

Research fields

density functional theory

- exact theorems, relations (virial theorems, equations of hierarchy)
- excited states (variational and non-variational theories for a single excited state and ensembles)
- density functional view of quantum phase transitions

pair density functional theory:

- derivation of Kohn-Sham-like system and equation
- introduction of Pauli potential
- exact theorems, relations (virial theorems, equations of hierarchy, cusp conditions)
- generalization to excited states

information concepts:

- Fisher, Shannon and Rényi information, their role in orbital-free density functional theory, quantum phase transitions