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博士后

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学术任职

博士后

2019 年 1 月至今

美国宾夕法尼亚州立大学

研究助理

2018 年 9 月至 2018 年 12 月

香港科技大学

教育经历

电子与计算机工程系博士 | 2014 年 8 月-2018 年 8 月

香港科技大学, 中国香港特别行政区

导师: 陈敬教授

博士论文: 二硫化钼与二硒化钨的氮气等离子体表面功能化和电子器件应用

物理学硕士 | 2012 年 8 月-2014 年 7 月

清华大学, 中国北京

导师: 李群庆教授

硕士论文: 碳纳米管薄膜晶体管的制备表征和应用

物理学学士 | 2008 年 8 月-2012 年 7 月

清华大学, 中国北京

学术服务

担任 *Nano Letters*, *ACS Applied Materials & Interfaces*, *J. Phys.: Condens. Matter* 等杂志审稿人

研究兴趣

1. 低维材料的光电子器件应用
2. 单光子光源与量子光学
3. 电荷密度波和第一性原理计算

发表论文 (引用见 [Google Scholar](#))

1. Q. Qian, R. Zu, Q. Ji, G. S. Jung, K. Zhang, Y. Zhang, M. J. Buehler, J. Kong, V. Gopalan and S. Huang, "Chirality-Dependent Second Harmonic Generation of MoS₂ Nanoscroll with Enhanced Efficiency," *ACS Nano*, *accepted* (<https://pubs.acs.org/doi/10.1021/acsnano.0c05189>)
2. Q. Qian, X. Shen, D. Luo, L. Jia, M. Kozina, R. Li, M. Lin, A. H. Reid, S. Weathersby, J. Yang, Y.

- Zhou, K. Zhang, X. Wang and S. Huang, "Coherent Lattice Wobbling and Out-of-Phase Intensity Oscillations of Friedel Pairs Observed by Ultrafast Electron Diffraction," [*ACS Nano* **14**, 8449–8458, 2020](#)
3. Q. Qian, L. Peng, N. Perea-Lopez, K. Fujisawa, K. Zhang, X. Zhang, T. H. Choudhury, J. M. Redwing, M. Terrones, X. Ma, and S. Huang, "Defect creation in WSe₂ with a microsecond photoluminescence lifetime by focused ion beam irradiation," [*Nanoscale* **12**, 2047-2056, 2020](#)
 4. Q. Qian, J. Lei, J. Wei, Z. Zhang, G. Tang, K. Zhong, Z. Zheng, and K. J. Chen, "2D materials as semiconducting gate for field-effect transistors with inherent over-voltage protection and boosted ON-current," [*npj 2D Mater. Appl.* **3**, 24, 2019](#) (selected as Leading Research in Materials Science of Nature Partner Journals)
 5. Q. Qian, Z. Zhang and K. J. Chen, "Layer-dependent second-order Raman intensity of MoS₂ and WSe₂: Influence of intervalley scattering," [*Phys. Rev. B* **97**, 165409, 2018](#)
 6. Q. Qian, Z. Zhang and K. J. Chen, "In Situ Resonant Raman Spectroscopy to Monitor the Surface Functionalization of MoS₂ and WSe₂ for High-k Integration: A First-Principles Study," [*Langmuir* **34**, 2882-2889, 2018](#)
 7. Q. Qian, Z. Zhang, M. Hua, J. Wei, J. Lei, and K. J. Chen, "Remote N₂ plasma treatment to deposit ultrathin high-k dielectric as tunneling contact layer for single-layer MoS₂ MOSFET," [*Appl. Phys. Express* **10**, 125201, 2017](#)
 8. Q. Qian, Z. Zhang, M. Hua, G. Tang, J. Lei, F. Lan, Y. Xu, R. Yan, and K. J. Chen, "Enhanced dielectric deposition on single layer MoS₂ with low damage using remote N₂ plasma treatment," [*Nanotechnology* **28**, 175202, 2017](#)
 9. Q. Qian, B. Li, M. Hua, Z. Zhang, F. Lan, Y. Xu, R. Yan, and K. J. Chen, "Improved Gate Dielectric Deposition and Enhanced Electrical Stability for Single-Layer MoS₂ MOSFET with an AlN Interfacial Layer," [*Sci. Rep.* **6**, 27676, 2016](#)
 10. Q. Qian, G. Li, Y. Jin, J. Liu, Y. Zou, K. Jiang, S. Fan, and Q. Li, "Trap-State-Dominated Suppression of Electron Conduction in Carbon Nanotube Thin-Film Transistors," [*ACS Nano* **8**, 9597, 2014](#)
 11. Q. Qian, J. Liu, Q. Li, Y. Zou, Y. Jin, G. Li, K. Jiang, and S. Fan, "Modeling and optimization of ambipolar graphene transistors in the diffusive limit," [*J. Appl. Phys.* **114**, 164508, 2013](#)
 12. Q. Qian, Q. Li, "Thin Film Transistor", [*US Patent US9548391*](#), filed Aug. 7, 2013, and issued Jan. 17, 2017
 13. Z. Zhang, Q. Qian, B. Li and K. J. Chen, "Interface Engineering of Monolayer MoS₂/GaN Hybrid Heterostructure: Modified Band Alignment for Photocatalytic Water Splitting Application by Nitridation Treatment", [*ACS Appl. Mater. Inter.* **10**, 17419, 2018](#)
 14. J. Liu, Q. Qian, Y. Zou, G. Li, Y. Jin, K. Jiang, S. Fan, and Q. Li, "Enhanced performance of graphene transistor with ion-gel top gate," [*Carbon* **68**, 480, 2014](#)
 15. J. Liu, Q. Li, Y. Zou, Q. Qian, Y. Jin, G. Li, K. Jiang, and S. Fan, "The Dependence of Graphene Raman D-band on Carrier Density," [*Nano Lett.* **13**, 6170, 2013](#)
 16. Y. Zou, Q. Li, J. Liu, Y. Jin, Q. Qian, K. Jiang, and S. Fan, "Fabrication of All-Carbon Nanotube Electronic Devices on Flexible Substrates Through CVD and Transfer Methods," [*Adv. Mater.* **25**, 6050, 2013](#)