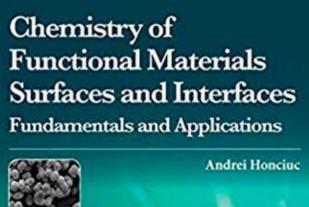
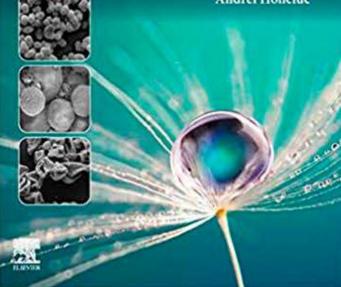




Boletín de Adquisiciones Junio 2022 Parte 2

Chemistry of Functional Materials Surfaces and Interfaces : Fundamentals and Applications Andrei Honciuc





- 1 Introduction
- 2 Thermal energy scale kT
- 3 Surfaces and interfaces
- 4 Surfactants and amphiphiles
- 5 Wettability of surfaces, nanoparticles, and biomimetic functional surfaces
- 6 The fundamental equations of interfaces
- 7 Elements of thermodynamics of interfaces
- 8 Populated interfaces and their reactivity
- 9 Metal-organic interfaces in organic and unimolecular electronics
- 10 Main interaction forces between molecules and interfaces
- 11 Interactions between electrically charged interfaces
- 12 Colloids and nanoparticles
- 13 Role of interfaces in the synthesis of polymeric nanoparticles and nanostructured materials
- 14 Adsorption and interaction of particles at interfaces
- 15 A short account of the role of interfaces in Integrated Circuits manufacturing

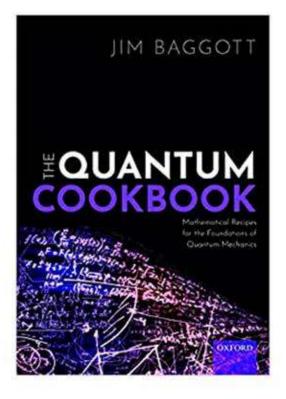
La fuente de luz de sincrotrón mexicana: un proyecto para la transformación de la ciencia, la tecnología y la innovación Matías Moreno



SUMARIO

- I. ¿Qué es una fuente de luz sincrotrón?
- II. Desarrollo de la comunidad de usuarios de fuentes de luz sincrotrón en México
- III. ¿Para qué sirve la luz de sincrotrón
- IV. ¿Cuál es la experiencia internacional en fuentes de luz sincrotrón?
- V. ¿Cómo hacer realidad en México una fuente de luz sincrotrón?
- VI. Plan de desarrollo para la Fuente de Luz Sincrotrón Mexicana
 - VII. Megaciencia, una asignatura pendiente para México
- VIII. El exiguo financiamiento de la ciencia mexicana
- IX. El sincrotrón: política de desarrollo y proyecto de nación

The Quantum Cookbook : Mathematical Recipes for the Foundations for Quantum Mechanics Jim Baggott



Contents

Prologue What's Wrong with This Picture?

- 1 Planck's Derivation of E=hv
- 2 Einstein's Derivation of E=mc2
- 3 Bohr's Derivation of the Rydberg Formula
- 4 De Broglie's Derivation of $\lambda' = h/p$
- 5 Schrödinger's Derivation of the Wave Equation
- 6 Born's Interpretation of the Wavefunction
- 7 Heisenberg, Bohr, Robertson, and the Uncertainty Principle
- 8 Heisenberg's Derivation of the Pauli Exclusion Principle
- 9 Dirac's Derivation of the Relativistic Wave Equation
- 10 Dirac, Von Neumann, and the Derivation of the Quantum Formalism

11 Von Neumann and the Problem of Quantum Measurement 12 Einstein, Bohm, Bell, and the Derivation of Bell's Inequality Epilogue A Game of Theories Dwarf Galaxies : From the Deep Universe to the Present Editors: Kristen B. W. McQuinn and Sabrina Stierwalt

