

PS12

Anomalous Temperature Dependence of the Magnetic Susceptibility and the Specific Heat of a Spin Gapped Chain with Randomness in Magnetic Field

Kiyomi Okamoto

(Department of Physics, Tokyo Institute of Technology)

We study the temperature dependence of the magnetic susceptibility and the specific heat of the bond-alternating $S = 1/2$ XY chain in the Lorentzian random magnetic field as well as the uniform magnetic field. We found several types of anomalous behaviors of these quantities as functions of temperature. For, instance, the magnetic susceptibility shows the single maximum behavior, the minimum-maximum behavior, the maximum-minimum-maximum behavior (i.e., double peak behavior), and simply decreasing behavior depending on the parameters. We obtain the "phase diagram" of these behaviors on the plane of parameters.