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Education

- **Ph.D. in Physics** Zhejiang University, Zhejiang, China 09/2004- 12/2009
Supervisor: Zhu'an Xu
Joint Ph.D study
Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris (ESPCI), Paris, France
09/2008-08/2009
Supervisor: Kamran Behnia
- **B.S. in Physics** 06/2003
Zhejiang Normal University, Zhejiang, China 09/1999- 06/2003

Work Experience

Professor (1000 Youth Talents plan): Wuhan National High Magnetic Field Center, Huazhong University of Science and Technology, Wuhan, China 06/2014-Present
Director's Postdoctoral Fellow, NHMFL-PPF, Los Alamos, NM, USA 10/2012-06/2014
Postdoc CNRS, ESPCI, Paris, France 02/2010-06/2012
High School Teacher, Lishui High School, Zhejiang, China 09/2003-06/2004

Research interest

Electric and thermal transport on semimetals, superconductors, strongly correlated electron systems etc..

Publications

2017

1. Xiaokang Li, Liangcai Xu, Linchao Ding, Jinhua Wang, Mingsong Shen, Xiufang Lu, **Zengwei Zhu***, Kamran Behnia*
"Anomalous Nernst and Righi-Leduc effects in Mn_3Sn : Berry curvature and entropy flow "
arXiv:1612.06128 (2016) accepted by PRL

2. **Zengwei Zhu***, Jinhua Wang, Huakun Zuo, Benoît Fauqué, Ross D. McDonald, Yuki Fuseya, Kamran Behnia
"Emptying Dirac valleys in bismuth by magnetic field"
arXiv:1608.06199 (2016) Nature Communications 8, 15297(2017)
3. Huakun Zuo[#], Jin-Ke Bao[#], Yi Liu, Jinhua Wang, Zhao Jin, Zhengcai Xia, Liang Li, Zhuan Xu, Jian Kang, **Zengwei Zhu***, Guang-Han Cao*
"Temperature and angular dependence of the upper critical field in $K_2Cr_3As_3$ "
Phys. Rev. B 95 , 014502(2017)
4. **Z. Zhu***, R. D. McDonald, A. Shekhter, B. J. Ramshaw, K. A. Modic, F. F. Balakirev, N. Harrison*
"Magnetic field tuning of an excitonic insulator between the weak and strong coupling regimes in quantum limit graphite"
Scientific Reports 7, 1733 (2017)

2016

5. Likai Li, Fangyuan Yang, Guo Jun Ye, Zuocheng Zhang, **Zengwei Zhu**, Wen-Kai Lou, Liang Li, Kenji Watanabe, Takashi Taniguchi, Kai Chang, Yayu Wang, Xian Hui Chen, Yuanbo Zhang
"Quantum Hall Effect in Black Phosphorus Two-dimensional Electron Gas"
Nature Nanotechnology 11 593(2016)

2015

6. Nicholas P. Breznay, Ross D. McDonald, Yoshiharu Krockenberger, K. A. Modic, **Zengwei Zhu**, Ian M. Hayes, Nityan L. Nair, Toni Helm, Hiroshi Irie, Hideki Yamamoto, James G. Analytis
"Quantum oscillations suggest hidden quantum phase transition in the cuprate superconductor $Pr_2CuO_{4\pm}$ "
arXiv:1510.04268 (2015)
7. Zuocheng Zhang, Wei Wei, Fangyuan Yang, **Zengwei Zhu**, Minghua Guo, Yang Feng, Dejing Yu, Mengyu Yao, Neil Harrison, Ross McDonald, Yuanbo Zhang, Dandan Guan, Dong Qian, Jinfeng Jia, and Yayu Wang
"Zeeman effect of the topological surface states revealed by quantum oscillations up to 91 Tesla"
Phys. Rev. B 92 , 235402(2015)
8. Yuki Fuseya*, **Zengwei Zhu**, Benoît Fauqué, Woun Kang, Bertrand Lenoir, and Kamran Behnia
"Origin of the Large Anisotropic g Factor of Holes in Bismuth"
Phys. Rev. Lett. 115, 216401 (2015)
9. B. S. Tan, N. Harrison, **Z. Zhu**, F. Balakirev, B. J. Ramshaw, A. Srivastava, S. A. Sabok-Sayr, B. Dabrowski, G. G. Lonzarich, and Suchitra E. Sebastian
"Fragile charge order in the nonsuperconducting ground state of the underdoped high-temperature superconductors"
PNAS 112, 9568 (2015)
10. B. S. Tan, Y.-T. Hsu, B. Zeng, M. Ciomaga Hatnean, N. Harrison, **Z. Zhu**, M. Hartstein, M. Kiourlapou, A. Srivastava, M. D. Johannes, T. P. Murphy, J.-H. Park, L. Balicas, G. G. Lonzarich, G. Balakrishnan, Suchitra E. Sebastian
"Unconventional Fermi surface in an insulating state"
Science 349, 287 (2015)

