

1. Record Nr.	UNINA9910817983903321
Titolo	Quantum mechanics in phase space : an overview with selected papers // editors, Cosmas K. Zachos, David B. Fairlie, Thomas L. Curtright
Pubbl/distr/stampa	New Jersey ; ; London, : World Scientific, c2005
ISBN	1-281-90586-0 9786611905866 981-270-350-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (560 p.)
Collana	World Scientific series in 20th century physics ; ; v. 34
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Disciplina	530.12
Soggetti	Phase space (Statistical physics) Quantum theory
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	CONTENTS; Preface; Overview of Phase-Space Quantization; References; List of Selected Papers; Index; Quantenmechanik und Gruppentheorie; Die Eiudeutigkeit der Schrodingerschen Operatoren; On the Quantum Correction For Thermodynamic Equilibrium; ON THE PRINCIPLES OF ELEMENTARY QUANTUM MECHANICS; QUANTUM MECHANICS AS A STATISTICAL THEORY; THE EXACT TRANSITION PROBABILITIES O F QUANTUM- MECHANICAL OSCILLATORS CALCULATED BY THE PHASE-SPACE METHOD; The Formulation of Quantum Mechanics in terms of Ensemble in Phase Space" Formulation of Quantum Mechanics Based on the Quasi-Probability Distribution Induced on Phase SpaceThe formulation of quantum mechanics in terms of phase space functions; A NON-NEGATIVE WIGNER-TYPE DISTRIBUTION; Wigner function as the expectation value of a parity operator; Deformation Theory and Quantization; Deformation Theory and Quantization II. Physical Applications; Wigner distribution functions and the representation of canonical transformations in quantum mechanics; Wigner's phase space function and atomic structure; DISTRIBUTION FUNCTIONS IN PHYSICS:

FUNDAMENTALS

Canonical transformation in quantum mechanics; Negative probability; EXISTENCE OF STAR-PRODUCTS AND OF FORMAL DEFORMATIONS OF THE POISSON LIE ALGEBRA OF ARBITRARY SYMPLECTIC MANIFOLDS; A SIMPLE GEOMETRICAL CONSTRUCTION OF DEFORMATION QUANTIZATION; Features of time-independent Wigner functions; NEGATIVE PROBABILITY AND UNCERTAINTY RELATIONS; Generating all Wigner functions; Modified spectral method in phase space: Calculation of the Wigner function. I. Fundamentals; Modified spectral method in phase space: Calculation of the Wigner function. II. Generalizations

Sommario/riassunto

Wigner's quasi-probability distribution function in phase space is a special (Weyl) representation of the density matrix. It has been useful in describing quantum transport in quantum optics; nuclear physics; decoherence, quantum computing, and quantum chaos. It is also important in signal processing and the mathematics of algebraic deformation. A remarkable aspect of its internal logic, pioneered by Groenewold and Moyal, has only emerged in the last quarter-century: it furnishes a third, alternative, formulation of quantum mechanics, independent of the conventional Hilbert space, or path inte