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Nota di contenuto	General Notation -- 1 Prologue: The Algebraic Approach to Quantum Theories -- 2 -Algebras -- 3 O*-Algebras -- 4 -Representations -- 5 Positive Linear Functionals -- 6 Representations of Tensor Algebras -- 7 Integrable Representations of Commutative -Algebras -- 8 The Weyl Algebra and the Canonical Commutation Relation -- 9 Integrable Representations of Enveloping Algebras -- 10 Archimedean Quadratic Modules and Positivstellensätze -- 11 The Operator Relation XX*=F (X*X) -- 12 Induced -Representations -- 13 Well-behaved -Representations -- 14 Representations on Rigged Spaces and Hilbert C*-modules. A Unbounded Operators on Hilbert Space -- B C*-Algebras and Representations -- C Locally Convex Spaces and Separation of Convex Sets -- References -- Symbol Index -- Subject Index.

Sommario/riassunto

This textbook provides an introduction to representations of general -algebras by unbounded operators on Hilbert space, a topic that naturally arises in quantum mechanics but has so far only been properly treated in advanced monographs aimed at researchers. The book covers both the general theory of unbounded representation theory on Hilbert space as well as representations of important special classes of -algebra, such as the Weyl algebra and enveloping algebras associated to unitary representations of Lie groups. A broad scope of topics are treated in book form for the first time, including group graded -algebras, the transition probability of states, Archimedean quadratic modules, noncommutative Positivstellensätze, induced representations, well-behaved representations and representations on rigged modules. Making advanced material accessible to graduate students, this book will appeal to students and researchers interested in advanced functional analysis and mathematical physics, and with many exercises it can be used for courses on the representation theory of Lie groups and its application to quantum physics. A rich selection of material and bibliographic notes also make it a valuable reference.