Entanglement for quantum information networks

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Résumé du projet de recherche (Langue 1)

Entanglement is a specific property to Quantum Information, and is at the heart of potential resources for transmitting and processing quantum information. Nevertheless we are far from knowing all its consequences. Quantum information is applied to more and more cryptographical protocols, such as the secret sharing that we were first interested in. For that, we use graph states which are entangled quantum states, amongst the easiest states to implement and the most broadly studied, because of their simple structure. Based on previous work, we can explore several domains: coding theory in order to identify and classify the (im)possible secret sharing schemes depending on their parameters, graph theory in order to characterise related information flow, and cryptographical protocols in order to imagine new applications which could themselves imply new properties.