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Quantum Game Theory and Its Applications

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Message from the Guest Editors

Quantum technologies are now able to be commercially utilized and quantum mechanics is becoming a relevant topic for both engineers and the public. IBM and Google have already built prototypes of quantum computers, and quantum networks might be a reality in the near future. Advances in quantum information processing open up new opportunities, and the development of quantum technology uncovers new possibilities in terms of its utilization in the optimization of decision-making processes by means of quantum games.

Quantum games extend classical game theory to the quantum domain, in which entanglement and nonlocality generate behaviors different to their classical versions, which frequently leads players to achieve better outcomes in equilibria. The key to achieving a quantum advantage is in the nonlocal correlations generated by local measurements in the shared entangled states. In the last 20 years, numerous quantum game-based applications have been developed in a variety of fields, including communications, cryptography, finance, and computer science. These and many more features related to quantum game theory and its application can be included in this Special Issue.

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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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