

Unitary Renormalisation Group Approach to the Hubbard Dimer and Anderson Molecule

Exact Diagonalization of Hubbard Dimer

Symmetries of the problem

- total number ($\hat{n} = \sum_{i\sigma} n_{i,\sigma}$)
- total magnetization along z
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Exact Diagonalization of Anderson molecule

Formalism of Unitary Renormalisation Group

Demonstrating the URG on a toy problem

Applying URG to the Hubbard dimer

Applying URG to the Anderson molecule

Applying URG to the Hubbard dimer (k-space)

Comparison with Schrieffer-Wolff transformation (Hubbard dimer)

Comparison with Schrieffer-Wolff transformation (Anderson molecule)