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EDUCATION

Ph.D. in physics, August 2004, Cornell University, Ithaca NY, USA
M.S. in physics, August 2000, Cornell University, Ithaca NY, USA
M.S. in physics, July 1996, Tsinghua University, China
B.S. in physics, July 1993, Tsinghua University, China

EXPERIENCE

Department Chair, January 2014–2017
Professor of Physics, December 2010–present, Tsinghua University
Assistant Professor of Physics, May 2006–December 2010, Tsinghua University
Postdoctoral Research Associate, August 2004–April 2006, University of California, Irvine

RESEARCH AREA

Scanning probe microscopy and spectroscopy, quantum materials in low dimensions

AWARDS AND HONORS

2019 APS Fellow
2012 Tan Kah Kee Science Award
2011 Cheung Kong Distinguished Professor
2011 National Prize for Advancement in Natural Science, Second Class
2011 Top 10 Achievements Award for Science and Technology in Chinese Universities
2011 Qiu Shi Award for Outstanding Team Achievement
2010 Top 10 Achievements Award for Science in China
2010 Top 10 Achievements Award for Science and Technology in Chinese Universities
2010 China National Funds for Distinguished Young Scientists
2009 Program for New Century Excellent Talents in University, Ministry of Education
2009 Fund for Talents in Basic Research, Tsinghua University
2008 Youth Award for Academic Excellence, Tsinghua University

PUBLICATIONS

1. Z. L. Xu, S. H. Ji, L. Tang, J. Wu, N. Li, X. Q. Cai, and X. Chen, “*Molecular beam epitaxy growth and electronic structures of monolayer $GdTe_3$* ”, **Chin. Phys. Lett.** 38, 077102 (2021).

2. Z. H. Yao, X. Z. Chen, L. Wehmeier, S. H. Xu, Y. M. Shao, Z. M. Zeng, F. W. Liu, A. S. Mcleod, S. N. G. Corder, M. Tsuneto, W. Shi, Z. H. Wang, W. J. Zheng, H. A. Bechtel, G. L. Carr, M. C. Martin, A. Zettl, D. N. Basov, X. Chen, L. M. Eng, S. C. Kehr, and M. K. Liu, “*Probing subwavelength in-plane anisotropy with antenna-assisted infrared nano-spectroscopy*”, **Nat. Commun.** 21, 2649 (2021).
3. P. Cheng, L. J. Kong, T. Zhang, H. Liu, H. X. Fu, L. Chen, K. H. Wu, X. Chen, S. Meng, and Q. K. Xue, “*In-situ manipulation of the magnetic anisotropy of single Mn atom via molecular Ligands*”, **Nano. Lett.** 21, 3566 (2021).
4. W. T. Huang, H. C. Lin, C. Zheng, Y. G. Yin, X. Chen, and S. H. Ji, “*Superconducting FeSe monolayer with millielectronvolt Fermi energy*”, **Phys. Rev. B** 103, 094502 (2021).
5. X. Q. Cai, Z. L. Xu, S. H. Ji, N. Li, and X. Chen, “*Molecular beam epitaxy growth of iodide thin films*”, **Chin. Phys. B** 30, 028102 (2021).
6. S. Qiao, P. F. Zhang, H. Ding, S. H. Zhang, L. Liang, Z. Zhang, X. Y. Long, X. Chen, J. Q. Lu, and J. Wu, “*Fingerprint of checkerboard antiferromagnetic order in FeSe monolayer due to magnetic-electric correlation*”, **Mater. Today** 41, 44 (2020).
7. S. Bouscher, Z. X. Kang, K. Balasubramanian, D. Panna, P. Yu, X. Chen, and A. Hayat, “*High- T_c Cooper-pair injection in a semiconductor-superconductor structure*”, **J. Phys. Condens. Matter** 32, 475502 (2020).
8. C. Zheng, D. P. Zhao, X. Q. Cai, W. T. Huang, F. Q. Meng, Q. H. Zhang, L. Tang, X. P. Hu, L. Gu, S. H. Ji, and X. Chen, “*Zirconium aided epitaxial growth of In_xSe_y on $InP(111)$ substrates*”, **Chin. Phys. Lett.** 37, 087401 (2020).
9. X. Q. Cai, Z. L. Xu, H. Zhou, J. Ren, N. Li, S. Meng, S. H. Ji, and X. Chen, “*Epitaxial growth and band structure of antiferromagnetic Mott insulator $CeOI$* ”, **Phys. Rev. Mater.** 4, 064003 (2020).
10. W. Q. Cui, C. Zheng, L. G. Zhang, Z. X. Kang, L. X. Li, X. Q. Cai, D. P. Zhao, X. P. Hu, X. Chen, Y. L. Wang, L. L. Wang, Y. Y. Wang, and Q. K. Xue, “*An in situ electrical transport measurement system under ultra-high vacuum*”, **Rev. Sci. Instrum.** 91, 063902 (2020).
11. H. C. Lin, W. T. Huang, K. Zhao, S. Qiao, Z. Liu, J. Wu, X. Chen, and S. H. Ji, “*Scanning tunneling spectroscopic study of monolayer $1T-TaS_2$ and $1T-TaSe_2$* ”, **Nano. Res.** 13, 133 (2020).
12. L. X. Li, C. Zheng, Y. W. Liu, X. P. Hu, S. H. Ji, X. Chen, and Q. K. Xue, “*Construction of molecular beam epitaxy and multi-probe scanning tunneling potentiometry combined system*”, **Rev. Sci. Instrum.** 90, 093703 (2019).
13. K. Zhao, H. C. Lin, X. Xiao, W. T. Huang, W. Yao, M. Z. Yan, Y. Xing, Q. H. Zhang, Z. X. Li, S. Hoshino, J. Wang, S. Y. Zhou, L. Gu, M. S. Bahramy, H. Yao, N. Nagaosa, Q. K. Xue, K. T. Law, X. Chen, and S. H. Ji, “*Disorder-induced multifractal superconductivity in monolayer niobium dichalcogenides*”, **Nat. Phys.** 15, 904 (2019).
14. Y. Gong, J. W. Guo, J. H. Li, K. J. Zhu, M. H. Liao, X. Z. Liu, Q. H. Zhang, L. Gu, L. Tang, X. Feng, D. Zhang, W. Li, C. L. Song, L. L. Wang, P. Yu, X. Chen, Y. Y. Wang, H. Yao, W. H. Duan, Y. Xu, S. C. Zhang, X. C. Ma, Q. K. Xue, and K. He,

