

# Xiang Liu

## CURRICULUM VITAE

- February 2008 -

### Personal Data

<b>Born</b>	In Ganzhou, a beautiful city in the south of China July 26 1978
<b>Gender</b>	male
<b>Marital status</b>	married
<b>Citizenship</b>	P. R. China
<b>Academic Degrees</b>	Ph. D. Physics, 2006, Nankai University
<b>Address</b>	Centro de Física Teórica, Departamento de Física, Faculdade de Ciências e Tecnologia Universidade de Coimbra, P-3004-516, Coimbra, Portugal Tel: +351 239410153 (Office) +351 960025796(Mobile) E-mail: liuxiang@teor.fis.uc.pt, xiangliu@pku.edu.cn

## Education

- Ph. D.** Sep 2003-Jun 2006, Ph. D studies at Nankai University(Tianjin, P. R. China). Title of the thesis: *Studies on the Structure, Production and Decay of Exotic Hadrons*. Supervisor is Prof. Xue-Qian Li.
- M.S.** Sep 2000-Jun 2003, studies at Nankai University(Tianjin, P. R. China). Title of the thesis: *Study of Two Body Bound State Problem*. Supervisor: Prof. Xue-Qian Li.
- Degree in Physics** Sep 1996-Jun 2000, studies at GanNan Normal University (Ganzhou, P. R. China) with B.Sc in Physics.

## Honors, award and national committees

- 2008, *Outstanding Post-doctoral Fellow Awards* issued by Peking University
- 2008, *National Excellent Doctoral Thesis Awards* issued by Ministry of Education of the People's Republic of China
- 2006, *Excellent Doctor Degrees Thesis Awards* issued by Nankai University
- 2006, *4th Chenguang Excellent Thesis Award For Youth* issued by Chinese High Energy Physics Society
- 2006, *Excellence Thesis Award of 2006 Doctoral Forum of China in Physics*
- 2005, *Qiushi Graduate Student Award* issued by HongKong QiuShi Scientific Foundation

## Academic Position

- 2008-present, Post-doctoral Researcher, Centro de Física Teórica, Departamento de Física, Universidade de Coimbra, Portugal, Supported by the *Fundação para a Ciência e a Tecnologia of the Ministério da Ciência, Tecnologia e Ensino Superior* of Portugal (SFRH/BPD/34819/2007)
- 2006-2008, Post-doctoral Researcher, Institute of Theoretical Physics (ITP), School of Physics, Peking University

## Research Activity

### Research interests (Phenomenology of High Energy and Particle Physics)

- Chiral Symmetry and Chiral Lagrangian
- Final State Interaction and CP Violation in Heavy Flavor Physics
- Studies on Charm Physics and Light Hardon Spectrum
- Bound State in Quantum Field
- Non-Perturbative Methods in Quantum Field
- Heavy Effective Field Theory (HQET)
- Neutrino Physics and Cosmology

### Research Projects

- 2008-, the person in charge of "*The Structure and Dynamics of New Hadronic state*" supported by National Nature Science Foundation of China (No. 10705001/A050204).
- 2007-, the person in charge of "*Studies on the QCD, Hadron Physics and New Hadron States*" supported by China Postdoctoral Science foundation (No. 20060400376).
- 2005-2006, as the main memeber of the research project of "*The Final State Interaction and CP Violation in Heavy Flavor Physics*" held by Prof. Xue-Qian Li. This project is supported by the National Natural Science Foundation of China (NNSFC).
- 2002-2003, attend the research project of "*The Theoretical Problems of the BES*" held by IHEP as the main member of the *Nankai University Group*. This project is supported by the National Natural Science Foundation of China (NNSFC).

### Activity

- Plenary talk: "Dynamics Study of  $Z^+(4430)$  and  $X(3872)$  in a Molecular picture", *Workshop on Scalar Mesons and Related Topics Honoring Michael D. Scadrons 70th Birthday*, at IST in Lisbon, Portugal, February 11-16, 2008
- Plenary talk: " $X(1576)$  and Final State Interaction", *Workshop on Hadron Physics Theory and ne Hadronic State*, Beihai, China, Nov. 12-13, 2007.
- Plenary talk: "Theoretical Study on  $X(1576)$ ,  $X(3872)$  and  $Y(4008)$  States", *Workshop on Light Flavors and Chiral Dynamics*, Beijing, September 29-30, 2007.
- Plenary talk: "New Members in the  $0^+(0^{++})$  Family", *7th Annual Conference of Chinese High Energy Physics Society*, Guilin, October 28-November 1, 2006.

- Plenary talk: "X(1812) in Quarkonia-Glueball-Hybrid Mixing Scheme", *2006 Doctoral Forum of China in Physics*, GUCAS, Beijing, July 19-21, 2006.
- Plenary talk: "Study on Contributions of Hadronic Loops to Decays of  $J/\psi \rightarrow$  Vector + Pseudoscalar Mesons", *2006 Autumn Conference of Chinese Physics Society*, Tsinghua University, Beijing, September 15-17, 2006
- *Workshop on SUSY Phenomenology*, ITP(Institute of Theoretical Physics, Chinese Academy of Science), Beijing, July 15-20, 2002.
- *Symposium on Charmonium Physics*, CCAST(China Center of Advanced Science and Technology), Beijing, March 12, 2003.
- *The third meeting of the QWG*, IHEP, Beijing, China, 2004.
- *International Conference on QCD and Hadronic Physics, Beijing*, China, Jun 16-20, 2005.

