

## The Low-Temperature Acoustical and Thermal Properties of Materials due to the Dynamics of Linear Topological Defects

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A contribution to the specific heat and the frequency-dependent loss due to pinned twist disclinations is calculated within the vibrating heterogeneous string model. The specific heat is found to be the linear function of the temperature and the defect density. The internal friction is proportional to the fourth power of the disclination length. The low-temperature internal friction of plastically deformed high-purity superconducting metals (aluminium, niobium, tantalum) increases over two orders in comparison with that observed in annealed samples and becomes comparable to that of amorphous solids. The thermal conductivity also has a similar value as that in amorphous state. We have investigated these anomalies within the string-like model for dipoles of edge dislocations. It is found that the presence of dipoles leads to the remarkable increase of the resonance frequency thus allowing us to obtain a good agreement with experiments.

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