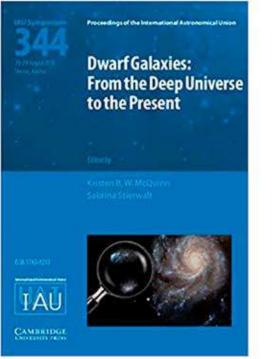
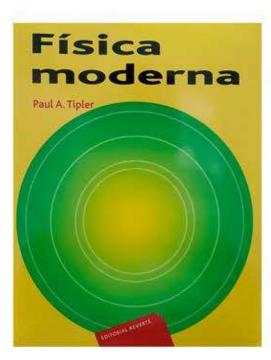


Table of contents

- 1. Plenary session
- 2. Local group dwarf galaxies
- 3. Metallicity, massive stars and chemical evolution
- 4. Interstellar medium and star formation
- 5. The dwarf galaxy-environment connection
- 6. Low-mass galaxies at high redshift Hakim Atek and Xu Kong
- 7. Dwarfs as cosmological probes

Física moderna Paul Allen Tiple



Indice analítico

PARTE 1 INTRODUCCION A LA RELATIVIDADY A LA FISICA CUANTICA
Capítulo 1 Relatividad
Capítulo 2 Teoría cinética de la materia
Capítulo 3 Cuantización de la electricidad, de la luz y de la energía
Capítulo 4 El átomo nuclear
Capítulo 5 Ondas de electrones
Capítulo 6 Ecuación de Schrödinger
Capítulo 7 Física atómica
PARTE 2 APLICACIONES
Capítulo 8 Estructura molecular y espectros
Capítulo 9 Propiedades de los sólidos
Capítulo 10 Estadísticas cuánticas y helio líquido
Capítulo 11 Física nuclear
Capítulo 12 Partículas elementales

Scalar Field Cosmology Sergei Chervon, Igor Fomin, Valerian Yurov and Artyom Yurov

Series on the Foundations of Natural Science and Technology - Vol. 13

Sergei Chervon - Igor Fomin Valerian Yurov - Artyom Yurov

Scalar Field Cosmology



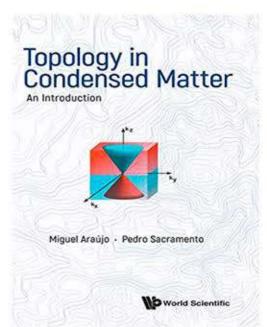
World Scientific

Contents

Part I: A canonical scalar field in cosmology

- 1: Inflationary models with a canonical scalar field
- 2: Methods of exact solutions' construction
- Part II: Advanced methods of exact solutions' construction
- 3: Approximated methods
- 4: Advanced methods of exact solutions' construction
- Part III: Cosmological perturbations
- 5: Cosmological perturbations
- Part IV: Friedmann vs Abel equations: A connection
- 6: The Abel equation and how to derive the unknown superpotentials
- 7: The Abel equation and the inflationary dynamics
- Part V: The phantom fields
- 8: Phantom energy and symmetric cosmological solutions
- 9: Phantom multiverse: a curious synergy of cosmology and particle physics
- Part VI: Branes
- 10: Nonsingular solutions on the brane and in the bulk
- 11: The singular brane solutions with a finite scale factor
- 12: The exact cosmologies on the brane

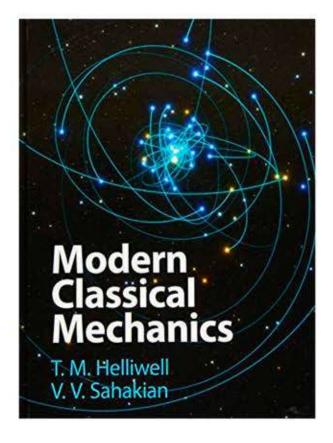
Topology in Condensed Matter : An Introduction Miguel Araújo and Pedro Sacramento



Contents

- 1. Basic Notions on Topology
- 2. Concepts
- 3. Topological Insulators
- 4. Topological Superconductors
- 5. Topological Semimetals
- 6. Spin Systems with Topological Properties
- 7. Photonic Systems with Topological Properties
- 8. Quantum Information and Topological Systems
- 9. Out-of-Equilibrium Topological Systems