- “Experimental realization of an intrinsic magnetic topological insulator”, **Chin. Phys. Lett.** 36, 076801 (2019).
15. K. Chang, B. J. Miller, H. Yang, H. C. Lin, S. S. P. Parkin, S. Barraza-Lopez, Q. K. Xue, X. Chen, and S. H. Ji, “Standing waves induced by valley-mismatched domains in ferroelectric *SnTe* monolayers”, **Phys. Rev. Lett.** 122, 206402 (2019).
 16. T. P. Kaloni, K. Chang, B. J. Miller, Q. K. Xue, X. Chen, S. H. Ji, S. S. P. Parkin, and S. Barraza-Lopez, “From an atomic layer to the bulk: low-temperature atomistic structure and ferroelectric and electronic properties of *SnTe* films”, **Phys. Rev. B** 99, 134108 (2019).
 17. Y. Gong, K. J. Zhu, Z. Li, Y. Y. Zang, X. Feng, D. Zhang, C. L. Song, L. L. Wang, W. Li, X. Chen, X. C. Ma, Q. K. Xue, Y. Xu, and K. He, “Experimental evidence of the thickness- and electric-field-dependent topological phase transitions in topological crystalline insulator *SnTe*(111) thin films”, **Nano. Res.** 11, 6045 (2018).
 18. Y. Y. Li, Y. K. Weng, J. J. Zhang, J. F. Ding, Y. H. Zhu, Q. X. Wang, Y. Yang, Y. C. Cheng, Q. Zhang, P. Li, J. D. Lin, W. Chen, Y. Han, X. X. Zhang, L. Chen, X. Chen, J. S. Chen, S. Dong, X. H. Chen, and T. Wu, “Observation of superconductivity in structure-selected *Ti₂O₃* thin films”, **NPG Asia Mater.** 10, 522 (2018).
 19. K. Chang, T. P. Kaloni, H. C. Lin, A. Bedoya-Pinto, A. K. Pandeya, I. Kostanovskiy, K. Zhao, Y. Zhong, X. P. Hu, Q. K. Xue, X. Chen, S. H. Ji, S. Barraza-Lopez, and S. S. P. Parkin, “Enhanced spontaneous polarization in ultrathin *SnTe* films with layered antipolar structure”, **Adv. Mater.** 1804428 (2018).
 20. Y. H. Yuan, W. Li, B. Liu, P. Deng, Z. L. Xu, X. Chen, C. L. Song, L. L. Wang, K. He, G. Xu, X. C. Ma, and Q. K. Xue, “Edge states at nematic domain walls in *FeSe* films”, **Nano. Lett.** 18, 7176 (2018).
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 25. W. Li, Y. Zhang, P. Deng, Z. L. Xu, S. K. Mo, M. Yi, H. Ding, M. Hashimoto, R. G. Moore, D. H. Lu, X. Chen, Z. X. Shen, and Q. K. Xue, “Stripes developed at the strong limit of nematicity in *FeSe* film”, **Nat. Phys.** 13, 957 (2017).

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36. C. J. Tang, D. Zhang, Y. Y. Zang, C. Liu, G. Y. Zhou, Z. Li, C. Zheng, X. P. Hu, C. L. Song, S. H. Ji, K. He, X. Chen, L. L. Wang, X. C. Ma, and Q. K. Xue, “Superconductivity dichotomy in K-coated single and double unit cell FeSe films on SrTiO₃”, **Phys. Rev. B** 92, 180507(R) (2015).
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39. C. L. Song, L. L. Wang, K. He, S. H. Ji, X. Chen, X. C. Ma, and Q. K. Xue, “Probing Dirac fermion dynamics in topological insulator Bi_2Se_3 films with a scanning tunneling microscope”, **Phys. Rev. Lett.** 114, 176602 (2015).
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- Dong, J. Zhang, C. T. Chen, Z. Y. Xu, X. Chen, X. C. Ma, Q. K. Xue, and X. J. Zhou, “Dichotomy of the electronic structure and superconductivity between single-layer and double-layer $\text{FeSe}/\text{SrTiO}_3$ films”, **Nat. Commun.** 5, 5047 (2014).
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