## Publication List of Xiang Liu

### Papers under Peer Review

1. The two-body open charm decays of  $Z^+(4430)$   
**Xiang Liu**, Bo Zhang and Shi-Lin Zhu  
arXiv: 0803.4270 [hep-ph]
2. The  $Y(2175)$  state in the QCD sum rule  
Hua-Xing Chen, **Xiang Liu**, Atsushi Hosaka and Shi-Lin Zhu  
arXiv: 0801.4603 [hep-ph]
3. Is  $X(3872)$  really a molecular state?  
Yan-Rui Liu, **Xiang Liu**, Wei-Zhen Deng and Shi-Lin Zhu  
arXiv: 0801.3540 [hep-ph]

### Refereed Journal Articles

1.  $Z^+(4430)$  as a  $D_1' D^*$  ( $D_1 D^*$ ) molecular state  
**Xiang Liu**, Yan-Rui Liu, Wei-Zhen Deng and Shi-Lin Zhu  
arXiv: 0803.1295 [hep-ph]  
Accepted by PRD
2. What can we learn from the decay of  $N_X(1625)$  in molecule picture?  
**Xiang Liu** and Bo Zhang  
Eur. Phys. J. C **54**, 253-258 (2007)  
arXiv: 0711.3813 [hep-ph]

3. Is  $Z^+(4430)$  a loosely bound molecular state?  
Xiang Liu, Yan-Rui Liu, Wei-Zhen Deng and Shi-Lin Zhu  
 Phys. Rev. **D 77**, 034003 (2008)  
 arXiv: 0711.0494 [hep-ph]
4. A possibility of search for new physics at LHCb  
Xiang Liu, Hong-Wei Ke, Qing-Peng Qiao, Zheng-Tao Wei and Xue-Qian Li  
 Phys. Rev. **D 77**, 035014 (2008)  
 arXiv: 0710.2600 [hep-ph]
5. Bottom baryons  
Xiang liu, Hua-Xing Chen, Yan-Rui Liu, Atsushi Hosaka and Shi-Lin Zhu  
 Phys. Rev. **D 77**, 014031 (2008)  
 arXiv: 0710.0123 [hep-ph]
6. A note on  $\Xi_c(3055)^+$  and  $\Xi_c(3123)^+$   
Xiang Liu, Chong Chen, Wei-Zhen Deng and Xiao-Lin Chen  
 arXiv: 0710.0187 [hep-ph]  
 Accepted by Chinese Physics C
7. Understanding the newly observed  $Y(4008)$  by Belle  
Xiang Liu  
 Eur. Phys. J. **C 54** 471-474 (2008)  
 arXiv: 0708.4167 [hep-ph]
8. Effects of hadronic loops on the direct CP violation of  $B_c$   
Xiang Liu and Xue-Qian Li  
 arXiv: 0707.0919 [hep-ph]  
 Accepted by PRD
9. Dispersive contribution of  $\rho(1450, 1700)$  decays and  $X(1576)$   
 Bo Zhang, Xiang Liu and Shi-Lin Zhu  
 Chin. Phys. Lett. **24**, 2537-2539 (2007)  
 arXiv: 0705.3082v2 [hep-ph]
10. Strong decays of charmed baryons  
 Chong Chen, Xiao-Lin Chen, Xiang liu, Wei-Zhen Deng and Shi-Lin Zhu  
 Phys. Rev. **D 75**, 094017 (2007)  
 arXiv: 0704.0075v2 [hep-ph]
11.  $X(1576)$  and the final state interaction effect  
Xiang Liu, Bo Zhang, Lei-Lei Shen and Shi-Lin Zhu  
 Phys. Rev. **D 75**, 074017 (2007)  
 arXiv: hep-ph/0701022
12. D wave heavy mesons  
 Wei Wei, Xiang Liu and Shi-Lin Zhu  
 Phys. Rev. **D 75**, 014013 (2007)  
 arXiv: hep-ph/0612066