Appendix A: Physical Realization of Kitaev Model Appendix B: Fermi Surface Topology Modern Classical Mechanics T. M. Helliwell, Harvey and V. V. Sahakian

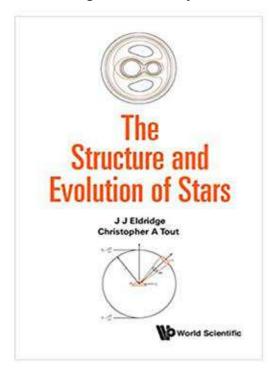


Contents

Part I

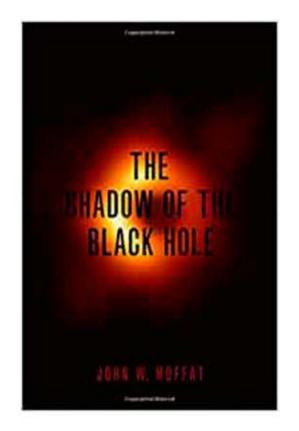
- **1** Newtonian Particle Mechanics
- 2 Relativity
- 3 The Variational Principle
- 4 Lagrangian Mechanics
- 5 From Classical to Quantum and Back
- 6 Constraints and Symmetries
- 7 Gravitation
- 8 Electromagnetism
- 9 Accelerating Frames
- **10 From Black Holes to Random Forces**
- **11 Hamiltonian Formulation**
- **12 Rigid-Body Dynamics**
- **13 Coupled Oscillators**
- **14 Complex Systems**
- **15 Seeds of Quantization**

The Structure and Evolution of Stars J J Eldridge and Christopher A Tout



- **1: Observable Properties of Stars**
- **2: The Equations of Stellar Structure**
- **3: The Equation of State**
- 4: Heat Transport
- 5: Stellar Atmospheres
- **6: Energy Generation**
- 7: Stellar Models
- 8: Stellar Evolution
- 9: Binary Stars

The Shadow of the Black Hole John W. Moffat

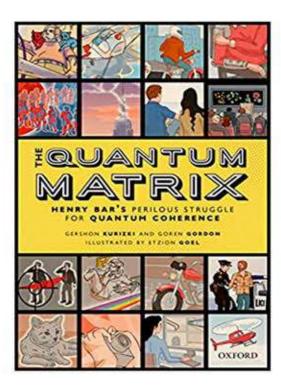


Contents

Prologue: LIGO

- 1 Gravitation and Black Holes
- 2 Thermodynamics, Quantum Physics, and Black Holes
- **3** Stars and Black Holes
- 4 Early Observations of Black Holes
- 5 Wormholes, Time Travel, and Other Exotic Theories
- 6 Origins of Gravitational Waves and Detectors
- 7 The Biggest Ears in the Sky: LIGO
- 8 LIGO/Virgo Listens to Neutron Stars
- 9 Alternative Gravitational Theories
- 10 The Biggest Eyes in the Sky: The EHT

The Quantum Matrix: Henry Bar's Perilous Struggle for Quantum Coherence Gershon Kurizki and Goren Gordon



Contents

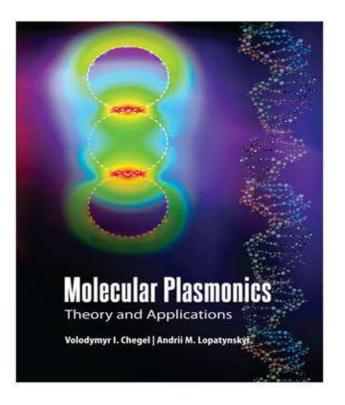
Part I Basic concepts

- 1 What is Quantumness?
- 2 What is a Quantum Superposition?
- 3 What is Quantum Interference?
- 4 What are Quantum Measurements?
- 5 What is Quantum Uncertainty?
- 6 What is Time-Energy Uncertainty?

