

When Gutzwiller meets DMRG: a microscopic-wavefunction-guided approach to 2D correlated electrons

【摘要】

Two-dimensional (2D) strongly correlated electrons remains one of central themes in modern physics. In this talk, we address a crucial issue: whether there exists a paradigm to study 2D strongly correlated electrons, starting from its one-dimensional reduction? We will demonstrate that newly proposed Gutzwiller projected wavefunction guided density matrix renormalization group (DMRG) is a promising method on this theme. This method is illustrated by two examples: (1) The benchmark on the famous Kitaev honeycomb model; (2) Unveiling a nematic spin-orbital liquid ground state on the simplest spin-orbital model on the simplest frustrated lattice.

【报告人简介】



Yi Zhou is a professor at Institute of Physics, Chinese Academy of Sciences. He received his B.S. degree and Ph. D. in physics from Tsinghua University in 1998 and 2004 respectively. After postdoctoral journey, he became a faculty member in Zhejiang University in 2009 and moved to current position in 2019. His main research interests include quantum many-particle physics and theoretical condensed matter physics.

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