

1. Record Nr.	UNINA9910817026803321
Autore	Bagrov Vladislav G.
Titolo	The dirac equation and its solutions / / Vladislav G. Bagrov, Dmitry Gitman
Pubbl/distr/stampa	Berlin : , : De Gruyter, , [2014] ©2014
ISBN	3-11-037775-6 3-11-026329-7
Descrizione fisica	1 online resource (444 p.)
Collana	De Gruyter studies in mathematical physics, , 2194-3532 ; ; volume 4
Disciplina	530
Soggetti	Dirac equation Quantum field theory Differential equations, Partial Wave equation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Preface -- Acknowledgements -- Contents -- 1. Introduction -- 2. Relativistic equations of motion -- 3. Basic exact solutions -- 4. Particles in fields of special structure -- 5. Dirac-Pauli equation and its solutions -- 6. Propagators of relativistic particles -- 7. Electron interacting with a quantized electromagnetic plane wave -- 8. Spin equation and its solutions -- 9. One-dimensional Schrödinger equation and its solutions -- 10. Coherent states -- A. Appendix 1 -- B. Appendix 2 -- Bibliography -- Index -- Backmatter
Sommario/riassunto	The Dirac equation is of fundamental importance for relativistic quantum mechanics and quantum electrodynamics. In relativistic quantum mechanics, the Dirac equation is referred to as one-particle wave equation of motion for electron in an external electromagnetic field. In quantum electrodynamics, exact solutions of this equation are needed to treat the interaction between the electron and the external field exactly. In this monograph, all propagators of a particle, i.e., the various Green's functions, are constructed in a certain way by using exact solutions of the Dirac equation.