Part II Quantum entanglement and open quantum systems

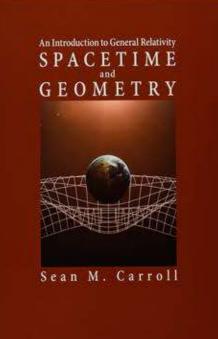
- 7 What is Quantum Entanglement?
- 8 Entanglement, Decoherence and Which-Path Information
- 9 What is the Environment of Quantum Systems?
- 10 Can Quantum Measurements Prevent Change?
- **11 Can Quantum Measurements Control Temperature?**
- 12 Can Dephasing be Controlled?
- Part III Quantum complex systems and technologies
- 13 What is Quantum Tunneling?
- 14 What is Quantum Teleportation?
- **15 The Dawn of Quantum Information**

Molecular Plasmonics : Theory and Applications Edited By Volodymyr I. Chegel, Andrii M. Lopatynskyi



- **1. Molecular Plasmonics**
- 2. Physics of the Phenomenon and Theoretical Background of Surface Plasmon Resonance Method
- 3. Plasmonic Nanochips Development and Applications
- 4. Peculiarities of Surface Plasmon Resonance Method Application for the Investigation of Biomolecules and Biomolecular Interactions
- 5. Application of Molecular Imprinting for Development of Plasmonic Bio- and Chemosensors
- 6. Electrochemical Surface Plasmon Resonance and its Applications in Biosensing, Bioelectronics, and Material Science
- 7. Studies of Conformational Changes in Molecular Systems using Surface Plasmon Resonance
- 8. Gold Nanoparticle Modification and Aggregation Applications from Bio- and Chemosensing to Drug Development
- 9. Metamaterials with Reversible Optoelectronic and Physicochemical Properties

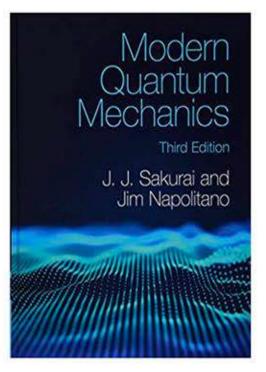
Spacetime and Geometry : An Introduction to General Relativity Sean M. Carroll



Contents

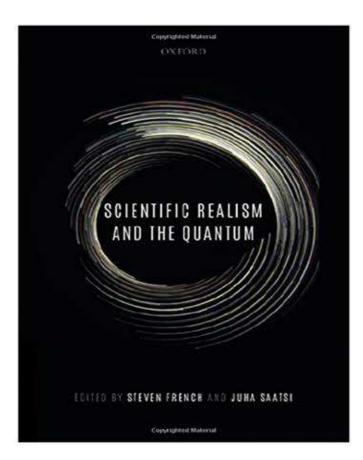
- 1. Special relativity and flat spacetime
- 2. Manifolds
- 3. Curvature
- 4. Gravitation
- 5. The Schwarzchild solution
- 6. More general black holes
- 7. Perturbation theory and gravitational radiation
- 8. Cosmology
- 9. Quantum field theory in curved spacetime

Modern Quantum Mechanics 3^a ed. J. J. Sakurai and Jim Napolitano



- **1 Fundamental Concepts**
- **2 Quantum Dynamics**
- **3 Theory of Angular Momentum**
- **4** Symmetry in Quantum Mechanics
- **5** Approximation Methods
- **6 Scattering Theory**
- 7 Identical Particles
- 8 Relativistic Quantum mechanics

Scientific Realism and the Quantum Edited by Steven French and Juha Saatsi



Contents

1 Introduction

Part I Rethinking Scientific Realism

- 2 Scientific Realism without the Quantum
- 3 Truth vs. Progress Realism about Spin
- Part II Underdetermination and Interpretation
- 4 Can We Quarantine the Quantum Blight?
- 5 On the Plurality of Quantum Theories: Quantum Theory as a Framework, and its Implications for the Quantum Measurement Problem
- 6 Naturalism and the Interpretation of Quantum Mechanics
- Part III Pragmatism about Quantum Theory
- 7 Pragmatist Quantum Realism
- 8 Can Pragmatism about Quantum Theory Handle Objectivity about Explanations?
- 9 Quantum Mechanics and its (Dis)Contents
- Part IV Wavefunction and Quantum State Realism
- 10 Losing Sight of the Forest for the ψ
- **11 Scientific Realism without the Wave Function**
- 12 On the Status of Quantum State Realism
- Part V Scientific Realism and Quantum Field Theory
- 13 The Non-Miraculous Success of Formal Analogies in Quantum Theories
- 14 Towards a Realist View of Quantum Field Theory
- **15 Perturbing Realism**

