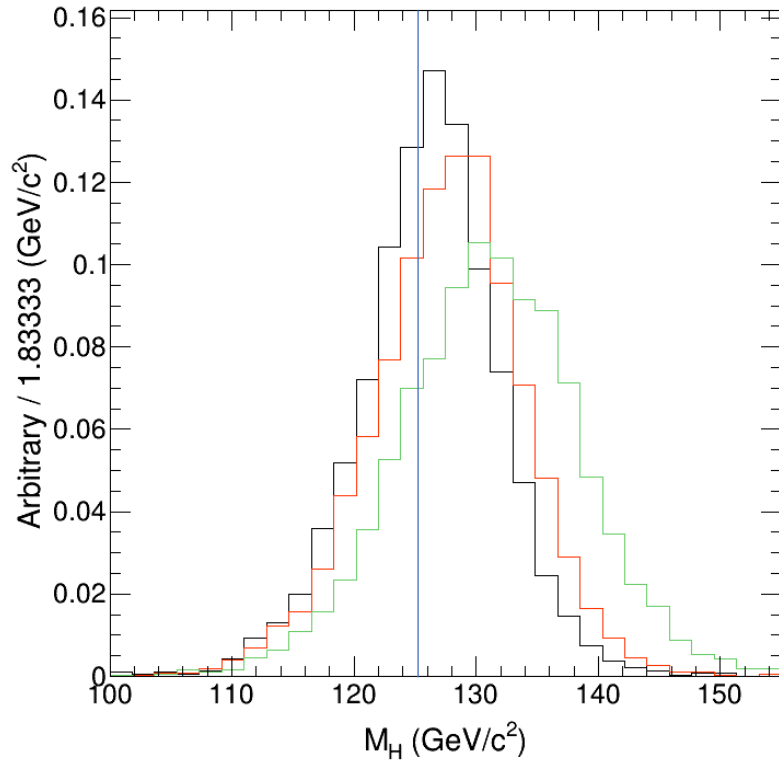
#MissingLayer=0; Cell Unit=1x1; Calib_HCAL=0.11 _HCAL=0.11
```

◇ $W_{\text{COIL}} = 0\text{mm}$

× $W_{\text{COIL}} = 90\text{mm}$

• $W_{\text{COIL}} = 200\text{mm}$

The mass shift



PROC: gg, WC: 90mm, Total Gap varied

#layer 40, Cell size 10mm, 0 missing layers

Cell grouping 1, HCAL calib 0.110000

— Total gap 259mm
- - - Total gap 359mm
— Total gap 459mm
- - - Total gap 559mm
— Total gap 659mm
- - - Total gap 759mm
— Total gap 859mm

- $m_H = 125.4 \text{ GeV}/c^2$
- In general, +bias, worsening with more of the gap
- Suggested by Jiechen
 - Change the HCAL calibration according to
 - Single K_L^0 @ baseline
 - $H \rightarrow gg$ @ baseline

Next goal: Understanding the Mass distribution and peak shift

- First try working with Jiechen's suggestion for now.
- Questions
 - **How was the BMR for baseline calculated? Did we have clear Gaussians? Any code reference?**
 - **What is the internal mechanism of the HCAL calibration?**
 - **I have heard MOKKA is outdated. Preferably move on to what is more related to the recent SW development? If so, which?**
- If you have an answer or 'any' input that could guide me to the answers, please don't hesitate to tell me!