CRITICAL SOUND PROPAGATION IN MAGNETIC METALS AND BOTTLENECK PHENOMENA

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A semiphenomenological model for sound propagation in a critical magnetic system is proposed, which takes into consideration a relaxation of energy between the system of localised spins and the conduction electron spins as well as the coupling of the longitudinal phonon to bilinear combination of spin fluctuations and to the energy densities. A general expression for the acoustic self-energy is obtained within the one-loop approximation. Effect of "bottlenecking" and its influence on the critical singularities in the sound characteristics is discussed.

9.7 cm

13.4 cm

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