1. Record Nr. UNINA9911021961203321

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Titolo	Quantum Spin and Representations of the Poincaré Group, Part II : With a Focus on Physics and Operator Theory / / by Horst R. Beyer
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-95823-3
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (218 pages)
Collana	Synthesis Lectures on Engineering, Science, and Technology, , 2690-0327
Disciplina	530.14
Soggetti	Particles (Nuclear physics) Quantum field theory Mathematical physics Quantum theory Operator theory Physics Astronomy Elementary Particles, Quantum Field Theory Theoretical, Mathematical and Computational Physics Quantum Physics Operator Theory Mathematical Physics Physics and Astronomy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Construction of a Double Cover of the Restricted Lorentz Group -- Weyl Spinors -- Weyl Representation of SL(2, C) -- An Extension to a Strongly Continuous Representation of a Semi-direct Product of R^4 and SL(2, C) -- Dirac Spinors -- Dirac Fields -- Dirac Equation -- Spin 1 Representations of SL(2, C) -- Maxwell Fields -- Maxwell's Equations -- Appendix -- Bibliography -- Index of Symbols -- Index.
Sommario/riassunto	This book discusses how relativistic quantum field theories must transform under strongly continuous unitary representations of the

Poincaré group. The focus is on the construction of the representations that provide the basis for the formulation of current relativistic quantum field theories of scalar fields, the Dirac field, and the electromagnetic field. Such construction is tied to the use of the methods of operator theory that also provide the basis for the formulation of quantum mechanics, up to the interpretation of the measurement process. In addition, since representation spaces of primary interest in quantum theory are infinite dimensional, the use of these methods is essential. Consequently, the book also calculates the generators of relevant strongly continuous one-parameter groups that are associated with the representations and, where appropriate, the corresponding spectrum. Part II of Quantum Spin and Representations of the Poincaré Group specifically addresses: construction of a double cover of the restricted Lorentz Group; Weyl spinors; Weyl representation of SL(2, C); an extension to a strongly continuous representation of a semi-direct product of R^4 and SL(2, C); Dirac spinors; Dirac fields; Dirac equation; Spin 1 representations of SL(2, C); Maxwell fields; and Maxwell's equations. In addition, this book: Presents how the use of methods from operator theory have become an indispensable tool for quantum field theory Connects mathematical results with their applications in physics, particularly in quantum field theory Provides mathematical rigor, introduces physical constants, and presents the dimensions of physical quantities.