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Quantum bit threads

Quantum entanglement and spacetime geometry have a deep connection in holographic systems, and this is most clearly seen through the Ryu-Takayanagi prescription. I describe a new flow-based reformulation of holographic entanglement entropy that is equivalent to the quantum extremal surface (QES) prescription, and so accurate to all orders in bulk quantum corrections. The proposal is inspired by considerations of bit threads in doubly holographic models. Equivalence to the QES prescription is proven with a novel generalisation of the Riemannian max-flow min-cut theorem. I will explain the proposal's properties, as well as discuss ways in which islands and spacetime are emergent phenomena from the quantum bit thread perspective.

Type of contribution

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