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Physikalisches Kolloquium   Physics Colloquium
Einladung   **Invitation**

Monday, 27 January 2020
Lecture Hall N24/H13, 16:15

Coffee and cookies will be served in front of the lecture hall from 16:00

Escaping the models: what can tensor networks tell us about the real world?

Prof. Ulrich Schollwöck

Physics Department
LMU München

🌐 PERSONAL

Tensor network algorithms have grown to be one of the most successful ways of computational physics dealing with strongly correlated quantum systems. After a non-expert introduction, I will show a few highlights of recent applications in and out-of-equilibrium. Yet, most of these successes have dealt with central model Hamiltonians of theoretical physics. In this talk, I want to ask the question: can we do more to connect to the real world, in the form of realistic (strongly correlated) materials or chemical molecules? Showing results from our research, I want to make the point that this connection can be established and promises to be very fruitful for the future. More specifically, I will show the connection to dynamical mean-field theory and density functional theory, and the quantum dynamics of real molecules in chemistry.
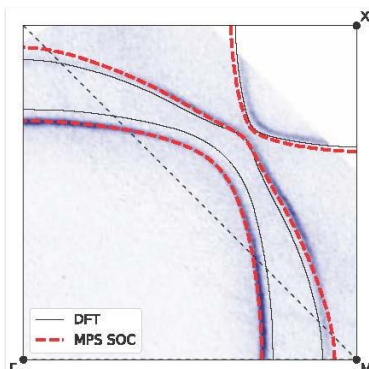
High-resolution ARPES measurement of the Fermi surface in strontium ruthenate Sr2RuO4 compared to DFT (density functional theory) and MPS (tensor network) prediction.)

Host: Prof. Dr. Martin Plenio, Institute of Theoretical Physics

Organisation: Prof. Dr. Fedor Jelezko, Institute of Quantum Optics, fedor.jelezko@uni-ulm.de, +49-731-50-23751