13. Study of  $B_s \rightarrow D_{sJ}(2317, 2460)l\bar{\nu}$  semileptonic decays in the CQM model  
Shu-Min Zhao, **Xiang Liu** and Shuang-Jiu Li  
Eur. Phys. J. **C 51**, 601-606 (2007)  
arXiv: hep-ph/0612008
14. The hidden charm decay of  $X(3872)$ ,  $Y(3940)$  and final state interaction effects  
**Xiang Liu**, Bo Zhang and Shi-Lin Zhu  
Physics Letts **B 645**, 185-188 (2007)  
arXiv: hep-ph/0610278
15.  $D_{sJ}(2860)$  and  $D_{sJ}(2715)$   
Bo Zhang, **Xiang Liu**, Wei-Zhen Deng and Shi-Lin Zhu  
Eur. Phys. J. **C 50**, 617-628 (2007)  
arXiv: hep-ph/0609013
16. Revisiting  $B^+ \rightarrow X(3872) + K^+$  in PQCD assigning to  $X(3872)$   $2^3P_1$  charmonium  
**Xiang Liu** and Yu-Ming Wang  
Eur. Phys. J. **C 49**, 643-650 (2007)
17. Calculation of the branching ratio of  $B^- \rightarrow h_c + K^-$  in PQCD  
Xue-Qian Li, **Xiang Liu** and Yu-Ming Wang  
Phys. Rev. **D 74**, 114029 (2006)  
arXiv: hep-ph/0607009
18. Study on contributions of hadronic loops to decays of  $J/\psi \rightarrow$  vector + pseudoscalar mesons  
**Xiang Liu**, Xiao-Qiang Zeng and Xue-Qian Li  
Phys. Rev. **D 74**, 074003 (2006)  
arXiv: hep-ph/0606191
19.  $\Lambda_c^+(2940)$ : a possible molecular state?  
Xiao-Gang He, Xue-Qian Li, **Xiang Liu** and Xiao-Qiang Zeng  
Eur. Phys. J. **C 51**, 883-889 (2007)  
arXiv: hep-ph/0606015
20.  $X(1812)$  in Quarkonia-Glueball-Hybrid mixing scheme  
Xiao-Gang He, Xue-Qian Li, **Xiang Liu** and Xiao-Qiang Zeng  
Phys. ReV. **D 73**, 114026 (2006)  
arXiv: hep-ph/0604141
21. New members in the  $0^+(0^{++})$  family  
Xiao-Gang He, Xue-Qian Li, **Xiang Liu** and Xiao-Qiang Zeng  
Phys. ReV. **D 73**, 051502(R) (2006)  
arXiv: hep-ph/0602075
22. Study on decays of  $D_{sJ}^*(2317)$  and  $D_{sJ}(2460)$  in terms of the CQM model  
**Xiang Liu**, Yan-Ming Yu, Shu-Min Zhao, Xue-Qian Li  
Eur. Phys. J. **C 47**, 445-452 (2006)  
arXiv: hep-ph/0601017

23. Study on production of exotic  $0^+$  meson  $D_{sJ}^*(2317)$  in decays of  $\psi(4415)$   
Xin-Heng Guo, Hong-Wei Ke, Xue-Qian Li, Xiang Liu and Shu-Min Zhao  
Commun. Theor. Phys. **48**, 509-518 (2007)  
arXiv: hep-ph/0510146
24. Some properties of the newly observed  $X(1835)$  state at BES  
Xiao-Gang He, Xue-Qian Li, Xiang Liu, J.P. Ma  
Eur. Phys. J. **C 49**, 731-736 (2007)  
arXiv: hep-ph/0509140
25. Possible molecular structure of the newly observed  $Y(4260)$   
Xiang Liu, Xiao-Qiang Zeng, Xue-Qian Li  
Phys. Rev. **D 72**, 054023 (2005)  
arXiv: hep-ph/0507177
26. Mixing of pentaquark and molecular states  
Xiao-Gang He, Xue-Qian Li, Xiang Liu and Xiao-Qiang Zeng  
Eur. Phys. J. **C 44**, 419-430 (2005)  
arXiv: hep-ph/0502236
27. Linear  $\sigma$  model and the observed enhancement in the mass spectrum of  $p\bar{p}$  in  $J/\psi \rightarrow \gamma p\bar{p}$   
Xiang Liu, Xiao-Qiang Zeng, Yi-Bing Ding, Xue-Qian Li, Hong Shen and Peng-Nian Shen  
High Energy Phys. Nucl. Phys. **30**, 1-12 (2006)  
arXiv: hep-ph/0406118
28. Estimating mass of  $\sigma$ -meson and study on application of the linear  $\sigma$ -model  
Yi-Bing Ding, Xin Li, Xue-Qian Li, Xiang Liu, Hong Shen, Peng-Nian Shen, Guo-Li Wang and Xiao-Qiang Zeng  
J. Phys. **G 30**, 841-852 (2004)  
arXiv: hep-ph/0402109
29. Muon anomalous magnetic moment in the supersymmetric models with and without right-handed neutrino  
Tai-Fu Feng, Tao Huang, Xue-Qian Li, Xiang Liu and Xin-Min Zhang  
Commun. Theor. Phys. **37**, 179-188 (2002)

## Conference Proceedings with Review

1. Dynamics study of  $Z^+(4430)$  and  $X(3872)$  in molecular picture  
Xiang Liu, Yan-Rui Liu and Wei-Zhen Deng  
arXiv:0802.3157  
contribution to the Workshop on "Scalar meson and Related topics" (Scadron 70),  
during Feb 11-16, 2008, at IST, Lisbon, Portugal  
Appeared in AIP Conference Proceedings

2. Strong decays of newly observed heavy flavor hadrons

**Xiang Liu**

Proceeding of 6th Workshop on Interdisciplinary Frontier problem of Particle Physics,  
Nuclear Physics and Cosmography

Appeared in Chinese Physics C