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| Nota di contenuto | Preface -- Introduction -- 0.1 Basics of Elliptic Theory -- 0.2 Surgery and the Superposition Principle -- 0.3 Examples and Applications -- 0.4 Bibliographical Remarks -- Part I: Superposition Principle -- 1 Superposition Principle for the Relative Index -- 1.1 Collar Spaces -- 1.2 Proper Operators and Fredholm Operators -- 1.3 Superposition Principle -- 2 Superposition Principle for K-Homology -- 2.1 Preliminaries -- 2.2 Fredholm Modules and K-Homology -- 2.3 Superposition Principle -- 2.4 Fredholm Modules and Elliptic Operators -- 3 Superposition Principle for KK-Theory -- 3.1 Preliminaries -- 3.2 Hilbert Modules, Kasparov Modules, and KK -- 3.3 Superposition Principle -- Part II: Examples -- 4 Elliptic Operators on Noncompact Manifolds -- 4.1 Gromov–Lawson Theorem -- 4.2 Bunke Theorem -- 4.3 Roe’s Relative Index Construction -- 5 Applications to Boundary Value Problems -- 5.1 Preliminaries -- 5.2 Agranovich–Dynin Theorem |

-- 5.3 Agranovich Theorem -- 5.4 Bojarski Theorem and Its Generalizations -- 5.5 Boundary Value Problems with Symmetric Conormal Symbol -- 6 Spectral Flow for Families of Dirac Type Operators -- 6.1 Statement of the Problem -- 6.2 Simple Example -- 6.3 Formula for the Spectral Flow -- 6.4 Computation of the Spectral Flow for a Graphene Sheet -- Bibliography.

Sommario/riassunto

This book deals with the localization approach to the index problem for elliptic operators. Localization ideas have been widely used for solving various specific index problems for a long time, but the fact that there is actually a fundamental localization principle underlying all these solutions has mostly passed unnoticed. The ignorance of this general principle has often necessitated using various artificial tricks and hindered the solution of important new problems in index theory. So far, the localization principle has scarcely been covered in journal papers. The present book is intended to fill this gap. Both the general localization principle and its applications to specific problems, old and new, are covered. Concisely and clearly written, this monograph includes numerous figures helping the reader to visualize the material. The Localization Problem in Index Theory of Elliptic Operators will be of interest to researchers as well as graduate and postgraduate students specializing in differential equations and related topics.