Perseus in Sicily: From Black Hole to Cluster Outskirts

Edited by: Keiichi Asada, Elisabete de Gouveia Dal Pino, Marcello Giroletti, Hiroshi Nagai and Rodrigo Nemmen

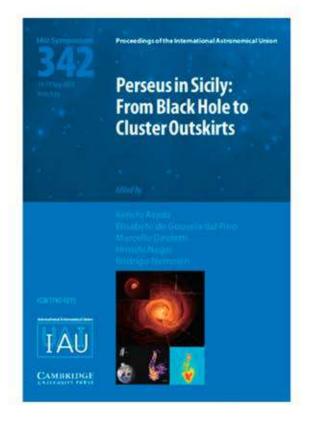


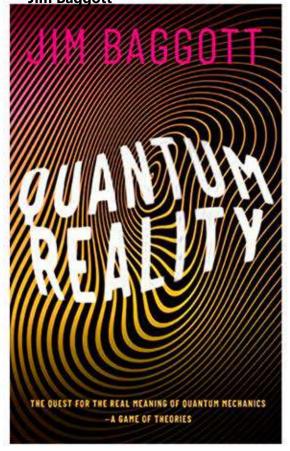
Table of contents

Black hole mass measurements in AGN: Polarization in broad emission lines Fully analytical solutions for Bondi accretion in galaxies with a central Black Hole Modelling the polarised emission from black holes on event horizon-scales Particle acceleration and the origin of the very high energy emission around black holes and relativistic jets Numerical methods for General Relativistic particles On the prospects of imaging Sagittarius A* from space The Hot Universe with XRISM and Athena Low frequency observations of radio relics and halos Probing the non-thermal emission in the Perseus cluster with the JVLA High-dynamic-range 21 cm JVLA observations of the Perseus Cluster A wide and collimated radio jet in 3C 84 **Extragalactic relativistic jets** Inflow and Outflow (Jets) in NGC 1275 **Observations of nearby relativistic jets with EAVN and EATING VLBI** Molecular gas filamentary structures in galaxy clusters Young radio jets breaking free: molecular and HI outflows in their centers Ultra fast outflows, and their connection to accretion and ejection processes in AGNs AGN feedback and the origin and fate of the hot gas in early-type galaxies Numerical study of active galactic nucleus feedback in an elliptical galaxy with MACER Prodigious and Continuous Formation of Super Star Clusters from Cooled Intracluster Gas Characterizing the Outburst of the Supermassive Black Hole in M87 X-ray probing of NGC 1275 nuclear region with Hitomi, Swift, and Suzaku Life-cycles & Energetics of Radio-Loud AGN Deep Chandra observations of the core of the Perseus cluster

