1. Record Nr. UNINA9910809897303321 Autore Gosson Maurice de Titolo The principles of Newtonian and quantum mechanics [[electronic resource]]: the need for Planck's constant, h / / M A de Gosson Pubbl/distr/stampa London, : Imperial College Press River Edge, NJ,: Distributed by World Scientific Pub., c2001 **ISBN** 1-281-86598-2 9786611865986 1-84816-142-5 Descrizione fisica 1 online resource (382 p.) Disciplina 530.12 Soggetti Lagrangian functions Maslov. Índex de Geometric quantization Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references (p. [343]-351) and index. Nota di bibliografia Nota di contenuto FOREWORD BY BASIL HILEY CONTENTS **PREFACE** : 1 FROM KEPLER TO SCHRODINGER ... AND BEYOND : 1.1 Classical Mechanics ; 1.2 Symplectic Mechanics : 1.3 Action and Hamilton-Jacobi's Theory : 1.4 Quantum Mechanics ; 1.5 The Statistical Interpretation of w 1.6 Quantum Mechanics in Phase Space 1.7 Feynman's ""Path Integral"" ; 1.8 Bohmian Mechanics ; 1.9 Interpretations : 2 **NEWTONIAN MECHANICS** ; 2.1 Maxwell's Principle and the Lagrange Form : 2.2 Hamilton's **Equations** ; 2.3 Galilean Covariance 2.4 Constants of the Motion and Integrable Systems 2.5 Liouville's Equation and Statistical Mechanics ; 3 THE SYMPLECTIC GROUP ; 3.1 Symplectic Matrices and Sp(n) ; 3.2 Symplectic Invariance of Hamiitonian Flows : 3.3 The Properties of Sp(n) : 3.4 Quadratic Hamiltonians

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## Sommario/riassunto

This book deals with the foundations of classical physics from the "symplectic" point of view, and of quantum mechanics from the "metaplectic" point of view. The Bohmian interpretation of quantum mechanics is discussed. Phase space quantization is achieved using the "principle of the symplectic camel", which is a recently discovered deep topological property of Hamiltonian flows. The mathematical tools developed in this book are the theory of the metaplectic group, the Maslov index in a precise form, and the Leray index of a pair of Lagrangian planes. The concept of the "metatron" is introduc