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Nota di contenuto	Analysis of Nonlocal Elliptic Operators -- Nonlocal Functions and Bundles -- Nonlocal Elliptic Operators -- Elliptic Operators over C*-Algebras -- Homotopy Invariants of Nonlocal Elliptic Operators -- Homotopy Classification -- Analytic Invariants -- Bott Periodicity -- Direct Image and Index Formulas in K-Theory -- Chern Character -- Cohomological Index Formula -- Cohomological Formula for the ?-Index -- Index of Nonlocal Operators over C*-Algebras -- Examples -- Index Formula on the Noncommutative Torus -- An Application of Higher Traces -- Index Formula for a Finite Group ?.
Sommario/riassunto	This comprehensive yet concise book deals with nonlocal elliptic differential operators, whose coefficients involve shifts generated by diffeomorophisms of the manifold on which the operators are defined. The main goal of the study is to relate analytical invariants (in particular, the index) of such elliptic operators to topological invariants of the manifold itself. This problem can be solved by modern methods of noncommutative geometry. This is the first and so far the only book featuring a consistent application of methods of noncommutative geometry to the index problem in the theory of nonlocal elliptic

operators. Although the book provides important results, which are in a sense definitive, on the above-mentioned topic, it contains all the necessary preliminary material, such as C*-algebras and their K-theory or cyclic homology. Thus the material is accessible for undergraduate students of mathematics (third year and beyond). It is also undoubtedly of interest for post-graduate students and scientists specializing in geometry, the theory of differential equations, functional analysis, etc. The book can serve as a good introduction to noncommutative geometry, which is one of the most powerful modern tools for studying a wide range of problems in mathematics and theoretical physics.