9.7 cm

Thermal diffusivity near the critical point in magnetic systems

A. Pawlak and M. Błaszak

Institute of Physics, A. Mickiewicz University, Poznań, Poland

We derive nonasymptotic expressions for the frequency- and temperature-dependent thermal diffusivity near a critical point in Ising-type magnet. We consider a dynamic model which takes also into account longitudinal sound mode. The asymptotic scaling function of the thermal conductivity at long wavelengths ($k\xi \ll 1$) is given within the renormalization group formalism in one-loop order. A new relation connecting longitudinal sound velocity and thermal diffusivity in a broad range of frequency and reduced temperature is obtained.

13.4 cm

Subject category :

5. Phase Transitions and Critical Phenomena

Presentation mode :
poster

Corresponding author :
A. Pawlak

Address for correspondence :
Institute of Physics, A. Mickiewicz University, Poznań,ul. Umultowska 85, Poland

Email address :
pawlak@main.amu.edu.pl