



[首页](#) [概况](#) [人员](#) [教育](#) [科研](#) [党群](#) [招生](#) [招聘](#) [校友](#) [内网](#)



人员

[首页](#) » [人员](#) » [罗鑫](#)

罗鑫

教师名单

科研人员

技术人员

行政人员

退休人员

职称：教授

学位：博士

毕业学校：中山大学

电子邮箱：luox77@mail.sysu.edu.cn

办公地址：中山大学南校区爪哇堂217

办公室电话：84110216



主要经历:

教育简历:

2002年进入中山大学物理学系学习；2006年以优秀毕业生获得中山大学理学学士学位，同年保送中山大学直接攻读博士；2011年获得中山大学工学博士学位，研究生期间主要针对光电功能材料的光电响应、材料物理化学性质、物理力学、相变与电子输运等问题进行研究。

工作简历:

2011年以研究员身份在新加坡科技研究局(A*STAR)高性能计算研究所(IHPC)进行热电材料应变调控研究；2013年受聘新加坡国立大学石墨烯中心资深研究员从事新型二维光电功能材料声子振动拉曼光谱、二维半导体金属界面接触以及其在器件中的应用研究；2017年受聘香港理工大学应用物理系担任助理教授(研究)，独立PI、并获得博士生导师资格，2018年受聘中山大学“百人计划”中青年杰出人才任教授、博士生导师。

学科方向:

所在学科：凝聚态物理学

研究方向:

1. 新型低维铁电/铁磁/多铁功能材料性能与信息存储研究;
2. 新型低维功能材料光电性能与宽禁带半导体研究;
3. 应变工程与挠曲电调控功能材料物性与机理研究;
4. 密度泛函理论第一性原理计算, 材料CVD制备。

合作情况: 与新加坡国立大学、南洋理工大学、香港理工大学、澳门大学的研究小组保持紧密合作以及师生交流互访关系, 与新加坡国立大学、香港理工大学的研究小组有学生交流计划以及联合培养计划。

招生情况: 可在凝聚态物理、材料科学与微纳米力学方向招收研究生, 每年拟招收博士研究生1名、硕士研究生1-2名; 欢迎本科生提前进入实验室学习以及进行本科毕业设计, 有意向的同学请通过Email联系。

招收博士后: 招收博士后2~3名; 方向: 宽禁带半导体、二维功能材料与计算材料。

承担课题:

中山大学百人计划

国家自然科学基金青年项目 2019-2021

广东省杰出青年基金 2021-2023

中央高校基本科研业务费青年教师培育项目 2019-2021

中山大学三大建设超算培育专项 2020-2021

荣誉获奖:

1.2020年广东省自然科学杰出青年基金

2.2019年光电材料与技术国家重点实验室固定成员

3.2018年入选中山大学“百人计划”中青年杰出人才

4.2008年入选中国优秀博士生代表团前往德国林岛参加 58 届物理诺贝尔奖得主大会

代表论著:

近年来的研究工作主要涉及材料物理化学、微纳米力学、物理力学、表面与界面、声子物理等相关学科的交叉领域，结合理论建模、第一性原理计算和实验方法在低维功能结构的本征量子物性以及力学加载作为一种调控手段对材料器件性能的优化等方面，取得了一系列研究成果，受到国内外的同行、研究机构和新闻媒体的广泛关注。以第一/共同第一/共同通讯作者在国际期刊上发表SCI学术论文多篇，如Nature, Nature Chemistry, Physical Review Letters, Nature Communications, Nano Letters, JACS, ACS Nano等，论文SCI总他引3000余次，单篇最高他引500多次。多篇论文入选ESI高被引论文。2018年受邀请为Springer出版社的专著撰写章节介绍在低维结构声子物理方面所做的研究工作。目前工作的关注点在二维功能材料的电、声、磁、光耦合的多铁物理，以及其在能源催化与人工智能方面的应用。

代表性论文 (Web of Science作者识别号: 0000-0002-7997-3934) :

- [1]. Xiaoxu Zhao#, Peng Song#, Chengcai Wang, Anders C. Riis-Jensen, Wei Fu, Ya Deng, Dongyang Wan, Lixing Kang, Shoucong Ning, Jiadong Dan, T. Venkatesan, Zheng Liu, Wu Zhou, Kristian S. Thygesen, **Xin Luo***, Stephen J. Pennycook*, and Kian Ping Loh*, Engineering Covalently Bonded 2D Layered Materials by Self-Intercalation, **Nature**, 2020, 581, 171-177. <https://doi.org/10.1038/s41586-020-2241-9>
- [2]. Chao Xu, Yancong Chen, Xiangbin Cai, Arno Meingast, Xuyun Guo, Fakun Wang, Ziyuan Lin, Tsz Wing Lo, Christian Maunders, Sorin Lazar, Ning Wang, Dangyuan Lei, Yang Chai, Tianyou Zhai, **Xin Luo*** and Ye Zhu*, Two-Dimensional Antiferroelectricity in Nanostripe-Ordered In₂Se₃, **Physical Review Letters**, 2020, 125, 047601. <https://doi.org/10.1103/PhysRevLett.125.047601>
- [3]. Shuoguo Yuan#, **Xin Luo**#, Hung Lit Chan, Chengcheng Xiao, Yawei Dai, Maohai Xie, Jianhua Hao*, Room-temperature ferroelectricity in MoTe₂ down to the atomic monolayer limit, **Nature Communications**,

