

1. Record Nr.	UNINA9910139818203321
Titolo	Noncommutative Geometry and the Standard Model of Elementary Particle Physics / / edited by Florian Scheck, Wend Werner, Harald Upmeier
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2002
ISBN	9783540460824 3540460829
Edizione	[1st ed. 2002.]
Descrizione fisica	1 online resource (XII, 350 p.)
Collana	Lecture Notes in Physics, , 1616-6361 ; ; 596
Disciplina	539.7/2
Soggetti	Mathematical physics Geometry, Differential Particles (Nuclear physics) Quantum field theory Algebra Mathematical Methods in Physics Differential Geometry Elementary Particles, Quantum Field Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Foundations of Noncommutative Geometry and Basic Model Building -- Spectral Triples and Abstract Yang-Mills Functional -- Real Spectral Triples and Charge Conjugation -- The Commutative Case: Spinors, Dirac Operator and de Rham Algebra -- Connes' Trace Formula and Dirac Realization of Maxwell and Yang-Mills Action -- The Einstein-Hilbert Action as a Spectral Action -- Spectral Action and the Connes-Chamsedinne Model -- The Lagrangian of the Standard Model Derived from Noncommutative Geometry -- Dirac Operator and Real Structure on Euclidean and Minkowski Spacetime -- The Electro-weak Model -- The Full Standard Model -- Standard Model Coupled with Gravity -- The Higgs Mechanism and Spontaneous Symmetry Breaking -- New Directions in Noncommutative Geometry and Mathematical Physics -- The Impact of NC Geometry in Particle Physics -- The su(2/1) Model of

Electroweak Interactions and Its Connection to NC Geometry --
Quantum Fields and Noncommutative Spacetime -- NC Geometry and
Quantum Fields: Simple Examples -- Dirac Eigenvalues as Dynamical
Variables -- Hopf Algebras in Renormalization and NC Geometry -- NC
Geometry of Strings and Duality Symmetry.

Sommario/riassunto

The outcome of a close collaboration between mathematicians and mathematical physicists, these lecture notes present the foundations of A. Connes noncommutative geometry as well as its applications in particular to the field of theoretical particle physics. The coherent and systematic approach makes this book useful for experienced researchers and postgraduate students alike.
