Brief biography of Speaker & Abstract

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Presentation title	Deep Learning of Phase Transitions for Bilinear-Biquadratic Spin-1 Chains from Correlation Aspects	

Brief biography

Ming-Chiang Chung, Professor in the Physics Department of National Chung-Hsing University, graduated from Free University Berlin with postdoctoral experience in Ames Lab, RWTH Aachen, Max-Planck Institute and AS, is a theoretical physicist working in the field of statistic mechanics, manybody physics, quantum information in condensed matter, cold atoms, out of equilibrium physics and artificial intelligence applied in condensed matter theory. I am trying to capture the core of the manybody physics, either using quantum field theory or exactly solvable models or numerical methods like DMRG and Tensor Network or deep learning methods.

Abstract

As one of the first topological magnetic materials, the Haldane phase serves as the ground state of the spin-1 antiferromagnetic Heisenberg model. If the system conserves SU(2) symmetry, the extensive model is called the Bilinear-Biquadratic (BLBQ) model. BLBQ has rich quantum phases such as Haldane, dimerized, critical (trimerized), and ferromagnetic phases. Using machine learning to distinguish such phases is not an easy task. In this talk, we provide a method to distinguish four quantum phases, including the topological (Haldane) phase by using three different relevant spin-spin correlations as inputs to feed them into machines.