BESIII Experiment

Xiaoyan SHEN
(for BESIII Collaboration)

Institute of High Energy Physics, China

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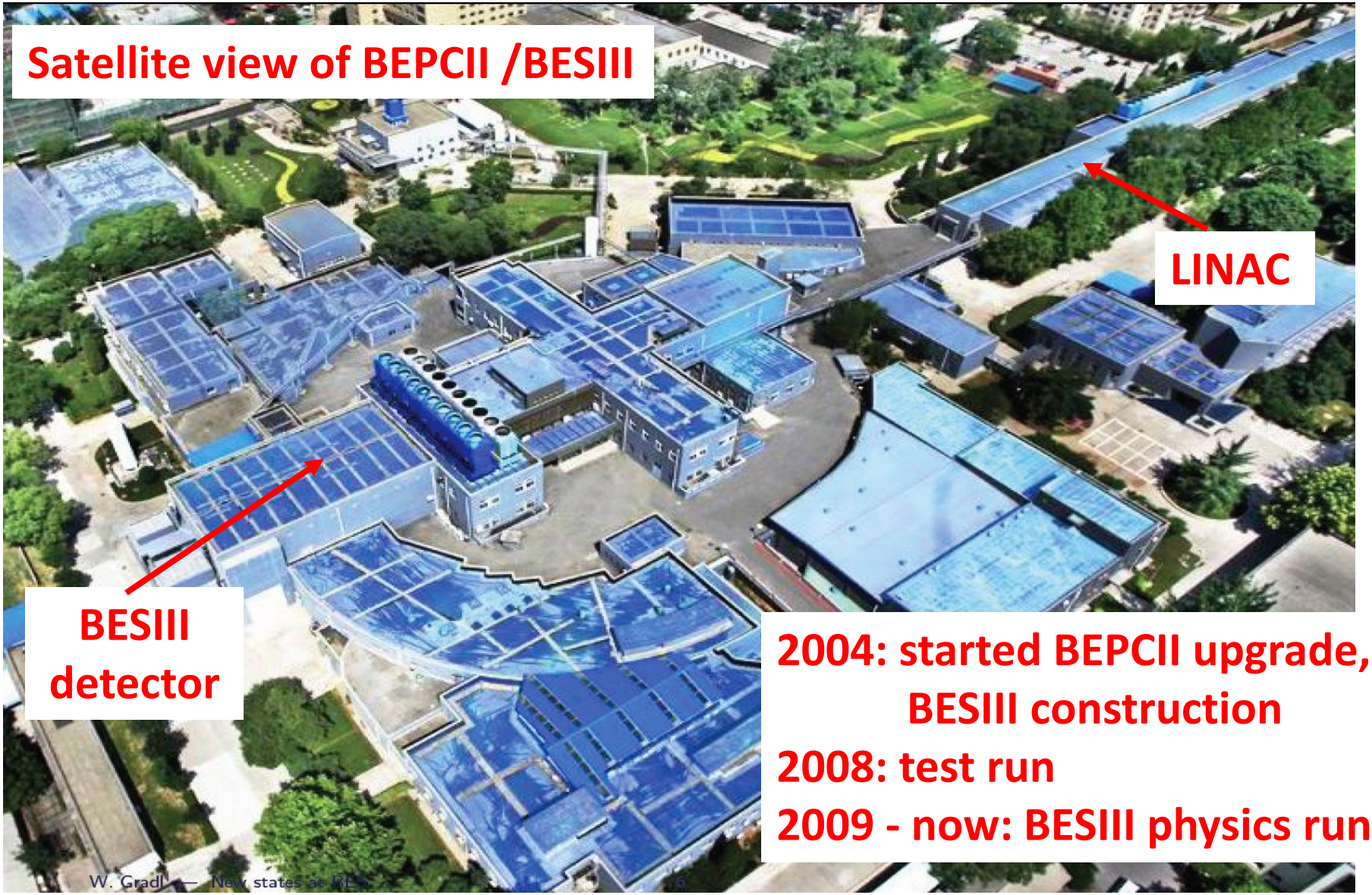
Beijing Electron Positron Collider (BEPC)



