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Balades Quantiques de le LPENS

Jeudi 9 Fevrier 2023, 12 :45
LPENS, L382
Domaines : cond-mat

Titre : *Entanglement enhanced metrology with quantum many-body scars*

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Résumé : *Thermalisation is almost inevitable in any sufficiently large and complicated quantum many-body system, leading to the destruction of any multipartite entanglement between its components. However, quantum many-body scars are special energy eigenstates that can prevent thermalisation, even in a quantum chaotic system. Although the scars themselves can have high multipartite entanglement, in most examples considered so far the dynamics has involved states that either have no entanglement, or have a very simple entanglement structure. Here we consider a physically motivated modification of the Hamiltonian that generates a variety of multipartite entangled states through the dynamics in the scar subspace. We show that these states can be exploited for entanglement enhanced quantum metrology.*
Reference : Phys. Rev. B 107, 035123 (2023)