Close-up view of an ongoing merger between the NGC 4839 group and the Coma cluster Thermal and non-thermal connection in radio mini-halos A Huge Reservoir of Dark Matter investigated with MAGIC The AGN dependence on cluster mass AGN Jets, Bubbles, and Heat Pumps Intermediate-Mass Black Hole Feedback in Dwarf Galaxies: a View from Cosmological Simulations Gamma-ray emission in radio galaxies, from MeV to TeV Search for QPOs in Perseus with Fermi LAT High Energy γ-ray variability of NGC 1275 and 3C 120 Young radio sources at high-energies and the y-ray CSO PKS 1718-649 Exploring the radio and GeV-TeV y-ray connection in the different blazar sub-classes Neutrino and y-ray Emission from the Core of NGC1275 by Magnetic Reconnection: GRMHD **Simulations and Radiative Transfer/Particle Calculations** Magnetic Fields in the Relativistic Jets of Active Galactic Nuclei The correlation between the total jet power and the Poynting flux at the jet base Why only a small fraction of quasars are radio loud? **Emission modelling of hydrodynamic AGN jet simulations** The wind production from black hole hot accretion flow Radio-loud AGNs with peculiar shape of hard X-ray spectrum: figuring out the reasons Expanding Radio Lobe associated with 3C 84 Chandra view on the active nucleus of CGCG 292–057: Jet-ISM interactions Preliminary analysis of the X-ray emission from the central regions of the Pictor A Flip of the jet head position of 3C 84 in 2015 AGN and Star Formation Feedback in Galaxy Outflows Update on the Multi-Frequency Monitoring of Blazars with Medicina and Noto Hints of radio sources evolution Bending of the pc scale jet in 3C84 **Chandra Early-Type Galaxy Atlas** Probing the B-fields of AGN jets on kiloparsec scales - NGC 6251 External blob radiation model for the TeV gamma-ray emission in radio galaxies A negative correlation between RUV and αox in low-luminosity AGNs A precessing and nutating jet in OJ287 A jet proper motion study in the early Universe **Evolution of the M**•-σ relation Simulations of the W50-SS433 system Black hole demographics from TDE modeling Ratio of kinetic-to-bolometric luminosity at the "cold" disk accretion onto black holes Multi-frequency monitoring of S5 0716+714 **Survival of Population III stars** Infrared Diagnostics of the ISM in the Circumnuclear Environments of the Youngest Radio Galaxies A Photoionization Method for Estimating Black Hole Masses in Quasars The role of stellar rotation in Tidal Disruption Events On the likelihood of Gravitational Wave emission during the Tidal Disruption of stars by Super Massive **Black Holes**

Jet production efficiency in the sample of the youngest radio galaxies

Quantum Reality The Quest for the Real Meaning of Quantum Mechanics - a Game of Theories Jim Baggott



Contents

Preamble

Prologue: Why Didn't Somebody Tell Me About All This Before?

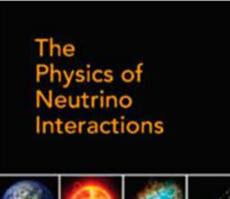
PART I THE RULES OF THE GAME

- 1. The Complete Guide to Quantum Mechanics (Abridged)
- 2. Just What is This Thing Called 'Reality', Anyway?
- 3. Sailing on the Sea of Representation
- 4. When Einstein Came Down to Breakfast

PART II PLAYING THE GAME

- 5. Quantum Mechanics is Complete So Just Shut Up and Calculate
- 6. Quantum Mechanics is Complete But We Need to Reinterpret What it Says
- 7. Quantum Mechans is Incomplete So We Need to Add Some Things
- 8. Quantum Mechans is Incomplete So We Need to Add Some Other Thing
- 9. Quantum Mechans is Incomplete Because We Need to Include My Mind (Or Should that be Your Mind?)
- 10. Quantum Mechans is Incomplete Because...Okay, I Give Up Epilogue: I've Got a Very Bad Feeling About This