2004: started BEPCII upgrade, BESIII construction

2008: test run

2009 - now: BESIII physics run

The BESIII Collaboration

US (6)

Univ. of Hawaii
Univ. of Washington
Carnegie Mellon Univ.
Univ. of Minnesota
Univ. of Rochester
Univ. of Indiana

Europe (12)

Germany: Univ. of Bochum,
Univ. of Giessen, GSI
Univ. of Johannes Gutenberg
Helmholtz Ins. In Mainz
Russia: JINR Dubna; BINP Novosibirsk
Italy: Univ. of Torino， Frascati Lab
Netherland： KVI/Univ. of Groningen
Sweden: Uppsala Univ.
Turkey: Turkey Accelerator Center

Korea (1)

Seoul Nat. Univ.

Japan (1)

Tokyo Univ.

Pakistan (2)

Univ. of Punjab
COMSAT CIIT

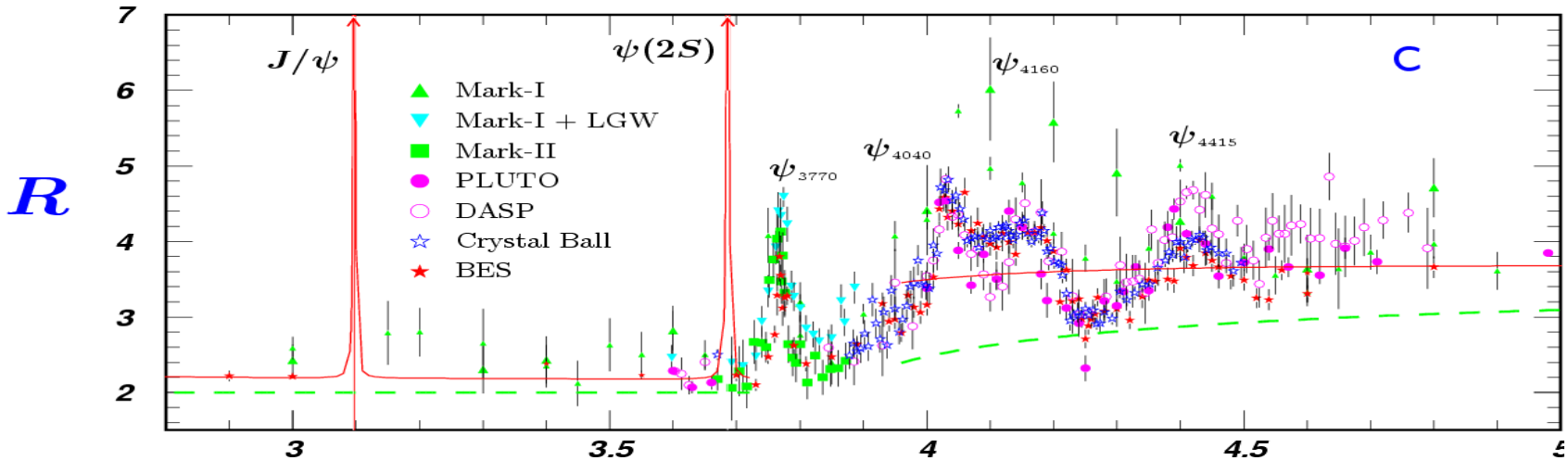
China(28)

IHEP, CCAST, UCAS, Shandong Univ.,
Univ. of Sci. and Tech. of China
Zhejiang Univ., Huangshan Coll.
Huazhong Normal Univ., Wuhan Univ.
Zhengzhou Univ., Henan Normal Univ.
Peking Univ., Tsinghua Univ. ,
Zhongshan Univ.,Nankai Univ.
Shanxi Univ., Sichuan Univ., Univ. of South China
Hunan Univ., Liaoning Univ.
Nanjing Univ., Nanjing Normal Univ.
Guangxi Normal Univ., Guangxi Univ.
Suzhou Univ., Hangzhou Normal Univ.
Lanzhou Univ., Henan Sci. and Tech. Univ.

