

Dopants and impurities in high-T_c superconductors [Text] / V. M. Loktev, Yu. G. Pogorelov ; [Nat. acad. of sciences of Ukraine, Bogolyubov inst. for theoretical physics]. – Kyiv : Akadempriodyca, 2015. – 181, [2] p. : fig. – (Project «Ukrainian scientific book in a foreign language»).

The book considers the physical properties of the family of superconducting materials with high critical temperature of transition, based on doped layered copper oxides and similar compounds. The theoretical treatment using techniques for two-time Green functions in disordered materials provides an extensive information on ground state structure and quasiparticle spectrum (permitting distinction between the Bloch-like and localized states). Especially, the analysis is done on the two competing effects of impurity centers: as dopants to supply carriers and assure metallization, and as scatterers for the doped carriers to cause their localization. The comparison of theoretical results with available experimental data is done.

The book is intended for scientists in Condensed Matter Physics, as well as for PhD and MSc students, specialized in superconductivity, in physics of disordered systems, and in low temperature physics.

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