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【643】 Dynamical Structure Factor analysis of the Bilinear Biquadratic Spin-1 chain

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The Bilinear-Biquadratic spin-1 chain (BLBQ) has been studied for its entangled ground states, diverse phases and topological properties. The natural language to study entanglement in strongly correlated systems is tensor networks. Using time dependent tensor network simulations, we demonstrate the dynamical spin and quadrupolar structure factors of the BLBQ model in ferroquadrupolar dimer phase and antiferroquadrupolar semi-ordered phase and compare them with the ones obtained from the analytical calculations using multi-boson approach. Interestingly, the system is analytically solvable for few points (Takhtajan Babujan, Uimin Lai Sutherland, Affleck Kennedy Lieb Tasaki points). We explore the analogy of the Biquadratic model in dimer phase with spin-1/2 XXZ model using Temperley Lieb Algebra and confirm it via structure factor plots obtained from simulations.

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