~350 members
50 institutions from 11 countries

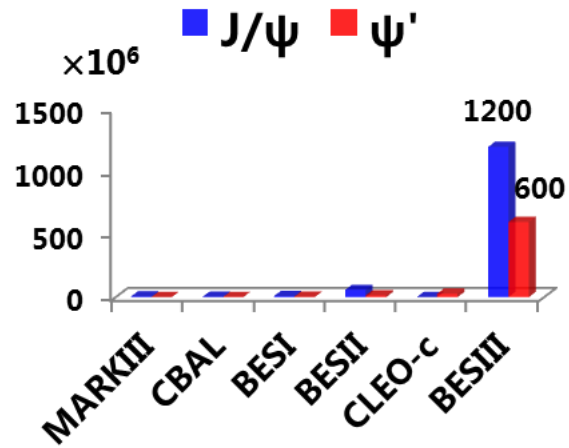
BESIII data taking status & plan

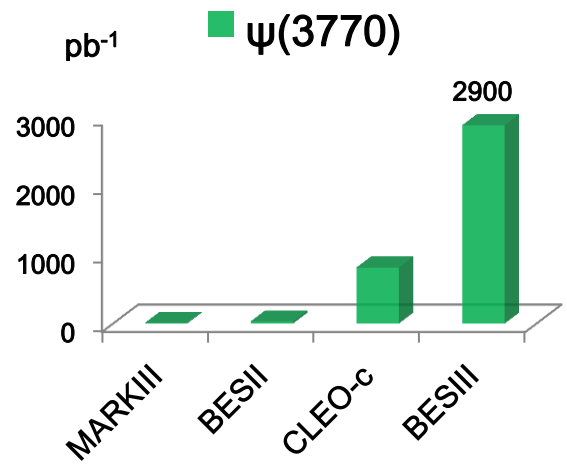
	Previous data	BESIII present & future	Goal
J/ψ	BESII 58M	1.2 B 20* BESII	10 B
ψ'	CLEO： 28 M	0.5 B 20* CLEOc	3B
ψ"	CLEO： 0.8 /fb	2.9/fb 3.5*CLEOc	20 /fb
Above open charm threshold	CLEO： 0.6/fb @ ψ(4160)	2011: 0.4/fb @ ψ(4040) 2013： 1/fb@4260, 4360	5-10 /fb
R scan & Tau	BESII	2012: 12/pb@2.23,2.4,2.8,3.4 25/pb τ scan 2013, 2014: @4260, R scan, …	



BESIII results

- **Charmonium physics**
  - Charmonium spectroscopy
  - Transitions and decays
- **Light hadron spectroscopy**
  - Meson & baryon spectroscopy
  - Search for unconventional hadrons – glueballs, hybrids, multi-quark states
- **Charm physics**
  - Decay constant f_D
  - CKM matrix elements: *Vcd, Vcs*
- **τ mass measurement, R scan**





43 papers published or accepted

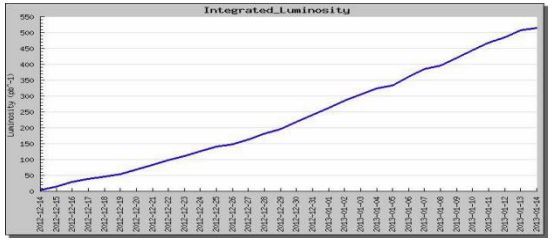
Many talks at the international conferences

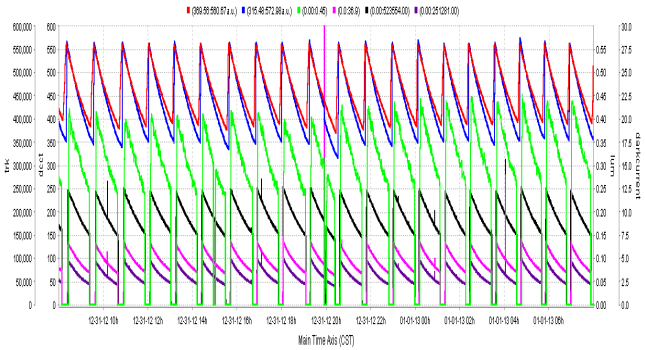
Y(4260)

