



Seminar

Unconventional Superconducting Quantum Criticality in Monolayer WTe_2

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Abstract

Quantum critical points associated with quantum phase transitions are highly intriguing states of matter; yet they are difficult to study. An example is the superconductor to insulator or metal transition in two dimensions (2D), a topic that has a long history in condensed matter research, but many problems remain unsolved. In this talk, I will discuss our recent experimental finding of a quantum critical point in monolayer tungsten ditelluride (WTe_2), a unique 2D crystal in which topology, strong correlations and superconductivity all occur in a single material. We directly measure superconducting quantum fluctuations, whose behaviors are so anomalous that an unusual explanation beyond the conventional Landau-Ginzburg paradigm is required.

About the speaker

Sanfeng Wu is currently an assistant Professor of Physics at Princeton University. Before Princeton, he was a Pappalardo Fellow in Physics at MIT. He received his undergraduate degree at the University of Science and Technology of China in 2010 and his Ph.D. in physics at the University of Washington, Seattle in 2016.