BESIII Experiment

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(for BESIII Collaboration)

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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

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

Korea (1)
- Seoul Nat. Univ.

Japan (1)
- Tokyo Univ.
## BESIII data taking status & plan

<table>
<thead>
<tr>
<th></th>
<th>Previous data</th>
<th>BESIII present &amp; future</th>
<th>Goal</th>
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</thead>
<tbody>
<tr>
<td>$J/\psi$</td>
<td>BESII 58M</td>
<td>1.2 B 20* BESII</td>
<td>10 B</td>
</tr>
<tr>
<td>$\psi'$</td>
<td>CLEO: 28 M</td>
<td>0.5 B 20* CLEOc</td>
<td>3B</td>
</tr>
<tr>
<td>$\psi''$</td>
<td>CLEO: 0.8 /fb</td>
<td>2.9/fb 3.5*CLEOc</td>
<td>20 /fb</td>
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<td>Above open charm threshold</td>
<td>CLEO: 0.6/fb @ $\psi(4160)$</td>
<td>2011: 0.4/fb @ $\psi(4040)$ 2013: 1/fb@4260, 4360</td>
<td>5-10 /fb</td>
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<tr>
<td>R scan &amp; Tau</td>
<td>BESII</td>
<td>2012: 12/pb@2.23,2.4,2.8,3.4 25/pb $\tau$ scan 2013, 2014: @4260, R scan, ...</td>
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![Graph](image)
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: $V_{cd}$, $V_{cs}$
- **$\tau$ mass measurement, R scan**

43 papers published or accepted
Many talks at the international conferences
Y(4260)

- $525 \text{ pb}^{-1}$ Y(4260)
- $L_{\text{peak}} \sim 5.30 \times 10^{32}$

- 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 $\rightarrow$ the referee stage
  4 referees to review the analysis
- March 20, 2013, released to the Collaboration for comments

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**
More will come to understand the nature of Y(4260) and Zc(3900).
Thank you!
谢谢！