

Hot Multiboundary Wormholes from Bipartite Entanglement

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Many beautiful, recent results in the field of holography have made manifest that poignant aspects of bulk geometry are encoded in the boundary theory as quantum information. In particular, Susskind's recently conjectured ER=EPR conjecture pertains to the view that there is an intimate connection between entanglement entropy in the boundary theory and connectedness of the dual, bulk geometry. We investigated the spatial dependence of the entanglement entropy for 2D boundary CFT states dual to 3D multi-boundary wormholes. In this context, one can probe the entanglement structure with the RT conjecture by simply computing and comparing lengths of geodesics. We found that when the temperatures of the boundary CFTs tend to infinity the spatial dependence of the entanglement entropy supporting to the wormhole is extremely simple and purely bipartite.

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