Abstract Submitted
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Heat transport along domain walls and surfaces of superconductors[1] ANTON VORONTSOV, CAROLINE RICHARD, Montana State University — We calculate thermal transport in non-uniform states of unconventional superconductors, that appear near pairbreaking surfaces, or due to formation of domain walls in the order parameter. The spectrum of the quasiparticles states in these regions is dominated by the Andreev bound states, including topologically protected modes. We investigate how these states contribute to the heat transport, using non-equilibrium quasiclassical theory in linear response. We report self-consistent calculation of the order parameter, impurity self-energies, density of states and vertex corrections. Particular attention is paid to the non-local nature of the response. We show differences and similarities between domain walls in d-wave materials, and surfaces of multi-component chiral superconducting states. We describe results for Born and unitary impurity scattering limits, and effects of the Zeeman magnetic field on thermal transport.

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