

$1/\omega$ -SPECTRUM OF ACOUSTIC HEAT PHONONS

B.A. Veklenko

Institute of High Temperatures, Russian Acad. Sci.
(13/19, Izhorskaya Str., Moscow 127412, Russia;
e-mail: veklenkoba@yandex.ru)

S u m m a r y

It is shown that nonlinear heat waves in solids, whose potential energy is defined by a displacement of particles from the equilibrium position (the Einstein model) or the derivatives of displacements of particles with respect to coordinates (the Debye model), possess the $1/\omega$ spectrum, only if the temperature of the system exceeds the critical one. It is shown that such a spectrum is caused by the presence of a double feedback in the system. The experimentally observed $1/\omega$ -spectrum of photons scattered by acoustic heat waves in solids is explained.