SPIN-1/2 ANTIFERROMAGNETIC HEISENBERG MODEL ON A 1/7-DEPLETED TRIANGULAR LATTICE

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9.7 cm

Based on the triangular lattice and its depletions there are three simple frustrated antiferromagnetic Heisenberg models in two dimensions. The first two, the triangular and the Kagomé lattice, hase been examined in the recent past. The triangular lattice seems to have long range order (LRO) whereas the Kagomé does not show LRO. But these results are still controverse. This work is concentrated on a third type of this lattice family in order to improve the understanding of the conection between LRO and coordination number in low dimensional systems. Betts [1] has described the geometric properties of this lattice. It has the coordination number 5, which lies precisly between the coordination numbers 6 and 4 of the other two lattices. The low lying spectra and the correlation functions of finite lattices have been examined, to decide if there is a long range ordered groundstate in the 1/7-depleted lattice. The low lying spectrum is generated by exact diagonalization, and the *tower of states*-behavior [2] points to a long range ordered ground state.

[1] D.D. Betts: Proc.N.S.Inst.Sci **40** 95 (1995)
[2] P. Lechemiant, B. Bernu, c. Lhuillier, L. Pierre, P. Sindzingre: Phys.Rev.B **56** 2521 (1997)

13.4 cm

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