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工作经历

2020/01–　副主任, 北京大学物理学院量子材料科学中心

2018/01–　教授, 博雅特聘教授, 北京大学物理学院量子材料科学中心

2015/02–17/12　副教授, 北京大学物理学院量子材料科学中心

2011/01–15/01　预聘副教授, 北京大学物理学院量子材料科学中心

2009/01–10/12　博士后研究员, 宾夕法尼亚大学材料系

2007/08–08/12　博士后研究员, 哈佛大学化学系

教育背景

2003/08–07/08 博士学位, 康奈尔大学化学系

1996/07–03/07 工学学士、硕士学位, 新加坡国立大学化学工程系

获奖情况

2017　国家杰出青年基金

2013　国家优秀青年基金

2011　国家人才计划青年项目

2007　Wentink 博士论文奖, 康奈尔大学

2005　Wachter 物理化学博士研究生奖, 康奈尔大学

科研领域

凝聚态物理, 电子结构理论和材料模拟
- 密度泛函理论方法学发展: 密度泛函微扰论, 非线性光响应
- 电子结构与材料物性: 量子输运, 超导, 拓扑材料
- 几何相位理论及其物理效应: 反常霍尔效应, 自旋波输运, 等

近期科研项目

* 科技创新 2030, 重大项目“基于二维电子系统的拓扑量子计算研究”, 课题 2021ZD0302602“基于自旋量子霍尔和分数量子霍尔效应的拓扑量子计算研究”, 2021.10-2026.10, 在研, 课题负责人.
* 科技部重大科学研究计划项目, 2021YFA1400100 ,“二维材料异质结的能带及物态调控”, 2021-2026, 2130 万元, 在研, 参与.
* 基金委重点项目, 11934001 , 拓扑与关联体系的原位输运与扫描隧道电势测量研究, 2020.01-2024.12, 330 万元, 在研, 参与.
* 科技部重大科学研究计划项目, 2018YFA0305601, “拓扑超导等关联体系的制备与调控”, 2018/5-2023/4, 441 万元, 在研, 课题负责人.
* 国家杰出青年基金项目, 11725415, “电子结构计算和材料物性”, 2018/01-2022/12, 400 万元, 在研, 课题负责人.
* 科技部重大科学研究计划项目, 2016YFA0301004, “二维新型量子体系的设计调控和新型原理器件探索”, 2017/1 启动, 100 万元, 在研, 参与。

* 国家自然科学基金委优秀青年科学项目, 11322433, “低维量子材料中的准粒子态的理论和计算研究”,2014/1-2016/12, 100 万元, 结题, 课题负责人.
* 科技部重大科学研究计划项目, 2013CB921900, “新型量子材料中电子内禀自由度的调控“, 2013/1-2017/12、100 万元、在研, 参与.
* 国家自然科学基金委面上项目, 11174009、“超强度原子薄膜的应变工程”、2012 /1-2016/1、60 万元、结题, 课题负责人.

学术指导

博士研究生:

现有: 卢倬成; 林益浩; 潘江辉; 陈风宇; 董坤

2022 石智方博士

2021 张吉东博士 (现为石河子大学教授)

2021 顾强强博士 (前往北京大学从事博士后研究)

2020 周志谋博士 (前往武汉工作)

2020 刘校强博士 (前往北京大学从事博士后研究)

2019 魏祎雯博士 (前往中科院物理研究所从事博士后研究)

2019 李朝恺博士 (前往香港大学从事博士后研究)

2017 郑飞鹏博士 (前往暨南大任学讲师).

2015 李晓博士 (前往德州大学奥斯汀分校从事博士后研究)

博士后研究员:

2021– 王奕媛博士 (毕业于帝国理工大学)

2020–23 刘校强博士 (毕业于北京大学; 前往中国科学技术大学从事博士后研究)

2019–22 Shishir Kumar Pandey 博士 (毕业于加尔各答大学波色理论中心; 前往深势科技继续研究工作)

2013–16 胡凯歌博士 (毕业于香港浸会大学; 前往广东工业大学任副教授)

学术服务

中国物理学会凝聚态计算学术委员会成员、学术秘书 (2015 – 今)

Science Bulletin 物理学科副编辑 (2018 – 今)

Science Advances 副编辑 (2020 – 21)

北京大学服务工作

物理学院学位委员会成员
物理学院教学委员会成员
量子材料科学中心理论招聘委员会主席

组织学术活动

ICQM Summer School, Beijing (2012); “Quantum gases and liquids”
ICQM Summer School, Beijing (2013); “Novel quantum degrees of freedom”
Weihai Summer School, Weihai (2014); “New Developments in Condensed Matter Physics”
International Conference on Condensed Matter Theory and Computational Materials, Chengdu

