

Ultra-quantum matter



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Ultra-quantum matter is the proposed umbrella term to describe states of matter made of quantum particles with long range quantum entanglement among them. These states of matter lie outside of the standard Landau classification of phases of matter. In Landau classification a solid is distinct from a liquid because its crystalline lattice breaks translational invariance. Typically ultra-quantum matter does not break any symmetries despite forming distinct phases of matter. Examples of ultra-quantum matter include topological states such as in quantum Hall effect or in certain quantum spin liquids, and “strange metals” in cuprates. In the last decade, cold atoms became a promising framework to “engineer” quantum matter. I will talk about ultra-quantum matter, and about ongoing efforts to model and design ultra-quantum matter in a lab using cold atoms.

Date: Wednesday 31 July 2019

Time: 2pm

Venue: L1, Seminar Room 107, 10 College Walk, Clayton

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