Contribution ID: **69** Type: **not specified**

Spin functional renormalization group for dimerized quantum spin systems

Thursday, 28 July 2022 16:35 (20 minutes)

We investigate dimerized quantum spin systems using the spin functional renormalization group approach proposed by Krieg and Kopietz which directly focuses on the physical spin correlation functions and avoids the representation of the spins in terms of fermionic or bosonic auxiliary operators. Starting from decoupled dimers as initial condition for the renormalization group flow equations, we obtain the spectrum of the triplet excitations as well as the magnetization in the quantum paramagnetic, ferromagnetic, and thermally disordered phases at all temperatures. Moreover, we compute the full phase diagram of a weakly coupled dimerized spin system in three dimensions, including the correct mean field critical exponents at the two quantum critical points.

Presenter: RÜCKRIEGEL, Andreas