Séminaire de physique des particules et de cosmologie

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Towards conformal tensor networks

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"Entanglement renormalization" is a quantum information inspired renormalization group (RG) transformation on the lattice, described by a tensor network. Substantial numerical evidence suggests that this RG transformation flows (local) Hamiltonians to fixed points that are described by conformal field theories (CFTs). In this talk, I will outline a program to formalize (make exact) the relationship between the fixed points of entanglement renormalization and CFTs, and describe some very first steps in this direction. The grand goal (fantasy) of this program is to develop tensor networks that realize some sort of lattice versions of CFTs.