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Tuning Quantum Materials

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Abstract

Quantum materials possess exotic quantum phenomena arising from interplay of charge, spin, orbitals and lattice. Materials with strong electron-electron correlation show particularly rich physics in their phase diagrams due to complex interactions, leading to different ground states under different circumstances. My research interest mainly focuses on unconventional superconductors. Recently, uniaxial stress becomes a general tuning knob in studying quantum materials. In this talk, I will take SrRuO as an example to demonstrate versatility of the uniaxial stress techniques. I will discuss our main findings based on the thermodynamic probes I have developed.

Dr. You-Sheng Li earned his B.S. and M.S. from National Tsing Hua University in 2006 and 2009. He received his Ph.D. from University of St Andrews (UK) in 2018. He then conducted postdoctoral research at Universität Würzburg, Germany in 2019 and Max Planck Institute for Chemical Physics of Solids, Germany from 2020 to 20203. In 2024, he joined the Department of Physics at National Taiwan University as an assistant professor.