Sommerfeld Theory Colloquium

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Applications of Machine Learning and Neural Networks to Quantum Systems

Learning algorithms using deep neural networks are currently having a major impact on basic sciences. The physics of complex quantum systems is no exception, with multiple applications that constitute a new field of research. Examples include the representation and optimization of wave functions of quantum systems with large numbers of degrees of freedom (neural quantum states), the determination of wave functions from measurements (quantum tomography), and applications to the electronic structure of materials, such as the determination of more precise density functionals or the learning of force fields to accelerate molecular dynamics simulations. I will survey some of these applications, with an emphasis on neural quantum states.

Wednesday, 5 June 2024, 16:15h, Room A348, Theresienstr. 37/III

Prof. Uli Schollwöck and Prof. Jan von Delft