

**卢海舟**

Professor

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luhz@sustc.edu.cn[个人主页 >](#)<https://luhaizhou.wixsite.com/website>[< 返回 \(JavaScript:history.go\(-1\)\)](#)**个人简介**

卢海舟，2007年于清华大学高等研究所获博士学位，导师朱邦芬院士。同年赴香港大学做博士后研究，合作导师沈顺清教授，2012年转为研究助理教授。现在为南方科技大学物理系教授。目前主要从事凝聚态物理的研究，特别是量子运输。最近的研究兴趣是利用量子场论方法研究新材料中的量子态和量子运输，包括拓扑绝缘体/半金属/超导体，二维层状材料，弱局域化，量子自旋和反常霍尔效应等。曾使用费曼图技术，系统地研究了二维有质量狄拉克电子和三维外尔粒子的量子运输行为。多个理论工作被实验支持和广泛应用。在物理学期刊发表了60余篇论文，总引用2700多次，H指数为26。论文详见 <http://www.researcherid.com/rid/F-2671-2011>。长期为各种物理学期刊审稿。

研究领域

- ◆ 量子运输 (弱局域化, 量子自旋和反常霍尔效应, 反常磁阻现象)
- ◆ 狄拉克材料 (拓扑绝缘体/半金属/超导体, 二维层状材料)
- ◆ 凝聚态量子场论 (费曼图技术, 非平衡格林函数方法)
- ◆ 自旋电子学

工作经历

- ◆ 2018 至今 南方科技大学 教授
- ◆ 2015-2018 南方科技大学 副教授
- ◆ 2012-2015 香港大学 物理系 研究助理教授

学习经历

- ◆ 2002-2007 清华大学 高等研究所 物理学 博士
- ◆ 1998-2002 兰州大学 物理系 物理学 学士

所获荣誉

- ◆ 2018年 美国物理学会Outstanding Referee

代表文章

代表文章

- [1] "Perspective: 3D quantum Hall effect", **Hai-Zhou Lu**, *National Science Review*, nwy082 (2018).
- [2] "Forbidden backscattering and resistance minimum in the quantum limit as a signature of topological insulators", Yiyuan Chen, **Hai-Zhou Lu***, and X. C. Xie, *Phys. Rev. Lett.* 121, 036602 (2018).
- [3] "Rules for phase shifts of quantum oscillations in topological nodal-line semimetals", Cequn Li, C. M. Wang, Bo Wan, Xiangang Wan, **Hai-Zhou Lu***, and X. C. Xie, *Phys. Rev. Lett.* 120, 146602 (2018).
- [4] Xin Dai, Z. Z. Du, and **Hai-Zhou Lu***, *Phys. Rev. Lett.* 119, 166601 (2017), "Negative magnetoresistance without chiral anomaly in topological insulators".
- [5] C. M. Wang, Hai-Peng Sun, **Hai-Zhou Lu***, and X. C. Xie, *Phys. Rev. Lett.* 119, 136806 (2017), "3D quantum Hall effect of Fermi arcs in topological semimetals".
- [6] Cheng-Long Zhang, Su-Yang Xu, C. M. Wang, Ziquan Lin, Z. Z. Du, Cheng Guo, Chi-Cheng Lee, Hong Lu, Yiyang Feng, Shin-Ming Huang, Chuang-Han Hsu, Haiwen Liu, Hsin Lin, Liang Li, Chi Zhang, Jinglei Zhang, Xin-Cheng Xie, Titus Neupert, M. Zahid Hasan, **Hai-Zhou Lu***, Junfeng Wang*, and Shuang Jia*, *Nature Physics* 13, 979 (2017), "Magnetic tunneling induced Weyl node annihilation in TaP".
- [7] Wei Chen, **Hai-Zhou Lu**, Jing-Min Hou*, *Phys. Rev. B* 96, 041102(R) (2017), "Topological semimetals with a double-helix nodal link".
- [8] C. M. Wang, **Hai-Zhou Lu***, and Shun-Qing Shen, *Phys. Rev. Lett.* 117, 077201 (2016), "Anomalous Phase Shift of Quantum Oscillations in 3D Topological Semimetals".
- [9] **Hai-Zhou Lu** and Shun-Qing Shen, *Phys. Rev. Lett.* 112, 146601 (2014), "Finite-temperature conductivity and magnetoconductivity of topological insulators".
- [10] **Hai-Zhou Lu**, An Zhao, and Shun-Qing Shen, *Phys. Rev. Lett.* 111, 146802 (2013), "Quantum Transport in Magnetic Topological Insulator Thin Films".
- [11] **Hai-Zhou Lu**, Wang Yao, Di Xiao, and Shun-Qing Shen, *Phys. Rev. Lett.* 110, 016806 (2013), "Intervalley Scattering and Localization Behaviors of Spin-Valley Coupled Dirac Fermions".
- [12] **Hai-Zhou Lu**, Junren Shi, and Shun-Qing Shen, *Phys. Rev. Lett.* 107, 076801 (2011), "Competition between weak localization and anti-localization in topological surface states".
- [13] Junfeng Dai, **Hai-Zhou Lu***, C. L. Yang, Shun-Qing Shen, Fu-Chun Zhang, and Xiaodong Cui*, *Phys. Rev. Lett.* 104, 246601 (2010), "Magneto-electric photocurrent generated by direct inter-band transitions in InGaAs/InAlAs two-dimensional electron gas".
- [14] Bin Zhou, **Hai-Zhou Lu**, Rui-Lin Chu, Shun-Qing Shen, and Qian Niu, *Phys. Rev. Lett.* 101, 246807 (2008), "Finite size effects on helical edge states in a quantum spin-hall system".
- [15] Hong-Tao He, Gan Wang, Tao Zhang, Iam-Keong Sou, George K. L. Wong, Jian-Nong Wang, **Hai-Zhou Lu**, Shun-Qing Shen, Fu-Chun Zhang, *Phys. Rev. Lett.* 106, 166805 (2011). "Impurity effect on weak anti-localization in the topological insulator Bi₂Te₃".
- [16] Hui Li*, Hongtao He*, **Hai-Zhou Lu***, Huachen Zhang, Hongchao Liu, Rong Ma, Zhiyong Fan, Shun-Qing Shen*, Jiannong Wang*, *Nature Communications* 6, 10301 (2016), "Negative Magnetoresistance in Dirac Semimetal Cd₃As₂".

