Weekly report

FANGYI GUO

CEPC WS plan

$\sigma \times Br(H \to \gamma\gamma)$ precision

4 channel full simulation sample + MVA, will have both improvement from MVA and decrease from full sim.

- qqHaa: PhotonSelectionProcessor+JetClusteringAndFlavorTag
- nnHaa: PhotonSelectionProcessor, inclusive 2 photons
- mumuHaa: PhotonSelectionProcessor+IsolatedLeptonFinderProcessor, ignore tau->mu+nu process.
- tautauHaa: PhotonSelectionProcessor+Tau finder(ask Dan).

Extrapolation to 360GeV:

- Only mumuHaa sample is ready. Mainly focus on m_yy width.

Ecal Resolution:

- Present results. Fit the line to draw some conclusions.

Others

VBF Higgs CP:

Use sideband data to simulate background.

- Advantage: don't care MC simulation, no sys. Error from MC
- Dis: MVA categories (tight, loose) might not be used.

Message from Shuo Han and Kunlin in CLHCP: their jet performances are also not well, and in 140fb-1 $\sigma_{sys} \sim \sigma_{stat}$.

HGTD:

- Will have a Higgs community report in November.
- From Zhijun: TDR ddl is the end of this year. Finish it or give up.
- From Joao's CLHCP report: IHEP HGTD people can have some FTE, but I'm not in his list. Can I also ask some?

Results

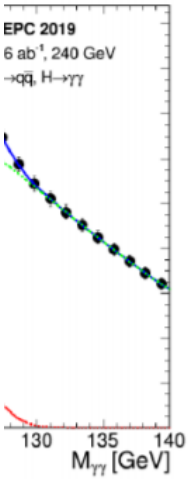
✦ **Full Run2 (139 fb-1) fiducial cross-section** (SM: 63.6±3.3 fb)

$$\sigma_{\text{fid}} = 65.2 \pm 4.5\,(\text{stat.}) \pm 5.6\,(\text{syst.}) \pm 0.3\,(\text{theo.})\,\text{fb}, \text{ SM: } 63.6 \pm 3.3\ \text{fb}$$

✦ Default SM expectation: **ggH N3LO, VBF WH qqZH NNLO, ggZH ttH bbH NLO**

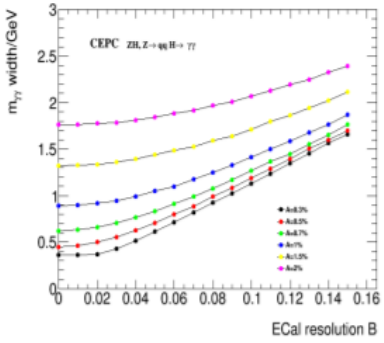
Impact of variation of B on the $M_{\gamma\gamma}$ resolution

$$\frac{\delta E}{E} = A \oplus \frac{B}{\sqrt{E}} \oplus$$

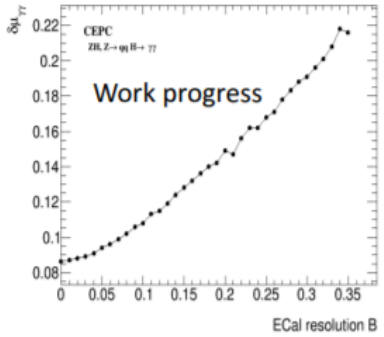


'A

cision



Impact on the measured precision



rrent IHEP Cluster HGTD Team

Total: 32

Physics Faculty 12

Engineers 3

Postdocs 9

Students 8

Name	Activity	Position	FTE
Joao Guimaraes da Costa	Management + sensor + modules	Physics Faculty	50%
Zhaoru Zhang	Management	Physics Faculty	10%
Ming Qi (Nanjing Univ)	Electronics	Physics Faculty	50%
Lei Zhang (Nanjing Univ)	Electronics	Physics Faculty	50%
Juan Antonio Garcia	TDAQ + Demonstrator	Postdoc	30%
Jie Zhang	ASIC + module + electronics	Engineer	35%
Wei Wei	ASIC	Engineer	10%
Jinyu Fu	Mechanics	Engineer	30%
Lianyou Shan	Module	Physics Faculty	70%
Feng Lv	Module	Physics Faculty	30%
Peilian Liu	Module	Physics Faculty	20%
MingYi Dong	Module	Physics Faculty	40%
Xin Shi	Sensor	Physics Faculty	50%
Mei Zhao	Sensor	Engineer	50%
Ryuta Kiuchi	Sensor	Postdoc	50%
Yunyun Fan	Sensor	Postdoc	70%
Yuzhen Yang	Sensor	Postdoc	50%
Kewei Wu	Sensor	Student	50%
Yuhang Tan	Sensor	Student	50%
Liaoshan Shi	Sensor	Student	50%
Baohua Qi	Sensor	Student	70%
Tao Yang	Sensor	Student	80%
Zhijun Liang	Sensor + module	Physics Faculty	50%
Suyu Xiao	Sensor + test beam	Student	80%
Bo Liu	Sensor + test beam	Postdoc	30%
Mohamad Kassem Ayoub	Test beam	Postdoc	30%
Jingyi Liu	Test beam	Postdoc	30%
Kunlin Ran	Test beam	Student	30%
Xuai Zhuang	Test beam + HGTD Physics	Physics Faculty	20%
Yanping Huang	Test beam + HGTD Physics	Physics Faculty	20%
Ludovica Aperio Bella	HGTD Physics	Postdoc	30%
Huajie Cheng	HGTD Physics	Postdoc	30%
Yang Liu	HGTD Physics	Student	30%