2019, 10, 1775. (ESI高被引) <https://doi.org/10.1038/S41467-019-09669-X>

[4]. Yan Liu#, Yiran Ying#, Linfeng Fei#, Yi Liu, Qingzhao Hu, Guoge Zhang, Sin Yi Pang, Wei Lu, Chee Leung Mak, **Xin Luo***, Limin Zhou*, Mingdeng Wei, Haitao Huang*, Valence Engineering via Selective Atomic Substitution on Tetrahedral Sites in Spinel Oxide for Highly Enhanced Oxygen Evolution Catalysis, **Journal of the American Chemical Society**, 2019, 141, 8136-8145. <https://doi.org/10.1021/JACS.8B13701>

[5]. Wei Liu#, **Xin Luo#**, Yang Bao#, Yan Peng Liu, Guo-Hong Ning, Ibrahim Abdelwahab, Linjun Li, Chang Tai Nai, Zhi Gang Hu, Dan Zhao, Bin Liu, Su Ying Quek* and Kian Ping Loh*, A two-dimensional conjugated aromatic polymer via C–C coupling reaction. **Nature Chemistry**, 2017, 9, 563-570. (ESI高被引) <https://doi.org/10.1038/NCHEM.2696>

[6]. Song Ling Wang#, **Xin Luo#**, Xiong Zhou, Ye Zhu, Xiao Chi, Wei Chen, Kai Wu, Zheng Liu, Su Ying Quek*, Guo Qin Xu*, Fabrication and Properties of a Free-Standing Two-Dimensional Titania. **Journal of the American Chemical Society**, 2017, 139, 15414-15419. <https://doi.org/10.1021/JACS.7B08229>

[7]. Xin Lu#, **Xin Luo#**, Jun Zhang, Su Ying Quek* and Qihua Xiong*. Lattice vibrations and Raman scattering in two-dimensional layered materials beyond graphene. **Nano Research**, 2016, 9, 3559-3597. <https://doi.org/10.1007/S12274-016-1224-5>

[8]. **Xin Luo**, Xin Lu, Gavin Kok Wai Koon, Antonio H. Castro Neto, Barbaros Özyilmaz*, Qihua Xiong*, Su Ying Quek*. Large Frequency Change with Thickness in Interlayer Breathing Mode — Significant Interlayer Interactions in Few Layer Black Phosphorus. **Nano Letters**, 2015, 15, 3931-3938. <https://doi.org/10.1021/ACS.NANOLETT.5B00775>

[9]. Qixing Wang#, Qi Zhang#, **Xin Luo#**, Junyong Wang, Rui Zhu, Qijie Liang, Lei Zhang, Justin Zhou Yong, Calvin Pei Yu Wong, Goki Eda, Jurgen H. Smet, and Andrew T. S. Wee*, Optoelectronic Properties of a van der Waals WS₂ Monolayer/2D Perovskite Vertical Heterostructure, **ACS Appl. Mater. Interfaces** 2020, 12, 45235–45242. <https://doi.org/10.1021/acsami.0c14398>

- [10].Yiran Ying, Ke Fan, **Xin Luo***, and Haitao Huang*, Predicting two-dimensional pentagonal transition metal monophosphides for efficient electrocatalytic nitrogen reduction reaction, **Journal of Materials Chemistry A**, 2019, 7, 11444-11451. <https://doi.org/10.1039/C8TA11605A>
- [11].Song Ling Wang#, Ye Zhu#, **Xin Luo#**, Yun Huang, Jianwei Chai, Ten It Wong, and Guo Qin Xu*, 2D WC/WO₃ heterogeneous hybrid for photocatalytic decomposition of organic compounds with Vis-NIR light. **Advanced functional materials**, 2018, 28, 1705357. <https://doi.org/10.1002/ADFM.201705357>
- [12].Junyong Wang#, **Xin Luo#**, Shisheng Li, Ivan Verzhbitskiy, Weijie Zhao, Shunfeng Wang, Su Ying Quek, and Goki Eda*, Determination of Crystal Axes in Semimetallic T'-MoTe₂ by Polarized Raman Spectroscopy. **Advanced functional Materials**, 2017, 27, 1604799. <https://doi.org/10.1002/ADFM.201604799>
- [13].Wei Sun Leong#, **Xin Luo#**, Yida Li#, Khoong Hong Khoo, Su Ying Quek*, and John T. L. Thong*. Low Resistance Metal Contacts to MoS₂ Devices with Nickel-Etched –Graphene Electrodes. **ACS Nano**, 2015, 9, 869-877. <https://pubs.acs.org/doi/10.1021/nn506567r>
- [14].Wei Sun Leong#, Yida Li#, **Xin Luo#**, Chang Tai Nai, Su Ying Quek*, and John T. L. Thong*. Tuning the Threshold Voltage of MoS₂ Field-Effect Transistors via Surface Treatment. **Nanoscale**, 2015, 7, 10823-10831. <https://doi.org/10.1039/C5NR00253B>
- [15].Xin Luo**, Xin Lu, Chunxiao Cong, Ting Yu, Qihua Xiong, and Su Ying Quek. Stacking sequence determines Raman intensities of observed interlayer shear modes in 2D layered materials — A general bond polarizability model. **Scientific Reports**, 2015, 5, 14565. <https://www.nature.com/articles/srep14565>
- [16].Yanyuan Zhao#, **Xin Luo#**, Jun Zhang, Junxiong Wu, Xuxu Bai, Meixiao Wang, Jinfeng Jia, Hailin Peng, Zhongfan Liu, Su Ying Quek*, and Qihua Xiong*. Interlayer vibrational modes in few-quintuple-layer Bi₂Te₃ and Bi₂Se₃ two-dimensional crystals: Raman spectroscopy and first-principles studies. **Physical Review B**, 2014, 90, 245428. <https://doi.org/10.1103/PHYSREVB.90.245428>

