

Extension II -- Phonons

Phonons is still an active subject in solid state physics. In recent years, there have been some new developments. Two topics are mentioned below, together with some links for further reading.

Phononics

A recent review on the topic can be found in the paper “Phononics: Manipulating heat flow with electronic analogs and beyond” in Rev. Mod. Phys. **84**, 1045-1066 (2012). See http://rmp.aps.org/pdf/RMP/v84/i3/p1045_1. Preprint of the paper can be found at <http://arxiv.org/abs/1108.6120>. The leading author (Prof. Baowen Li) did the work at NUS in Singapore. He is splitting his time now with Tongji University in Shanghai.

Phononic Metamaterials

Invisible in acoustic waves (2008)

S.A. Cummer et al., ”Scattering Theory Derivation of a 3D Acoustic Cloaking Shell”, Phys. Rev. Lett. 100, 024301 (2008)

<http://link.aps.org/doi/10.1103/PhysRevLett.100.024301>

See also news item in <http://physicsworld.com/cws/article/news/32464>
(physicsworld.com)

Very recently, there is a news item on cloaking of heat current. See the item “Invisibility cloaking goes thermodynamic” in

<http://physicsworld.com/cws/article/news/48721>

The paper appeared in Journal of Optical Society of America (JOSA).