(2014)
ICCP-9, “Minisymposium on valleytronics – physics and materials”. Singapore (2015)

教学工作

固体理论	研/本	13 – 23 春
量子力学讨论班	本	22 – 23 春
固体物理讨论班	本	13 – 16 秋, 18 –21 秋
普物实验	本	12 春
量子材料前沿讲座	研	11 秋, 17 秋

学术论文

86 篇论文, 逆时排序; > 11,200 次引用; h-index = 41 (数据来源: Google Scholar)

86. Yongzhi Xie, Yuchen Gao, Fengyu Chen, Yunkun Wang, Jun Mao, Qinyun Liu, Saisai Chu, Hong Yang, Yu Ye, Qihuang Gong, Ji Feng* & Yunan Gao. Bright and dark quadrupolar excitons in the $WSe_2/MoSe_2/WSe_2$ heterotrilayer. Physical Review Letters, 131, 18 (2023).

85. Qian Xiao, Yihao Lin, Qizhi Li, Xiquan Zheng, Sonia Francoual, Christian Plueckthun, Wei Xia, Qingzheng Qiu, Shilong Zhang, Yanfeng Guo, Ji Feng* & Yingying Peng. Coexistence of multiple stacking charge density waves in kagome superconductor CsV_3Sb_5. Physical Review Research, 5, 1 (2023).

84. Xiaoqiang Liu, Yihao Lin & Ji Feng*. Implementation of the density functional perturbation theory for generalized susceptibility in the projector augmented wave framework. Physical Review B, 108, 9 (2023).

83. Yihao Lin & Ji Feng*. Consequences of average time-reversal symmetry in disordered antiferromagnetic topological insulators. Physical Review B, 107, 11 (2023).

82. Shishir Kumar Pandey, Qiangqiang Gu, Yihao Lin, Rajarshi Tiwari & Ji Feng. Emergence of bond-dependent highly anisotropic magnetic interactions in Sr_4RhO_6: A theoretical study. Physical Review B, 107, 11 (2023).

81. Lijun Zhu, Xiaoqiang Liu, Lin Li, Xinyi Wan, Ran Tao, Zhongniu Xie, Ji Feng* & Changgan Zeng. Signature of quantum interference effect in inter-layer coulomb drag in graphene-based electronic double-layer systems. Nature Communications, 14, 1 (2023).

80. Yi-Wen Wei, Ji Feng* & Hongming Weng. Spatial symmetry modulation of planar hall effect in weyl semimetals. Physical Review B, 107, 7 (2023).

79. Qiangqiang Gu, Linfeng Zhang & Ji Feng*. Neural network representation of electronic structure from ab initio molecular dynamics. Science Bulletin, 67, 1, 29–37 (2022).

78. Xiaoqiang Liu, Shishir K. Pandey & Ji Feng*. Silver(ii) route to unconventional superconductivity. Physical Review B, 105, 13 (2022).

77. Shishir Kumar Pandey & Ji Feng*. Spin interaction and magnetism in cobaltate kitaev candidate materials: An ab initio and model hamiltonian approach. Physical Review B, 106, 17 (2022).

76. Xiaohu Zheng, Qiangqiang Gu, Yiyuan Liu, Bingbing Tong, Jian-Feng Zhang, Chi Zhang, Shuang Jia, Ji Feng* & Rui-Rui Du. Observation of 1d fermi arc states in weyl semimetal TaAs. National Science Review, 9, 8 (2022).

75. Daniel Jezierski, Adam Grzelak, Xiaoqiang Liu, Shishir Kumar Pandey, Maria N. Gastiasoro, Jose Lorenzana, Ji Feng & Wojciech Grochala. Charge doping to flat AgF_2 monolayers in a chemical capacitor setup. Physical Chemistry Chemical Physics, 24, 26, 15705–15717 (2022).

74. Yi-Wen Wei, Chao-Kai Li, Yuchuang Cao & Ji Feng*. A non-iterative method for vertex corrections of the kubo formula for electric conductivity. Computer Physics Communications, 258 (2021).

73. Zhifang Shi, Yuchuang Cao, Qiangqiang Gu & Ji Feng*. Worldline algorithm by oracle-guided variational autoregressive network. Physical Review B, 104, 9 (2021).

72. Zhimou Zhou, Shishir Kumar Pandey & Ji Feng*. Dynamical correlation enhanced orbital magnetization in VI_3. Physical Review B, 103, 3 (2021).