The Physics of Neutrino Interactions M. Sajjad Athar and Aligarh Muslim

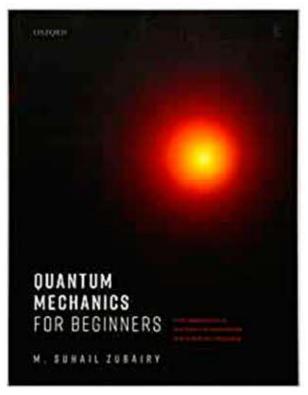




M. Sajjad Athar S. K. Singh

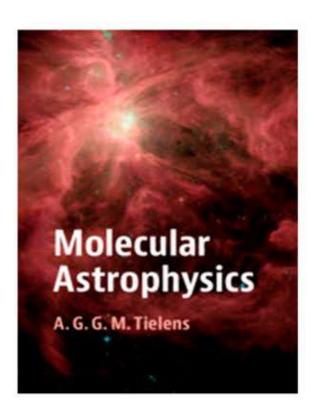
- 1 Neutrino Properties and Its Interactions
- 2 Relativistic Particles and Neutrinos
- 3 Quantization of Free Particle Fields
- 4 Interacting Fields and Relativistic Perturbation Theory
- 5 Phenomenological Theory I: Nuclear β-decays and Weak Interaction of Leptons
- 6 Phenomenological Theory II: Weak Decays of Hadrons
- 7 Gauge Field Theories and Fundamental Interactions
- 8 Unified Theory of Electroweak Interactions
- 9 Neutrino and Electron Scattering from Point Particles
- 10 Neutrino scattering Cross Sections from Hadrons: Quasielastic Scattering
- 11 Neutrino Scattering from Hadrons: Inelastic Scattering (I)
- 12 Neutrino Scattering from Hadrons: Inelastic Scattering (II)
- 13 Neutrino Scattering from Hadrons: Deep Inelastic Scattering
- 14 Weak Quasielastic v(X)-nucleus Scattering
- 15 Inelastic Scattering of (Anti)neutrinos from Nuclei
- 16 Deep Inelastic Scattering of (Anti)neutrinos from Nuclei
- 17 Neutrino Sources and Detection of Neutrinos
- 18 Neutrino Mixing and Oscillations
- 19 Neutrino Astrophysics and the Synthesis of Elements
- 20 Neutrino Interactions Beyond the Standard Model

Quantum Mechanics for Beginners: With Applications to Quantum Communication and Quantum Computing M. Suhail Zubairy



- **1** What is this Book About?
- **Part I: Introductory Topics**
- 2 Mathematical Background
- **3** Particle Dynamics
- 4 Wave Theory
- Part II: Fundamentals of Quantum Mechanics
- **5** Fundamentals of Quantum Mechanics
- 6 Birth of Quantum Mechanics—Planck, Einstein, Bohr
- 7 De Broglie Waves: Are Electrons Waves or Particles?
- 8 Quantum Interference: Wave–Particle Duality
- 9 Simplest Quantum Devices: Polarizers and Beam Splitters
- **10 Quantum Superposition and Entanglement**
- 11 No-cloning Theorem and Quantum Copying
- 12 EPR and Bell Theorem
- **Part III Quantum Communication**
- **13 Quantum Secure Communication**
- **14 Optical Communication with Invisible Photons**
- Part IV Quantum Computing
- 16 Quantum Computing II
- Part V The Schrödinger Equation
- 17 The Schrödinger Equation

Molecular Astrophysics A.G.G.M. Tielens



Contents

- 1 Introduction
- 2 Introduction to Chemistry
- 3 Molecular Spectroscopy
- 4 Molecular Emission and Absorption
- 5 Chemical Thermodynamics
- 6 Gas Phase Chemical Processes
- 7 Chemistry on Interstellar Grain Surfaces
- 8 Physics and Chemistry of Large Molecules
- 9 Diffuse Clouds
- 10 Molecular Clouds
- 11 Star Formation
- 12 The Aromatic Universe

Non-Inertial Frames and Dirac Observables in Relativity Luca Lusanna

Non-Inertial Frames and Dirac Observables in Relativity

LUCA LUSANNA

CAMBRIDGE MONOGRAPHS ON MATHEMATICAL PHYSICS

Contents

- Part I Special Relativity: Minkowski Space-Time
- 1 Galilei and Minkowski Space-Times
- 2 Global Non-Inertial Frames in Special Relativity
- 3 Relativistic Dynamics and the Relativistic Center of Mass
- 4 Matter in the Rest-Frame Instant Form of Dynamics
- Part II General Relativity: Globally Hyperbolic Einstein Space-Times 5 Hamiltonian Gravity in Einstein Space-Times
- 6 ADM Tetrad Gravity and Its Constraints
- 7 Post-Minkowskian and Post-Newtonian Approximations
- Part III Dirac-Bergmann Theory of Constraints
- 8 Singular Lagrangians and Constraint Theory
- 9 Dirac Observables Invariant under the Hamiltonian Gauge Transformations Generated by First-Class Constraints
- **10 Concluding Remarks and Open Problems**

Appendix A - Canonical Realizations of Lie Algebras, Poincaré Group, Poincar´e Orbits, and Wigner Boosts Appendix B - Grassmann Variables and Pseudo–Classical Lagrangians Appendix C - Relativistic Perfect Fluids and Covariant Thermodynamics