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Titolo	Noncommutative Geometry and the Standard Model of Elementary Particle Physics // edited by Florian Scheck, Wend Werner, Harald Upmeyer
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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-Chamseddine 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.

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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.

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