

1. Record Nr.	UNINA9910484497903321
Autore	Sumita Shuntaro
Titolo	Modern classification theory of superconducting gap nodes // Shuntaro Sumita
Pubbl/distr/stampa	Gateway East, Singapore : , : Springer, , [2021] Â©2021
ISBN	981-334-264-1
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XVII, 108 p. 28 illus., 27 illus. in color.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	537.623
Soggetti	Superconductors
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Method: Classification Theory of Superconducting Gap -- Superconducting Gap Classification on High-Symmetry Planes -- Superconducting Gap Classification on High-Symmetry Lines -- Conclusion.
Sommario/riassunto	This book puts forward a modern classification theory for superconducting gap nodes, whose structures can be observed by experiments and are essential for understanding unconventional superconductivity. In the first part of the book, the classification method, based on group theory and K theory, is introduced in a step-by-step, pedagogical way. In turn, the latter part presents comprehensive classification tables, which include various nontrivial gap (node) structures, which are not predicted by the Sigrist-Ueda method, but are by the new method. The results obtained here show that crystal symmetry and/or angular momentum impose critical constraints on the superconducting gap structures. Lastly, the book lists a range of candidate superconductors for the nontrivial gap nodes. The classification methods and tables presented here offer an essential basis for further investigations into unconventional superconductivity. They indicate that previous experimental studies should be reinterpreted, while future experiments should reflect the new excitation spectrum.

