

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Thermoelectric Effect in Topological Insulators YONG XU, SHOU-CHENG ZHANG, Stanford University — Improving the thermoelectric figure of merit zT is one of the greatest challenges in material science. The recent discovery of topological insulators (TIs) offers new promise in this prospect. In this talk, we demonstrate theoretically that zT is strongly size dependent in TIs, and the size parameter can be tuned to enhance zT to be significantly greater than 1. Furthermore, we show that the lifetime of the edge states in TIs is strongly energy dependent, leading to large and anomalous Seebeck effects with an opposite sign to the Hall effect. Some recent experimental progress will also be introduced.

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Date submitted: 14 Nov 2014

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