- [17] Zhang et al., Nature Communications 7, 10735 (2016), "Signatures of the Adler-Bell-Jackiw chiral anomaly in a Weyl Fermion semimetal".
- [18] Wang et al., Nature Communications 7, 13142 (2016), "Gate-Tunable Negative Longitudinal Magnetoresistance in the Predicated Type-II Weyl Semimetal WTe₂".
- [19] **Hai-Zhou Lu**, Wen-Yu Shan, Wang Yao, Qian Niu, Shun-Qing Shen, Phys. Rev. B 81, 115407 (2010), "Massive Dirac fermions and spin physics in an ultrathin film of topological insulator".
- [20] **Hai-Zhou Lu** and Shun-Qing Shen, Phys. Rev. B 92, 035203 (2015), "Weak antilocalization and localization in disordered and interacting Weyl semimetals".
- [21] **Hai-Zhou Lu**, Song-Bo Zhang, and Shun-Qing Shen, Phys. Rev. B 92, 045203 (2015), "High-field magnetoconductivity of topological semimetals with short-range potential".
- [22] **Hai-Zhou Lu** and Shun-Qing Shen, Phys. Rev. B 88, 081304(R) (2013), "Extrinsic anomalous Hall conductivity of a topologically nontrivial conduction band".
- [23] Xin Dai, **Hai-Zhou Lu**⁺, Shun-Qing Shen, and Hong Yao⁺, Phys. Rev. B 93, 161110(R) (2016), "Detecting monopole charge in Weyl semimetals via quantum interference transport".

学术服务

经常为以下期刊审稿 Nature Journals, Physical Review Letters, Physical Review X, Physical Review B, Physical Review Applied, Europhysics Letters, Journal of Physics: Condensed matter, Applied Physics Letters, Solid State Communications, AIP Advance, Scientific Reports, Advanced Materials, Icelandic Research Fund. 曾服务 Program committee of the 1st international conference on two-dimensional layered materials (IC2DLM), October 13-15, 2014, Hangzhou, China.

博后招聘广告

本课题组常年招收博士后/研究助理。要求凝聚态物理理论专业博士学位/硕士学位，或即将毕业。良好的英语阅读、写作和交流能力，曾经在物理学主流国际期刊(如 PRB/PRL)上发表第一作者论文。会数值计算。优先考虑熟悉以下任何一个方向的申请者：以上介绍的研究方向，量子多体理论，量子输运理论，材料计算。根据个人的科研资历，提供优厚的年薪和福利。欢迎咨询或发送申请材料至luhz@sustc.edu.cn.因事务繁忙，恕不能逐一回复。



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