11. **Zengwei Zhu***, Xiao Lin, Juan Liu, Benoit Fauque, Qian Tao, Chongli Yang, Youguo Shi, Kamran Behnia
"Quantum oscillations, thermoelectric coefficients and the Fermi surface of semi-metallic WTe₂"
Phys. Rev. Lett. **114**, 176601 (2015) **Editors' Suggestion**
12. B. J. Ramshaw, S. E. Sebastian, R. D. McDonald, James Day, B. S. Tan, **Z. Zhu**, J. B. Betts, Ruixing Liang, D. A. Bonn, W. N. Hardy, and N. Harrison
"Quasiparticle mass enhancement approaching optimal doping in a high-T_c superconductor"
Science **348**, 317 (2015)
13. Xiaofeng Xu, W H Jiao, N Zhou, Y Guo, Y K Li, Jianhui Dai, Z Q Lin, Y J Liu, **Zengwei Zhu**, Xin Lu, H Q Yuan and Guanghan Cao
"Quasi-linear magnetoresistance and the violation of Kohler's rule in the quasi-one-dimensional Ta₄Pd₃Te₁₆ superconductor"
Journal of Physics-Condensed Matter **27**, 335701 (2015)

Before 2015

14. **Zengwei Zhu**, Benoît Fauqué, Liam Malone, A. B. Antunes, Yuki Fuseya, and Kamran Behnia
"Landau spectrum of bismuth in extreme quantum limit: field-induced mismatch in chemical potential across twin boundaries"
PNAS, **109**, 14813 (2012)
15. **Zengwei Zhu**, Aurélie Collaudin, Benoît Fauqué, Woun Kang, and Kamran Behnia
"Field-induced polarisation of Dirac valleys in bismuth"
Nature Physics **8**, 89 (2012)
16. **Zengwei Zhu**, Benoît Fauqué, Yuki Fuseya, Kamran Behnia
"Angle-resolved Landau spectrum of electrons and holes in bismuth"
Phys. Rev. B **84**, 115137 (2011)(Editors' Suggestion)
17. **Zengwei Zhu**, Huan Yang, Aritra Banerjee, Liam Malone, Benoît Fauqué, and Kamran Behnia
"Nernst quantum oscillations in bulk semi-metals"
Journal of Physics-Condensed Matter **23**, 094204 (2011)
18. **Zengwei Zhu**, Huan Yang, Benoît Fauqué, Yakov Kopelevich, and Kamran Behnia
"Nernst effect and dimensionality in the quantum limit"
Nature Physics **6**, 26 (2010)
19. **Zengwei Zhu**, Elena Hassinger, Zhu'an Xu, Dai Aoki, Jacques Flouquet, and Kamran Behnia
"Anisotropic inelastic scattering and its interplay with superconductivity in URu₂Si₂"
Phys. Rev. B **80**, 172501 (2009)
20. **Zengwei Zhu**, Qian Tao, Yuke Li, Mi He, Guanghan Cao, and Zhu'an Xu
"Magneto-thermopower of parent compound LaFeAsO"
Frontiers of Physics in China **4**, 455 (2009)
21. **Zengwei Zhu**, Zhu'an Xu, Xiao Lin, Guanghan Cao, Chunmu Feng, Genfu Chen, Zheng Li, Jianlin Luo, and Nanlin Wang
"Nernst effect of the new iron-based superconductor LaO_{1-x}F_xFeAs"
New J. Phys **10**, 063021 (2008)
22. Xiao Lin, **Zengwei Zhu**, Benoît Fauqué, and Kamran Behnia
"Fermi Surface of the Most Dilute Superconductor"
Phys. Rev. X **3**, 021002 (2013)

