

PREFACE

This book was written based on original material from Master's level courses for scientists and engineers. Given the lack of elementary texts on the subject, especially in the French language of the original edition, it was intended as an introduction to superconductivity accessible to beginning graduate students or advanced undergraduates. We wished to make a textbook where simple approaches were preferred, assumptions clearly stated, and calculations given in sufficient detail to be followed with ease. A number of the applications of electromagnetism, thermodynamics or quantum physics can make for stimulating exercises for science and engineering students.

In view of the vast state of knowledge of the subject nowadays, this volume can only be an introduction. Other titles in preparation: *Supraconductivité - Matériaux et applications* and *Supraconductivité conventionnelle et non-conventionnelle*¹ should bring both a broader and a more specialized view of the current state of superconductivity.

The contents of this book have benefitted from the expert advice of our many colleagues in the *Jean Lamour Institute* in Nancy, of the *Léon Brillouin Laboratory* in Saclay and the the French Center for Atomic and Alternative Energies (CEA). The review panel: Jean-Pascal BRISON, Hervé COURTOIS, Thierry KLEIN, Jérôme LESUEUR, Stephane PAILHÈS, Pierre VEDRINE and Georges WAYSAND, brought crucial insight to the content of several chapters. The great pedagogue, José TEIXEIRA, re-read the work in great detail and greatly improved the explanation of several delicate issues.

H. COURTOIS, P. DUBOS, C. GOURDON, V. JEUDY, T. KLEIN, B. PANNETIER, A. PAUTRAT, D. RODITCHEV and J.C. VILLEGIER generously gave us much appreciated advice and were kind enough to allow us to use illustrations from their original publications.

The staff of **Grenoble Sciences** directed by Jean BORNAREL encouraged and stimulated us and did much to create an environment favoring a work of high quality. Laura CAPOLO, Sylvie BORDAGE and Anne-Laure PASSAVANT have, with much patience and good humour produced a remarkably elegant manuscript with careful attention to type-setting and to the thousand details that are so important for a beginning reader.

1 *Materials and Application and Conventional and Unconventional Superconductivity*

Superconductivity

An introduction

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