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**SP (N) Treatment of Frustrated Spin Dimer Systems in Magnetic Field**

MARIANNA MALTSEVA, REBECCA FLINT, PIERS COLEMAN, Rutgers University — We present a Schwinger boson treatment of a frustrated bi-layer dimer spin system using a reformulation of the SP (N) approach to frustrated spin systems. Unlike previous SP (N) approaches[1], our starting model is composed uniquely of SP (N) spin generators, which permits a more symmetric treatment of antiferromagnetic and ferromagnetic bonds. We apply our methods to model the spin condensation process that occurs in $BaCuSi_2O_6$. One of the issues of particular interest is the dependence of the interlayer order-from-disorder effects[4] on the applied magnetic field, and the interesting possibility that these couplings vanish at the critical field[2,3].


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