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Mapping Tunnelling Parameters for Global Optimization in Big Data via Dye Laser Simulation

Authors : Sahil Imtiyaz

Abstract : One of the biggest challenges has emerged from the ever-expanding, dynamic, and instantaneously changing space-Big Data; and to find a data point and inherit wisdom to this space is a hard task. In this paper, we reduce the space of big data in Hamiltonian formalism that is in concordance with Ising Model. For this formulation, we simulate the system using dye laser in FORTRAN and analyse the dynamics of the data point in energy well of rhodium atom. After mapping the photon intensity and pulse width with energy and potential we concluded that as we increase the energy there is also increase in probability of tunnelling up to some point and then it starts decreasing and then shows a randomizing behaviour. It is due to decoherence with the environment and hence there is a loss of 'quantumness'. This interprets the efficiency parameter and the extent of quantum evolution. The results are strongly encouraging in favour of the use of 'Topological Property' as a source of information instead of the qubit.

Keywords : big data, optimization, quantum evolution, hamiltonian, dye laser, fermionic computations
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