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Quantum Entanglement and Its Application in Quantum Communication

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Message from the Guest Editor

The aim of this Special Issue is to disseminate the latest advances in the generation, utilization and quantification of quantum entanglement, enabling the communication of quantum information. Experimental quantum technologies are rapidly approaching the performance of ideal theoretical models. We are therefore moving towards an era where interconnected networks of quantum entanglement are a practical reality. This Special Issue is a timely opportunity to present results that will shape the future of quantum communications networks. Topics that this Special Issue will be interested in include theoretical and experimental results in entanglement generation, entanglement distillation, entanglement measures and resource theory, entanglement-based quantum cryptography, the storage of entanglement over long distances, the verification and quantification of quantum entanglement, and protocols for the utilization of quantum entanglement over long distances.

Keywords: quantum entanglement; quantum communication; quantum information theory; entanglement measures; entanglement distillation; quantum cryptography; quantum key distribution



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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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