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Titolo	Applications of Self-Adjoint Extensions in Quantum Physics [[electronic resource]] : Proceedings of a Conference Held at the Laboratory of Theoretical Physics, JINR, Dubna, USSR, September 29–October 1, 1987 / / edited by Pavel Exner, Petr Seba
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Nota di contenuto	Zero-range interactions with an internal structure -- Evolution equations and selfadjoint extensions -- Energy-dependent interactions and the extension theory -- On perturbations for self-adjoint generators of feller processes -- Singular perturbations defined by forms -- Covariant markovian random fields in four space-time dimensions with nonlinear electromagnetic interaction -- Point interaction Hamiltonians for crystals with random defects -- Scattering on a random point potential -- Faddeev equations for three composite particles -- On the point interaction of three particles -- A resonating-group model with extended channel spaces -- The problem of a few quasi-particles in solid-state physics -- Surfaces with an internal structure -- Spectral properties of the laplacian with attractive boundary conditions -- Quantum junctions and the self-adjoint

extensions theory -- The extension theory and diffraction problems -- Hamiltonians with additional kinetic energy terms on hypersurfaces -- Thin lattices as waveguides -- Quantum waveguides -- An exactly solvable model of a crystal with non-point atoms.

Sommario/riassunto

The shared purpose in this collection of papers is to apply the theory of self-adjoint extensions of symmetry operators in various areas of physics. This allows the construction of exactly solvable models in quantum mechanics, quantum field theory, high energy physics, solid-state physics, microelectronics and other fields. The 20 papers selected for these proceedings give an overview of this field of research unparallelled in the published literature; in particular the views of the leading schools are clearly presented. The book will be an important source for researchers and graduate students in mathematical physics for many years to come. In these proceedings, researchers and graduate students in mathematical physics will find ways to construct exactly solvable models in quantum mechanics, quantum field theory, high energy physics, solid-state physics, microelectronics and other fields.