Special Issue

Quantum Correlations in Many-Body Systems

Message from the Guest Editor

Quantum correlations provide crucial insights into the most fundamental aspects of nature and rep-resent an essential resource for quantum technologies. In the context of many-body systems, these correlations can appear in complex yet intriguing structures, naturally prompting conceptual questions about their characterisation and quantification.

This Special Issue provides a timely opportunity to present current advances in our understanding of quantum correlations in many-body systems, while also highlighting open questions in the field. Topics covered in this Special Issue include the preparation, detection, characterisation, and quantifi-cation of entanglement, Einstein–Podolsky–Rosen steering, and Bell nonlocality in many-body sys-tems. Additionally, it emphasises the role of these correlations in quantum technologies, such as quantum metrology, quantum communication, one- and two-sided device-independent tasks, and randomness generation.

- many-body systems
- multipartite quantum correlations
- entanglement
- Einstein–Podolsky–Rosen steering
- Bell nonlocality

Guest Editor

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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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Editor-in-Chief

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