

The study of spatially confined Ising spin systems by transfer-matrix method

A.S. Vdovych and R.R. Levitskii

Institute for Condensed Matter Physics of the National Academy of Sciences of Ukraine, 1 Svientsitskii Str., 79011, Lviv, Ukraine, E-mail: vas@icmp.lviv.ua

Using transfer-matrix method we calculated thermodynamic characteristics of finite size 2- and 3-dimensional Ising model with ferromagnetic and antiferromagnetic interactions on frustrated and unfrustrated lattices. Effect of external magnetic field and size of system on polarization, susceptibility and heat capacity is studied. Transfer-matrix method is modified by taking into account the symmetry of some spin configurations. It let us to decrease the size of matrix.