

Entanglement in quantum materials

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Entanglement is one of the most striking – and potentially most useful – phenomena in quantum physics. Over the past century, we've witnessed remarkable progress: from the discovery of the quantum nature of matter to the precise control and utilization of quantum states across a variety of platforms, with entanglement playing a pivotal role. Curiously, however, these advances have largely stalled at the doorstep of quantum materials – systems governed by the intricate interplay of multiple quantum degrees of freedom, and likely shaped in essential ways by their entanglement structure. In this talk, I will discuss recent developments in this field, focusing on the enigmatic “strange metal” state, which is uniquely suited to make progress.