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Calibrated entanglement entropy

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ABSTRACT: The Ryu-Takayanagi prescription reduces the problem of calculating entanglement entropy in CFTs to the determination of minimal surfaces in a dual anti-de Sitter geometry. For 3D gravity theories and BTZ black holes, we identify the minimal surfaces as special Lagrangian cycles calibrated by the real part of the holomorphic one-form of a spacelike hypersurface. We show that (generalised) calibrations provide a unified way to determine holographic entanglement entropy from minimal surfaces, which is applicable to warped AdS₃ geometries. We briefly discuss generalisations to higher dimensions.

KEYWORDS: AdS-CFT Correspondence, Gauge-gravity correspondence, Holography and condensed matter physics (AdS/CMT)

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