

Summary & Remark for 13-th HFCPV

July.24,2011

Lanzhou



Thanks

- 兰州大学
- **CCAST**中国高等科技中心
- 北京大学高能物理研究中心
- 中科院高能物理所
- 中国科学院大学
- 南京师范大学
- **speakers,**
- **participates**

13-th HFCPV meeting (2002-2015)

- Participates: 160
- Talk: 45
- Young scientists

全国第十三届重味物理和 CP 破坏研讨会

兰州大学 2015.07.22



~1/4 EXPT

- BESIII
- LHC
- Belle&BaBar

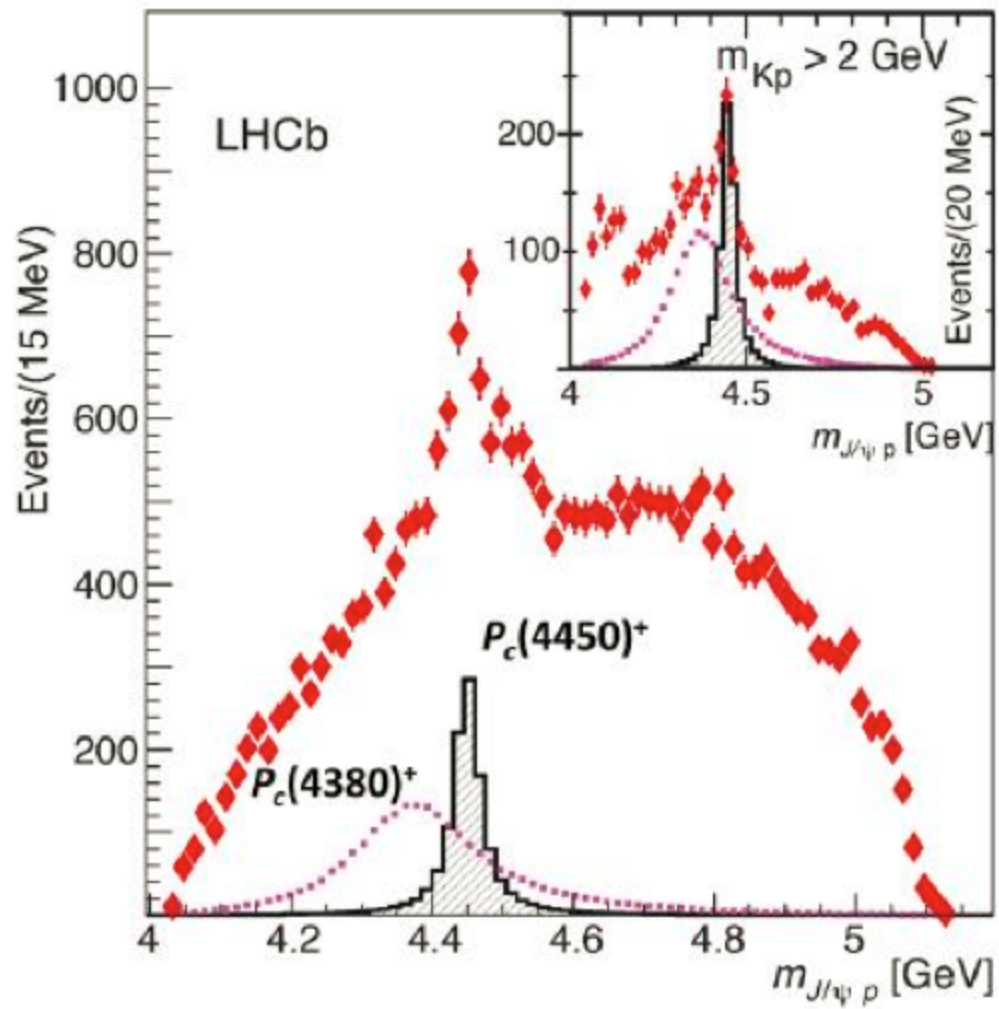


Pentequark state and heavy flavor at LHC

New precision results

New hadronic spectrum

Challenge&Puzzle



Summary

- Have performed a full amplitude fit to $\Lambda_b^0 \rightarrow J/\psi p K^-$
- Two Breit-Wigner shaped resonances in $J/\psi p$ mass are observed, with minimal quark content of $c\bar{c}uud$, therefore called pentaquark-charmonium states
 - The preferred J^P are of opposite parity, with one state having $J = \frac{3}{2}$ and the other $J = \frac{5}{2}$

	$P_c(4380)^+$	$P_c(4450)^+$
Significance	9σ	12σ
Mass (MeV)	$4380 \pm 8 \pm 29$	$4449.8 \pm 1.7 \pm 2.5$
Width (MeV)	$205 \pm 18 \pm 86$	$39 \pm 5 \pm 19$
Fit fraction(%)	$8.4 \pm 0.7 \pm 4.2$	$4.1 \pm 0.5 \pm 1.1$

~3/4 TH

- Theoretical models for pentaquark
- New hadronic spectrum: XYZ
- Heavy flavor decay and production in the various approaches
- CP violation in the b-hadron decays
- Non-perturbative corrections
- Jet substructure
- 1&2 Higgs production at LHC
- Neutrino physics
- Cosmology

HFCPV in LHC era

HFCPV in B-factory

→ HFCPV in LHC era

Higgs particle

LHCb—pentaquark...

HF at LHC: LHCb, CMS, Atlas

SM & New physics

mass, coupling, CP.....

Where Do We Come From? What Are We? Where Are We
Going?, 1897,

Boston Museum of Fine Arts, Boston, MA, USA

Paul Gauguin (French: 7 June 1848 - 8 May 1903)



自然界三大重要问题

- 物质结构→深层次(夸克禁闭, 强子结构, 新强子态, 质量起源...)
- 宇宙演化: (早期宇宙, 暗物质, 暗能量, 物质与反物质不对称性....)
- 生命起源

我们从何处来?

我们是谁?

我们走向何方?

Where is HEP going

- 能量前沿(Energy Frontier)
- 精度前沿(Intensity Frontier)
- 宇宙学前沿(Cosmic Frontier)

- 美国(P5 report)
- 中国 (report)

See you next meeting

上海交大，内蒙古大学....

<http://indico.ihep.ac.cn/HFCPV>

Thanks