- [17]. Yanyuan Zhao#, **Xin Luo**#, Hai Li, Jun Zhang, Paulo T. Araujo, Chee Kwan Gan, Jumiati Wu, Hua Zhang*, Su Ying Quek*, Mildred S. Dresselhaus, and Qihua Xiong*. Interlayer Breathing and Shear Modes in Few-Trilayer MoS₂ and WSe₂. **Nano Letters**, 2013, 13, 1007–1015. (ESI高被引)
<https://pubs.acs.org/doi/10.1021/nl304169w>
- [18]. **Xin Luo**#, Yanyuan Zhao#, Jun Zhang, Minglin Toh, Christian Kloc, Qihua Xiong*, and Su Ying Quek*. Effects of lower symmetry and dimensionality on Raman spectra in two-dimensional WSe₂. **Physical Review B**, 2013, 88, 195313. (曾入选ESI高被引)
<https://journals.aps.org/prb/abstract/10.1103/PhysRevB.88.195313>
- [19]. Shuxiang Wu, **Xin Luo**, Stuart Turner, Haiyang Peng, Weinan Lin, Junfeng Ding, Adrian David, Biao Wang, Gustaaf Van Tendeloo, Junling Wang, Tom Wu*. Nonvolatile resistive switching in Pt/LaAlO₃/SrTiO₃ heterostructures. **Physical Review X**, 2013, 3, 041027.
<https://journals.aps.org/prx/abstract/10.1103/PhysRevX.3.041027>
- [20]. **Xin Luo**, Yanyuan Zhao, Jun Zhang, Qihua Xiong*, Su Ying Quek*. Anomalous frequency trends in MoS₂ thin films attributed to surface effects. **Physical Review B**, 2013, 88, 075320.
<https://journals.aps.org/prb/abstract/10.1103/PhysRevB.88.075320>
- [21]. **Xin Luo**, Michael B. Sullivan, and Su Ying Quek*. First-principles investigations of the atomic, electronic, and thermoelectric properties of equilibrium and strained Bi₂Se₃ and Bi₂Te₃ including van der Waals interactions. **Physical Review B**, 2012, 86, 184111.
<https://journals.aps.org/prb/abstract/10.1103/PhysRevB.86.184111>
- [22]. **Xin Luo**, Biao Wang*, Yue Zheng*. Tunable tunneling electroresistance in ferroelectric tunnel junctions by mechanical loads. **ACS Nano**, 2011, 5, 1649-1656. <https://doi.org/10.1021/NN1031438>
- [23]. **Xin Luo**, Shaopeng Lin, Biao Wang*, Yue Zheng*. Impact of applied strain on the electron transport through ferroelectric tunnel junctions. **Applied Physics Letters**, 2010, 97, 012905.

<https://aip.scitation.org/doi/10.1063/1.3462070>

[24]. **Xin Luo**, Biao Wang*, Yue Zheng. First-principles study on energetics of intrinsic point defects in LaAlO₃. **Physical Review B**, 2009, *80*, 104115.

<https://journals.aps.org/prb/abstract/10.1103/PhysRevB.80.104115>

[25]. **Xin Luo**, Biao Wang*, Structural and elastic properties of LaAlO₃ from first-principles calculations. **Journal of Applied Physics**, 2008, *104*, 073518. <https://doi.org/10.1063/1.2990068>

出版专著

Sandhya Chintalapati, **Xin Luo***, Su Ying Quek*, Raman Signatures of Surface and Interface Effects in Two-Dimensional Layered Materials: Theoretical Insights, in ***Raman Spectroscopy of Two-Dimensional Materials***, (Springer Series in Materials Science) 2019, 163-184.

https://doi.org/10.1007/978-981-13-1828-3_8

个人学术信息以该网页为准, 欢迎感兴趣的研究者来信讨论: luox77@mail.sysu.edu.cn。

理工通讯 | 物理学院公共科研平台 | 中大主页
地址: 广州市海珠区新港西路135号 邮编: 510275