

1. Record Nr.	UNINA9910968136603321
Autore	Adler Stephen L.
Titolo	Quaternionic quantum mechanics and quantum fields / / Stephen L. Adler
Pubbl/distr/stampa	New York ; , : Oxford University Press, , 2023
ISBN	0-19-773256-9 1-280-52535-5 9786610525355 0-19-534506-1 1-4294-0624-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (599 p.)
Collana	International series of monographs on physics ; ; 88. Oxford scholarship online
Disciplina	530.1/2
Soggetti	Quantum theory Quantum field theory Quaternions Mathematical physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Previously issued in print: 1995.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Contents; I: INTRODUCTION AND GENERAL FORMALISM; 1 Introduction; 2 General Framework of Quaternionic Quantum Mechanics; 3 Further General Results in Quaternionic Quantum Mechanics; II: NONRELATIVISTIC QUATERNIONIC QUANTUM MECHANICS; 4 One-Particle Quantum Mechanics - General Formalism; 5 Stationary State Methods and Phase Methods; 6 Scattering Theory and Bound States; 7 Methods for Time Development; 8 Single-Channel Time-Dependent Formal Scattering Theory; 9 Multiparticle and Multichannel Methods; 10 Further Multiparticle Topics; III: RELATIVISTIC QUATERNIONIC QUANTUM MECHANICS 11 Relativistic Single-Particle Wave Equations: Spin-0 and Spin-1/2 12 More on Relativistic Wave Equations: The Spin-1 Gauge Potential, Lagrangian Formulations, and the Poincare Group; 13 Quaternionic Quantum Field Theory; 14 Outlook; Appendix A. Proof of the Jacobi Identity for the Generalized Poisson Bracket; Appendix B. Derivation of

Gaussian Integral Formulas; References; Index; A; B; C; D; E; F; G; H; I; J;
K; L; M; N; O; P; Q; R; S; T; U; V; W; Y; Z

Sommario/riassunto

Presenting a conceptualization of quantum mechanics, using quaternions instead of complex numbers, the author gives a systematic treatment of quaternionic quantum mechanics paralleling the standard textbook treatment of complex quantum mechanics.
