Kelvon–Phonon Interaction EVGENY KOZIK, BORIS SVISTUNOV,
University of Massachusetts, Amherst — Kelvin waves (kelvons)—the distortion
waves on quantized vortex lines—play the key part in the zero- temperature re-
laxation of superfluid turbulence. The relaxation scenario implies a Kelvin wave
cascade, cut off by sound emission. We derive the kelvon–phonon Hamiltonian,
thereby reducing the problem of interaction of Kelvin waves with sound to elemen-
tary excitation scattering. On the basis of this formalism, we revisit the problem of
sound emission by superfluid turbulence.

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