

# CEPC 触发研究

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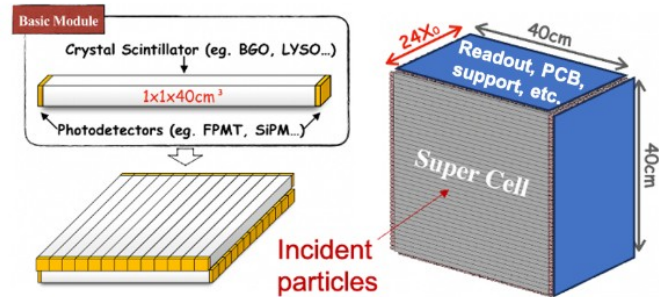


# 探测器模拟更新

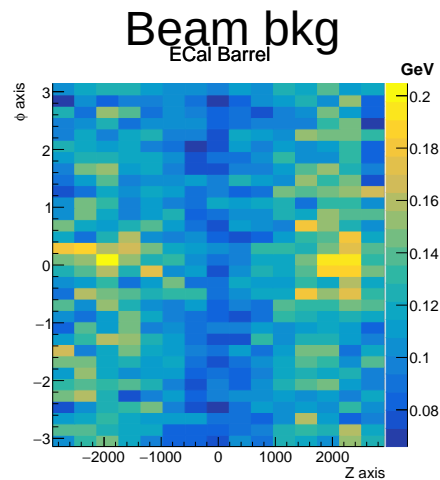
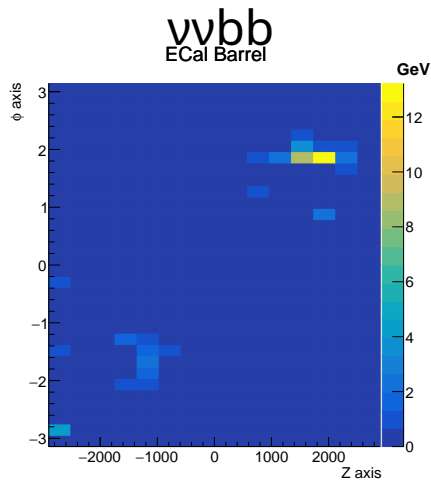
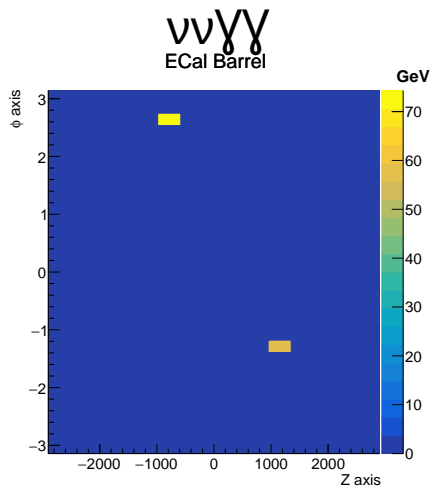
- **CEPCSW**探测器：
  - 模拟的配置文件： `Detector/DetCRD/scripts/TDR_o1_v01/sim(track/calodigi).py`
  - 最新的更新加入了其他各子探测器的数字化，包括 `tracker`，`Muon`
- 束流本底样本正在更新产生子（加速器提供新的微调参数），预计下周才有新的版本

# 量能器触发方案

- 挑选能量最大的 40x40 的触发单元
  - 计算总能量，合并成 5 层后每层的总能量作为判据
- 新物理触发： single photon 应该已经包含在这个触发方案里

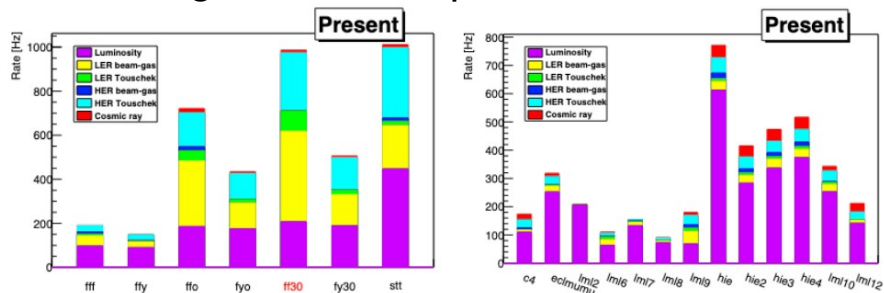


- **BGO bars in  $1 \times 1 \times \sim 40 \text{ cm}^3$**
- **Effective granularity  $1 \times 1 \times 2 \text{ cm}^3$**
- **Modules with cracks not pointing to IP (with an inclined angle of 12 degrees)**



# 新物理触发: Low pT track

- 殷老师准备的 slide
  - 2D track, NNtrack, full track
- Beam bkg 有大量 low pT track



Luminosity  $\sim 18e33/cm^2/s$

Trg rate  $\sim 3k$  Hz

Physics rate  $\sim 252$  Hz

$\sim 1.3k$  Hz  
including eeee/eemumu

(Efficiency not considered)

trg bit	definition	trg rate (Hz)	physics
ffy	#2D track $\geq 3$ , NNtrack with $ z  < 20$ cm $\geq 1$	$\sim 200$	flavour
stt	#full track $\geq 1$ , $P > 0.7$ GeV	$\sim 1000$	tau/low Mul.
hie	ECL energy $> 1$ GeV (thetaID in [2,15])	$\sim 800$	flavour/NP
c4	ECL #cluster $\geq 4$ , (thetaID in [2,15])	$\sim 180$	flavour
lml12	ECL #cluster $\geq 3$ , at least 1 cluster $> 0.5$ GeV (2-16)	$\sim 200$	tau
lml16	#cluster = 1 ( $E \geq 0.5$ GeV) (thetaID in [6-11]), no other cluster $\geq 0.3$ GeV, #track = 0	$\sim 300$	dark

