



PHYSICS AND ASTRONOMY COLLOQUIUM

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“Exploring Spin and Topological Phenomena in Complex Oxide Thin Films”

Abstract

“Complex oxide materials exhibit a wide range of electronic and magnetic behavior in bulk and thin films. With advances in oxide thin film deposition techniques, we are now able to realize atomically precise thin films, heterostructures and interfaces of these complex oxide materials that open up a new phase space for materials discovery. The stabilization of unusual ground states in such atomically precise complex oxide materials has led to discoveries of novel spin and topological phenomena. In this talk, I describe a recent example from our group: topologically protected ground states at an oxide interface. At the metallic $\text{LaTiO}_3/\text{SrTiO}_3$ interface, we have uncovered unexpectedly strong spin-orbit coupling in the form of giant Rashba spin splitting and evidence of a Dirac point. Under electrical gating, we have recently found evidence for topologically protected ground states that is consistent with quantum spin Hall effect. If true, this would be the first experimentally observed oxide topological insulator.”

Wednesday, October 7, 2020

3:30 p.m.

via Zoom: <https://uvic.zoom.us/j/99605059029>