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, oneand 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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