

Canonical mean field theory

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A many-body approach named “Canonical mean field theory” is presented in which electron correlations are described as the density matrix evolved (or renormalized) by a sequence of canonical transformations, and the concomitant effective Hamiltonian. The higher-order correlations in the density matrix and the effective Hamiltonian are averaged by lower-order particle operators in a mean-field way. This work is relating to the canonical diagonalization of the second-quantized Hamiltonian by White (S. R. White, J. Chem. Phys. 117, 7472 (2002)).