Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

A new perspective on holographic entanglement

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(Duration and Location are subject to irreducible jitter)

The by-now classic Ryu-Takayanagi formula associates the entanglement entropy of a spatial region in a holographic field theory with the area of a certain minimal surface in the bulk. Despite its simplicity and beauty, this formula raises a number of stubborn conceptual problems. I will present a reformulation which does not involve the areas of surfaces. This reformulation leads to a picture of entanglement in the field theory being carried by Planck-thickness "bit threads" in the bulk. I will argue that this picture helps to resolve a number of the conceptual difficulties surrounding the RT formula.