

Quantum entanglement in an extended Hubbard model as evaluated from a spin concurrence measure

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Quantum entanglement is a peculiar feature of quantum mechanics that turns out a powerful resource in quantum communication and information. For this reason, intense research has recently focused on the robustness of quantum entanglement also in strongly correlated electron systems. Here, we consider an extended Hubbard model on a dimer and evaluate the spin entanglement at finite temperature, under the action of an external magnetic field. We show how magnetic field and intra- and inter-atomic Coulomb interactions modify the spin concurrence, finding out that the magnetic field may act as a switch from a non-entangled to an entangled state.