



Seminar

Unconventional Edge Phases of Chiral Abelian Quantum Hall States

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University of California, Santa Barbara

Time: 4:00pm, October 22, 2015 (Thursday)

时间: 2015年10月22日 (周四) 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

Integer and fractional quantum Hall States exhibit gapless edge excitations which allow probing of many bulk topological properties through transport experiments. We find that the same bulk two - dimensional topological phase can have multiple distinct, fully - chiral edge phases, with experimentally observable signatures. We show that this can occur in the integer quantum Hall states at $\nu=8$, as well as in a number of fractional quantum Hall states. We also demonstrate that fermionic systems can have chiral edge phases with only bosonic low - energy excitations. We further show that domain walls between the edge phases with and without gapless fermions support Majorana zero modes. Remarkably, due to the chirality of the system, the degeneracy of these zero modes is topologically protected, in spite of the presence of gapless excitations, including gapless fermions.

About the speaker

Dr. Meng Cheng got his B.S. in Nanjing University and then Ph. D. in University of Maryland, College Park. Now He works in Microsoft Research Station Q (Santa Barbara) as a postdoctoral researcher. His research is focused on topological superconductivity and strongly correlated electrons.