GROUND-STATE ENERGY OF A FRUSTRATED ± J ISING MODEL ON A STRIP OF SQUARES

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We investigated a $\pm J$ Ising model on an infinite strip of squares of the width of one, two and three bonds with a random distribution of ferro- and antiferromagnetic exchange interactions [1-4]. The exact ground-state energy as function of the concentration of antiferromagnetic bonds was derived and its singular points in the complex plane were found.We calculated also the ground-state energy using two different procedures either of which can be applied to a strip of any width.

1) B. Derrida, J. Vannimenus and Y. Pomeau: J.Phys.C **11** (1978) 4749
2) T. Morita and T. Horiguchi: J.Phys.C **13** (1980) 6483
3) B. Fechner and M. Błaszyk: J.Phys.C **19** (1986) 2785
4) T. Kadowaki, Y. Nonomura and H. Nishimori: J.Phys.Soc.Jpn. **65** (1996) 1609

9.7 cm

13.4 cm

Subject category :

5. Phase Transitions and Critical Phenomena

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