



PHYSIKALISCHES KOLLOQUIUM

Referent:

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Thema:

Disentangling strongly correlated quantum systems

Zeit und Ort:

Dienstag, 13.12.2016, 16:40 Uhr
Recknagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

Leiter:

Prof. Dr. Matthias Vojta

Kurzfassung:

Strongly correlated quantum systems, where more traditional methods of quantum many-body physics fail, have attracted enormous attention over the last decades but still provide formidable problems for our understanding: high- T_c superconductors, frustrated quantum magnets, transition metal oxide and rare earth materials, ultracold atomic gases in optical lattices. Key numerical advances have been made using so-called tensor network methods, the best known of which is the density matrix renormalization group (DMRG). After an introduction into the methodology, I want to present selected results from areas which in my view present particularly interesting challenges also in the future: non-equilibrium dynamics of correlated systems (here: ultracold atoms in lattices) and material properties of three-dimensional transition metal oxides.

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