71. J. S. Zhang, Yiqi Xie, X. Q. Liu, A. Razpopov, V Borisov, C. Wang, J. P. Sun, Y. Cui, J. C. Wang, X. Ren, Hongshan Deng, Xia Yin, Yang Ding, Yuan Li, J. G. Cheng, Ji Feng, R. Valenti,

B. Normand & Weiqiang Yu. Giant pressure-enhancement of multiferroicity in $CuBr_2$. Physical Review Research, 2, 1 (2020).

70. Xi Zhang, Qiangqiang Gu, Haigen Sun, Tianchuang Luo, Yanzhao Liu, Yueyuan Chen, Zhibin Shao, Zongyuan Zhang, Shaojian Li, Yuanwei Sun, Yuehui Li, Xiaokang Li, Shangjie Xue, Jun Ge, Ying Xing, R. Comin, Zengwei Zhu, Peng Gao, Binghai Yan, Ji Feng*, Minghu Pan & Jian Wang. Eightfold fermionic excitation in a charge density wave compound. Physical Review B, 102, 3 (2020).

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66. Junchao Ma, Qiangqiang Gu, Yinan Liu, Jiawei Lai, Peng Yu, Xiao Zhuo, Zheng Liu, Jian-Hao Chen, Ji Feng* & Dong Sun. Nonlinear photoresponse of type-II Weyl semimetals. Nature Materials, 18, 476–481 (2019).

65. Feipeng Zheng & Ji Feng*. Electron-phonon coupling and the coexistence of superconductivity and charge-density wave in monolayer $NbSe_2$. Physical Review B, 99, 161119 (2019).

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58. Jiawei Lai, Xin Liu, Junchao Ma, Qinsheng Wang, Kenan Zhang, Xiao Ren, Yinan Liu, Qiangqiang Gu, Xiao Zhuo, Wei Lu, Yang Wu, Yuan Li, Ji Feng, Shuyun Zhou, Jian-Hao Chen & Dong Sun. Anisotropic broadband photoresponse of layered type-II Weyl semimetal $MoTe_2$. Advanced Materials, 30, 1707152 (2018).

57. Wen-Xiao Wang, Yi-Wen Wei, Si-Yu Li, Xinqi Li, Xiaosong Wu, Ji Feng* & Lin He. Imaging the dynamics of an individual hydrogen atom intercalated between two graphene sheets. Physical Review B, 97, 085407 (2018).

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55. Feipeng Zheng, Zhimou Zhou, Xiaoqiang Liu & Ji Feng*. First-principles study of charge and magnetic ordering in monolayer $NbSe_2$. Physical Review B, 97, 081101 (2018).

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46. Duoming Wang, Guorui Chen, Chaokai Li, Meng Cheng, Wei Yang, Shuang Wu, Guibai Xie, Jing Zhang, Jing Zhao, Xiaobo Lu, Peng Chen, Guole Wang, Jianling Meng, Jian Tang, Rong Yang, Congli He, Donghua Liu, Dongxia Shi, Kenji Watanabe, Takashi Taniguchi, Ji Feng, Yuanbo Zhang & Guangyu Zhang. Thermally induced graphene rotation on hexagonal boron nitride. Physical Review Letters, 116, 126101 (2016).

45. Huichao Wang, Chao-Kai Li, Haiwen Liu, Jiaqiang Yan, Junfeng Wang, Jun Liu, Ziquan Lin, Yanan Li, Yong Wang, Liang Li, David Mandrus, X. C. Xie, Ji Feng & Jian Wang. Chiral anomaly and ultrahigh mobility in crystalline $HfTe_5$. Physical Review B, 93, 165127 (2016).

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39. Yuwen Hu, Feipeng Zheng, Xiao Ren, Ji Feng* & Yuan Li. Charge density waves and phonon-electron coupling in $ZrTe_3$. Physical Review B, 91, 144502 (2015).

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37. Jing Guo, Qi Wu, Ji Feng, Genfu Chen, Tomoko Kagayama, Chao Zhang, Wei Yi, Yanchun Li, XiaoDong Li, Jing Liu, Zheng Jiang, Xiangjun Wei, Yuying Huang, Katsuya Shimizhu, LiLing Sun & Zhongxian Zhao. Correlation between intercalated magnetic layers and superconductivity in pressurized EuFe 2 (As $_{0.81}$ P $_{0.19}$) $_2$. Europhysics Letters, 111, 57007 (2015).

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35. Yin Shi, Meng Wu, Fan Zhang & Ji Feng. (111) surface states of SnTe. Physical Review B, 90, 235114 (2014).

34. Xiao Li, Haiwen Liu, Hua Jiang, Fa Wang & Ji Feng*. Edge engineering of a topological Bi(111) bilayer. Physical Review B, 90, 165412 (2014).

