Abstract

Despite being locally trivial, pure gravity in three dimensions has solutions describing multi-boundary and single exterior black holes, of particular interest for studying the relationship between geometry and quantum entanglement. These solutions are dual to natural CFT states, defined by the path integral on a bordered Riemann surface. Such states have a phase structure, generalising the Hawking-Page transition, closely related to the computation of the partition function of a holographic theory on a Riemann surface. I'll describe a method for computing these partition functions, map out the phase diagram in one case, and discuss some implications for describing entanglement geometrically.