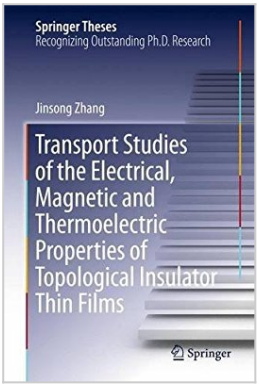

Transport Studies of the Electrical, Magnetic and Thermoelectric properties of Topological Insulator Thin Films (Springer Theses)

By Jinsong Zhang

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This book presents the transport studies of topological insulator thin films grown by molecular beam epitaxy. Through band structure engineering, the ideal topological insulators, (Bi1-xSbx)2Te3 ternary alloys, are successfully fabricated, which possess truly insulating bulk and tunable conducting surface states. Further transport measurements on these ternary alloys reveal a disentanglement between the magnetoelectric and thermoelectric properties. In magnetically doped topological insulators, the fascinating quantum anomalous Hall effect was experimentally observed for the first time. Moreover, the topology-driven magnetic quantum phase transition was Systematically controlled by varying the strength of the spin-orbital coupling. Readers will not only benefit from the description of the technique of transport measurements, but will also be inspired by the understanding of topological insulators.

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Editorial Review

From the Back Cover
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Jinsong Zhang received his B.Sc. in Physic in Tsinghua University, P. R. China in 2008. He obtained his Ph.D. in Physics from Physics Department of Tsinghua University in January 2014. His major research project in Prof. Yayu Wang's group was the transport studies of the electric, magnetic and thermoelectric properties in topological insulator thin films. At present, he is a post-doc fellow in Prof. Yi Cui's group in the Department of Material Science and Engineering, Stanford University. His current projects are focusing on the fabrication and characterization of two-dimensional layer materials.

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