33. Xuewen Fu, Gwenole Jacopin, Mehran Shahmohammadi, Ren Liu, Malik Benameur, Jean-Daniel Ganière, Ji Feng, Wanlin Guo, Zhi-Min Liao, Benoit Deveaud et al. Exciton drift in semiconductors under uniform strain gradients: Application to bent ZnO microwires. ACS Nano, 8, 3412–3420 (2014).

32. Hua Jiang, Haiwen Liu, Ji Feng*, Qingfeng Sun & XC Xie. Transport discovery of emerging robust helical surface states in $\mathcal{Z}_2 = 0$ systems. Physical Review Letters, 112, 176601 (2014).

31. Xuewen Fu, Cong Su, Qiang Fu, Xinli Zhu, Rui Zhu, Chuanpu Liu, Zhimin Liao, Jun Xu, Wanlin Guo, Ji Feng* et al. Tailoring exciton dynamics by elastic strain-gradient in semiconductors. Advanced Materials, 26, 2572 (2014).

30. Dapeng Yu, Ji Feng* & James Hone. Elastically strained nanowires and atomic sheets. MRS Bulletin, 39, 02, 157–162 (2014).

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28. Qingqing Ji, Yanfeng Zhang, Teng Gao, Yu Zhang, Donglin Ma, Mengxi Liu, Yubin Chen, Xiaofen Qiao, Ping-Heng Tan, Min Kan, Min Kan, Ji Feng, Qiang Sun & Zhongfan Liu. Epitaxial monolayer MoS_2 on mica with novel photoluminescence. Nano Letters, 13, 8, 3870–3877 (2013).

27. Stephen Lee, Ryan Henderson, Corey Kaminsky, Zachary Nelson, Jeffers Nguyen, Nick F Settje, Joshua Teal Schmidt & Ji Feng. Pseudo-fivefold diffraction symmetries in tetrahedral packing. Chemistry-A European Journal, 19, 31, 10244–10270 (2013).

26. Jingshan Qi, Xiao Li, Xiaofeng Qian & Ji Feng*. Bandgap engineering of rippled MoS_2 monolayer under external electric field. Applied Physics Letters, 102, 17, 173112 (2013).

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24. Cong Su, Hua Jiang & Ji Feng*. Two-dimensional carbon allotrope with strong electronic anisotropy. Physical Review B, 87, 075453 (2013).

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22. Ji Feng, Wenbin Li, Xiaofeng Qian, Jingshan Qi, Liang Qi & Ju Li. Patterning of graphene. Nanoscale, 4, 4883–4899 (2012).

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18. Jingshan Qi, Xiaofeng Qian, Liang Qi, Ji Feng, Daning Shi & Ju Li. Strain-engineering of band gaps in piezoelectric boron nitride nanoribbons. Nano Letters, 12, 1224–1228 (2012).

17. Ting Cao, Ji Feng* & EG Wang. Adsorption of hydrogen on the interface of a graphene/boron nitride hybrid atomic membrane. Physical Review B, 84, 205447 (2011).

16. Jing Shan Qi, Jian Yu Huang, Ji Feng, Da Ning Shi & Ju Li. The possibility of chemically inert, graphene-based all-carbon electronic devices with 0.8 ev gap. ACS nano, 5, 3475–3482 (2011).

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13. Ji Feng, Liang Qi, Jian Yu Huang & Ju Li. Geometric and electronic structure of graphene bilayer edges. Physical Review B, 80, 165407 (2009).

12. Michinao Hashimoto, Ji Feng, Roger L York, Audrey K Ellerbee, Greg Morrison, Samuel W Thomas III, L Mahadevan & George M Whitesides. Infochemistry: Encoding information as optical pulses using droplets in a microfluidic device. Journal of the American Chemical Society, 131, 12420–12429 (2009).

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10. George K Kaufman, Samuel W Thomas III, Meital Reches, Bryan F Shaw, Ji Feng & George M Whitesides. Phase separation of 2d meso-scale coulombic crystals from meso-scale polarizable "solvent". Soft Matter, 5, 1188–1191 (2009).

9. Ji Feng, Richard G Hennig, NW Ashcroft & Roald Hoffmann. Emergent reduction of electronic state dimensionality in dense ordered Li-Be alloys. Nature, 451, 445–448 (2008).

8. Xiong Wen Lou, Da Deng, Jim Yang Lee, Ji Feng & Lynden A Archer. Self-supported formation of needlelike Co_3O_4 nanotubes and their application as lithium-ion battery electrodes. Advanced Materials, 20, 258–262 (2008).

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