ELEMENTARY EXCITATIONS IN HEISENBERG ULTRA-THIN FILMS WITH INHOMOGENEUS SPATIAL DISTRIBUTION OF MAGNETIZATION

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9.7 cm

Taking advantage of the generalised equilibrium reduced density operator[1] as well as the normalised high-density expansion method for the temperature matrix casual Green function[2], the elementary excitations fot the Heisenberg ($S = \frac{1}{2}$) ultra-thin films with homogeneus and inhomogeneus spatial distribution of magnetization were determined. Moreover, the temperature dependence of elementary excitations in such ultra-thin films of cubic structure was obtained. The effect of non-magnetic substrate on the spectrum of elementary excitations was analysed, by assuming a linear dependence of the exchange parameters in the monoatomic film adjacent to the substrate on the appropriate component of the film deformation tensor.

1. Z. Onyszkiewicz, Physics Lett. A **163**, 450 (1992).
2. Z. Onyszkiewicz, Physica B **151**, 462 (1988).

13.4 cm

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