

Call for papers

Topical issue of the European Physical Journal D ***High Dimensional Quantum Entanglement***

Quantum entanglement has become an invaluable resource for the emerging areas of quantum information and quantum technologies in recent years. However, the standard approach that deals with simple systems of one or two modes is inadequate for tackling problems encountered in the practical implementation. The need for faster processing of ever increasing quantities of data requires consideration of **multi-dimensional and multi-modal quantum entanglement**. The generation of entanglement and quantum correlations in high dimensional Hilbert spaces opens the way to a breakthrough in the information capacity of QIPC protocols, and provides a fundamental resource for quantum metrology and quantum imaging.

This special issue will focus on both the light and matter aspects of high dimensional entanglement, with an emphasis on those addressed by the European FET Open project HIDEAS (High Dimensional Entangled Systems). Topics of interest include:

- Generation and manipulation of entanglement and quantum correlation of light in high-dimensional Hilbert spaces, including
 - High-D temporal entanglement of light (e.g. quantum frequency combs)
 - High-D entanglement of light in the transverse spatial domain (e.g. in the orbital angular momentum)
 - High-D entanglement of light in mixed domains
- Multimode light and matter quantum interfaces
- Applications of high dimensional entanglement to QIPC protocols
- Applications of high dimensional entanglement to quantum metrology
- Quantum imaging

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Submission

Authors are invited to use the online submission portal at <https://articlestatus.edpsciences.org/is/epjd/> (preferred). If you are a first-time author with EPJ D, you must register first, which can be done directly on the above web site. When submitting your contribution, please select “High Dimensional Quantum Entanglement” under the tab for Special Issues. Contributions can also be sent directly to epjd@edpsciences.org.

Guest Editors

Sonja Franke-Arnold (Glasgow University, Glasgow, UK)

Alessandra Gatti (IFN-CNR, Como, Italy)

Jörg Helge Müller (NBI, Copenhagen, Denmark)

Nicolas Treps (UPMC, Paris, France)