- **Dec. 14, 2012 – Jan. 14, 2013**

  525 pb^{-1} Y(4260)

  L_{peak} ~ 5.30×10^{32}





- **Data processing, reconstruction, calibration, Monte-Carlo; data quality check**
- **More than 4 independent analyses on**

  $e^+ e^- \rightarrow$ Y(4260) $\rightarrow \pi^+\pi^- J/\psi$, lots of cross check done
- **March 8, 2013, finished the analysis → the referee stage**

  4 referees to review the analysis
- **March 20, 2013, released to the Collaboration for comments**
- **March 24, 2013, submitted to arXiv and Phys. Rev. Lett.**

Record at BES!

Many thanks to:

- **BEPCII team, BESIII detector team**

  worked hard and solved many problems to ensure the stable and high luminosity run, to ensure the high quality data
  BEPCII run: Qing Qin, Jianshe Cao, Chenghui Yu, …….
  chief run coordinators: Kejun Zhu, Kanglin He
  weekly run coordinators, on-calls, shifters, ….

- **IHEP computing center, supporting team**

  maintain the computing system (~ 4000 CPU cores, thousands of jobs/day, …)

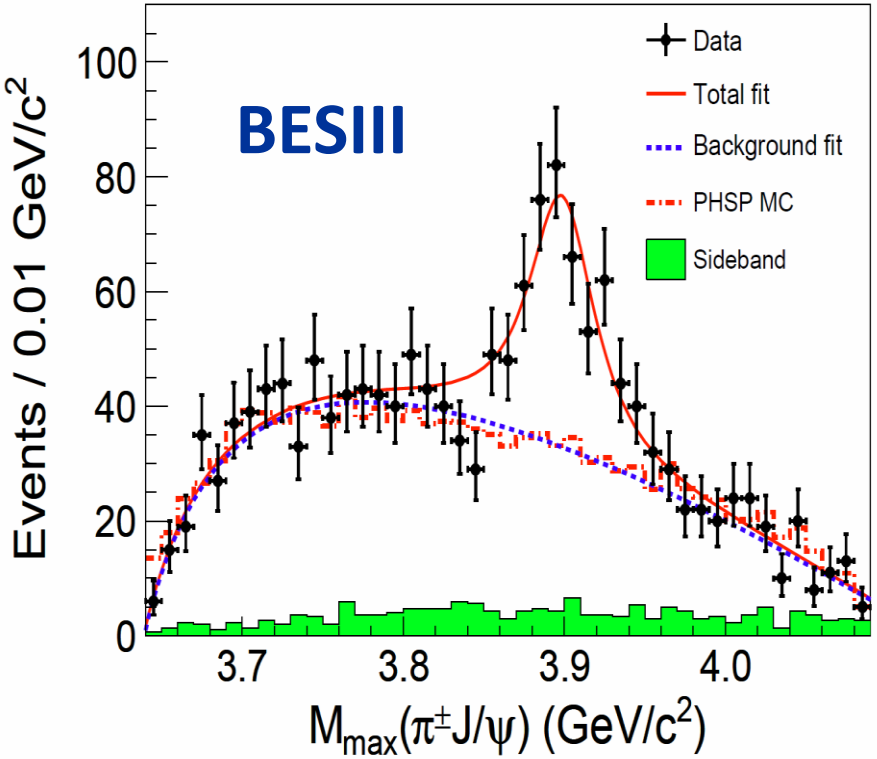
- **BESIII software group**

  data production, rec., cali., MC, …

- **Authors, XYZ group, referees, conveners, coordinators**

525 pb^{-1} Y(4260)

Y(4260) → $\pi^+\pi^- J/\psi$



More will come to understand the nature of Y(4260) and Zc(3900).

Thank you!

谢谢!