

Signatures of Non-Trivial Doublon Formation Using a Quantum Computer

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Abstract:

Doublons are onsite repulsively bound pairs of particles formed due to the interparticle interactions on a periodic lattice. Formation of such doublons from particles initially located on two non-local sites is forbidden if the onsite interparticle interaction is very strong. However, we propose a route to the formation of such non-trivial doublons on a one dimensional lattice through suitable manipulation of the interactions among the particles. In this talk we will discuss the mechanism of such non-trivial doublon formation and show how their signatures can be captured using a noisy intermediate-scale quantum (NISQ) device.
