

Tenseurs : information quantique, complexité et combinatoires quantiques

Tensors: Quantum Information, Complexity and Combinatorics

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Random tensor networks with nontrivial links

Random quantum states are an important tool in quantum information theory. In this talk I will discuss the particular example of random tensor network states, which have found application both in quantum information theory and as a toy model for holographic quantum gravity. We introduce a refined model with arbitrary link states. I will explain some of the entanglement properties of such networks and how they depend on the graph structure and the link states. We will see that tools from free probability, random matrix theory, and one-shot quantum information theory can be used to study random tensor networks with nontrivial link states. This talk is based on arXiv:2206.10482 which is joint work with Newton Cheng, Cecilia Lancien, Geoff Penington and Michael Walter.