

Abstract Submitted  
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**Applicability of two-component Ginzburg-Landau model in two-band systems**<sup>1</sup> MIHAIL SILAEV, Royal Institute of Technology and Institute for physics of microstructures RAS, EGOR BABAEV, Royal Institute of Technology and University of Massachusetts Amherst — We report a microscopic derivation of the conditions under which the two-band superconductors can be described by a two-component Ginzburg-Landau (GL) field theory. We also investigate the conditions when multicomponent GL-like expansions fail and one should resort to a microscopic description. We show that besides being directly applicable at elevated temperatures, a version of a minimal two-component GL theory in certain cases also gives an unexpectedly accurate description of certain aspects of a two-band system even substantially far from  $T_c$ . This shows that two-component GL model can be used for addressing a wide range of questions in multiband systems.

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