UNIVERSITÄT DUISBURG ESSEN

*Offen* im Denken

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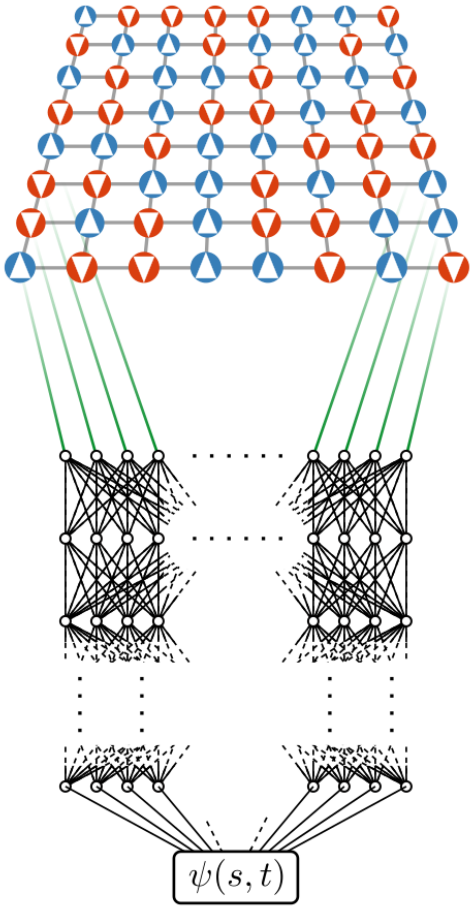
# Simulating correlated matter far from equilibrium with neural quantum states


**Dr. Markus Schmitt**

Institut für Theoretische Physik, Universität zu Köln



The efficient numerical simulation of non-equilibrium real-time evolution in quantum matter constitutes a key challenge for today's computational methods. However, the idea of utilizing deep learning models as *ansatz* for the wave function has recently given a new twist to established variational methods — holding potential to overcome current limitations. In this seminar I will introduce the time-dependent variational principle for neural quantum states to simulate isolated and open quantum many-body systems. In settings of immediate relevance for quantum simulation with Rydberg atoms I will present results, showing that this approach can exceed or complement the capabilities of state-of-the-art tensor network methods.