SES21-2021-000187

Abstract for an Invited Paper
for the SES21 Meeting of
the American Physical Society

Dynamical structure factor of the triangular Heisenberg model\fs20

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I will review recent inelastic neutrons scattering experiments in triangular lattice S=1/2 Heisenberg antiferromagnets, that reveal large deviations from the dynamical spin structure factor obtained from non-linear spin wave theory (NSWT). These deviations can be attributed to the proximity of these materials to a "quantum melting point". I will derive the zero-temperature dynamical spin structure factor of the triangular lattice Heisenberg model using a Schwinger Boson approach that includes Gaussian fluctuations (1/N correction) around the saddle point solution [1]. While the ground state of this model exhibits a well-known 120-degree magnetic ordering, the low-energy excitation spectrum has a strong quantum character, which is not captured by low-order 1/S expansions. The low-energy collective modes (magnons) consist of two-spinon bound states that arise from the coupling of the spinons to fluctuations of the auxiliary (gauge) fields. This composite nature of the single-magnon modes is accompanied by a muti-spinon continuum, which extends beyond the two-magnon bandwidth. We will see that this theory can account for several aspects of the INS data of $Ba_3CoSb_2O_9$, as well as for recent measurements of $KYbSe_2$.