



Weekly Seminar

Unusual Current Partition Law and Conducting Topological Network in Twisted Graphene bilayer

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Time: 4: 00 pm, April. 24, 2019 (Wednesday)

时间: 2019年4月24日 (周三) 下午4:00

Venue: Room W563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

Abstract

The intersection of three topological zero-lines is the elementary current partition node that arises in twisted bilayer graphene due to moiré patterns of six alternating gapped AB/BA stacking regions. Unlike the partition laws of two intersecting zero-lines, we find that (i) the incoming current can be partitioned into both left-right adjacent topological channels and that (ii) the forward propagating current is nonzero. Moreover, upon applying a perpendicular electric field, we observe that electronic conducting of the topological network formed by such partition nodes is direction-dependent. Our results provide a comprehensive depiction of the electronic transport properties of a topological zero-line network and have far-reaching implications in the design of electron-beam splitters and low-power-consuming topological quantum devices.

About the speaker

乔振华, 05年本科毕业于山西大学物理基地班, 09年博士毕业于香港大学, 09-13年在德州大学奥斯汀分校进行博士后研究。13年加入中国科学技术大学物理系, 先后入选中科院百人计划和中组部青千, 18年获百人计划终期评估优秀。主要研究方向为狄拉克材料拓扑物性和低维体系电子自旋输运。在Nature、Nature Nano、PRL、PRB等期刊发表55篇文章, 其中6篇为高被引用文章。