## Signs-Only Compressed Row Storage Format for Exact Diagonalization Study of Quantum Fermionic Models

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**Abstract :** The present paper describes a high-performance parallel realization of an exact diagonalization solver for quantumelectron models in a shared memory computing system. The proposed algorithm contains a storage format for efficient computing eigenvalues and eigenvectors of a quantum electron Hamiltonian matrix. The results of the test calculations carried out for 15 sites Hubbard model demonstrate reduction in the required memory and good multiprocessor scalability, while maintaining performance of the same order as compressed row storage.

Keywords : sparse matrix, compressed format, Hubbard model, Anderson model

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