23. Yongkang Luo, Xiao Lin, Yuke Li, Qian Tao, Linjun Li, **Zengwei Zhu**, Guanghan Cao; Zhu'an Xu
"Thorium-Doping Induced High- T_c Superconductivity In $Dy_{1-x}Th_xFeAsO$ "
Int. J. Mod. Phys. B **26**, 1250207 (2012)
24. Benoît Fauqué, **Zengwei Zhu**, Tim Murphy, and Kamran Behnia
"Nernst Response of the Landau Tubes in Graphite across the Quantum Limit"
Phys. Rev. Lett **106**, 246405 (2011)
25. Huan Yang, Benoît Fauqué, Liam Malone, Arlei B. Antunes, **Zengwei Zhu**, Ctirad Uher, and Kamran Behnia
"Phase diagram of bismuth in the extreme quantum limit"
Nature Communications **1**, 47 (2010)
26. Qian Tao, **Zengwei Zhu**, Xiao Lin, Guanghan Cao, Zhu'an Xu, Genfu Chen, Jianlin Luo, and Nanlin Wang
"A comparative study on the thermoelectric effect of parent oxypnictides $LaTAsO$ ($T = Fe, Ni$)"
Journal of Physics-Condensed Matter **22**, 072201 (2010)
27. Qingbo Wang, Kai Yao, Mi He, **Zengwei Zhu**, and Zhu'an Xu
"Cobalt Substitution Effects in the Spin Ladder Compound $Sr_{14-x}Ca_xCu_{24-y}Co_yO_{41}$ "
Rare Metal Materials and Engineering, **39**,11 (2010)
28. Ye Mei, Liang Chen, YongZhen Cao, BaoQin Liu, JunHui He, **Zengwei Zhu**, and Zhu'an Xu
"Spin-glass behavior and valence states of transition-metal ions of $SrMn_{0.5}Fe_{0.5}O_3$ "
Acta Physica Sinica **59**, 2795 (2010).
29. Zhi Ren, Xiao Lin, Qian Tao, Shuai Jiang, **Zengwei Zhu**, Cao Wang, Guanghan Cao, and Zhu'an Xu
"Suppression of spin-density-wave transition and emergence of ferromagnetic ordering of Eu^{2+} moments in $EuFe_{2-x}Ni_xAs_2$ "
Phys. Rev. B **79**, 094426 (2009)
30. Cao Wang, Yuke Li, **Zengwei Zhu**, Shuai Jiang, Xiao Lin, Yongkang Luo, Shun Chi, Linjun Li, Zhi Ren, Mi He, Hang Chen, Y. T. Wang, Qian Tao, Guanghan Cao, and Zhu'an Xu
"Effects of cobalt doping and phase diagrams of $LFe_{1-x}Co_xAsO$ ($L=La$ and Sm)"
Phys. Rev. B **79**, 054521 (2009)
31. Yuke Li, Xiao Lin, Qian Tao, Hang Chen, Cao Wang, Linjun Li, Yongkang Luo, Mi He, **Zengwei Zhu**, Guanghan Cao, and Zhu'an Xu
"Superconductivity and Transport Properties in Th and F Codoped $Sm_{1-x}Th_xFeAsO_{1-y}F_y$ "
Chinese Physics Letters **26**, 017402 (2009).
32. L. Chen, J. H. He, Y. Mei, Y. Z. Cao, B. Q. Liu, **Z. W. Zhu**, and Z. A. Xu
"Enhanced room temperature magnetoresistance and cluster spin glass behavior in Mo doping $La_{0.67}Sr_{0.33}MnO_3$ "
J. Appl. Phys. **105**, 123910 (2009).
33. L. Chen, J. H. He, Y. Mei, Y. Z. Cao, W. W. Xia, H. F. Xu, **Z. W. Zhu**, and Z. A. Xu
"Critical behavior of Mo-doping $La_{0.67}Sr_{0.33}Mn_{1-x}Mo_xO_3$ perovskite system"
Physica B-Condensed Matter, **404**, 1879-1882 (2009)
34. Linjun Li, Yongkang Luo, Qingbo. Wang, Hang Chen, Zhi Ren, Qian Tao, Yuke Li, Xiao Lin, Mi He, **Zengwei Zhu**, Guanghan Cao, and Zhu'an Xu
"Superconductivity induced by Ni doping in $BaFe_2As_2$ single crystals"
New J. Phys **11**, 025008 (2009)

35. Shuai Jiang, Yongkang Luo, Zhi Ren, **Zengwei Zhu**, Cao Wang, Xiangfan Xu, Qian Tao, Guanghan Cao, and Zhu'an Xu
"Metamagnetic transition in EuFe_2As_2 single crystals"
New J. Phys **11**, 025007 (2009)
36. Zhi Ren, **Zengwei Zhu**, Shuai Jiang, Xiangfan Xu, Qian Tao, Cao Wang, Chunmu Feng, Guanghan Cao, and Zhu'an Xu
"Antiferromagnetic transition in EuFe_2As_2 : A possible parent compound for superconductors"
Phys. Rev. B **78**, 052501 (2008)
37. LinJun Li; YuKe Li, Zhi Ren, YongKang Luo, Xiao Lin, Mi He, Qian Tao, **ZengweiZhu**, GuangHan Cao, and Zhu'An Xu
"Superconductivity above 50 K in $\text{Tb}_{1-x}\text{Th}_x\text{FeAsO}$ "
Phys. Rev. B **78**, 132506 (2008)
38. Cao Wang, Linjun Li, Shun Chi, **Zengwei Zhu**, Zhi Ren, Yuke Li, Yuetao Wang, Xiao Lin, Yongkang Luo, Shuai Jiang, Xiangfan Xu, Guanghan Cao and Zhu'an Xu
"Thorium-doping-induced superconductivity up to 56 K in $\text{Gd}_{1-x}\text{Th}_x\text{FeAsO}$ "
EPL **83**, 67006 (2008)
39. Zhu'an Xu , Ejaz Ahmed, **Zengwei Zhu**, Jingqin Shen, and Xin Yao
"Nernst effect in oxygen-depleted $\text{SmBa}_2\text{Cu}_3\text{O}_{6+x}$ single crystals"
Physica C-Superconductivity And Its Applications **460**, 833 (2007)