

Abstract Submitted
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Finite- T spectral function of the BEC quantum magnets¹ SUHAS GANGADHARAI AH, University of Basel, Switzerland, SASHA CHERNYSHEV, UC Irvine — We discuss the momentum, frequency, and temperature dependence of the spectral function of interacting 3D bosonic excitations in the vicinity of the BEC quantum critical point. The relaxation rate is demonstrated to have a highly non-trivial ω -dependence with several asymptotic regimes that are studied in some detail. The spectral function is shown to exhibit, in a wide range of temperatures, an asymmetric quasiparticle peak and a shoulder, originating from the behavior of the self-energy. These spectral features should be readily observable in neutron-scattering experiments in the BEC quantum magnets. We also argue that this behavior of the spectral function must persist throughout the strong-coupling limit.

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