CRITICAL SOUND ATTENUATION IN MnF_2

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We analyse the critical sound attenuation in the antiferromagnet MnF_2 above its Neel temperature. A general formula for the acoustic self-energy, derived in the model in which a sound mode is coupled to both the order-parameter fluctuations as well as to the energy mode, is applied to interpret the experimental data in MnF_2. It has been shown that very interesting competition between three asymptotic singularities is responsible for the behaviour of the sound attenuation coefficient in the high-temperature phase. The relative strength of these terms depends also on the ultrasonic frequency. For high frequency also a background attenuation starts playing an important role.

9.7 cm

13.4 cm

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