

# Physical Kinetics Volume 10 Course Of Theoretical Physics S

YEAH, REVIEWING A EBOOK **PHYSICAL KINETICS VOLUME 10 COURSE OF THEORETICAL PHYSICS S** COULD BE CREDITED WITH YOUR CLOSE CONNECTIONS LISTINGS. THIS IS JUST ONE OF THE SOLUTIONS FOR YOU TO BE SUCCESSFUL. AS UNDERSTOOD, EXPLOIT DOES NOT SUGGEST THAT YOU HAVE FANTASTIC POINTS.

COMPREHENDING AS CAPABLY AS CONTRACT EVEN MORE THAN SUPPLEMENTARY WILL MANAGE TO PAY FOR EACH SUCCESS. NEIGHBORING TO, THE DECLARATION AS WITHOUT DIFFICULTY AS SHARPNESS OF THIS PHYSICAL KINETICS VOLUME 10 COURSE OF THEORETICAL PHYSICS S CAN BE TAKEN AS SKILLFULLY AS PICKED TO ACT.

*MODERN CLASSICAL PHYSICS* - KIP S. THORNE  
2017-09-05

A GROUNDBREAKING TEXT AND REFERENCE BOOK ON TWENTY-FIRST-CENTURY CLASSICAL PHYSICS AND ITS APPLICATIONS THIS FIRST-YEAR GRADUATE-LEVEL TEXT AND REFERENCE BOOK COVERS THE FUNDAMENTAL CONCEPTS AND TWENTY-FIRST-CENTURY APPLICATIONS OF SIX MAJOR AREAS OF CLASSICAL PHYSICS THAT EVERY MASTERS- OR PHD-LEVEL PHYSICIST SHOULD BE EXPOSED TO, BUT OFTEN ISN'T: STATISTICAL PHYSICS, OPTICS (WAVES OF ALL SORTS),

ELASTODYNAMICS, FLUID MECHANICS, PLASMA PHYSICS, AND SPECIAL AND GENERAL RELATIVITY AND COSMOLOGY.

GROWING OUT OF A FULL-YEAR COURSE THAT THE EMINENT RESEARCHERS KIP THORNE AND ROGER BLANDFORD TAUGHT AT CALTECH FOR ALMOST THREE DECADES, THIS BOOK IS DESIGNED TO BROADEN THE TRAINING OF PHYSICISTS. ITS SIX MAIN TOPICAL SECTIONS ARE ALSO DESIGNED SO THEY CAN BE USED IN SEPARATE COURSES, AND THE BOOK PROVIDES AN INVALUABLE REFERENCE FOR RESEARCHERS. PRESENTS ALL THE MAJOR FIELDS OF CLASSICAL PHYSICS EXCEPT THREE

PREREQUISITES: CLASSICAL MECHANICS, ELECTROMAGNETISM, AND ELEMENTARY THERMODYNAMICS ELUCIDATES THE INTERCONNECTIONS BETWEEN DIVERSE FIELDS AND EXPLAINS THEIR SHARED CONCEPTS AND TOOLS FOCUSES ON FUNDAMENTAL CONCEPTS AND MODERN, REAL-WORLD APPLICATIONS TAKES APPLICATIONS FROM FUNDAMENTAL, EXPERIMENTAL, AND APPLIED PHYSICS; ASTROPHYSICS AND COSMOLOGY; GEOPHYSICS, OCEANOGRAPHY, AND METEOROLOGY; BIOPHYSICS AND CHEMICAL PHYSICS; ENGINEERING AND OPTICAL SCIENCE AND TECHNOLOGY; AND INFORMATION SCIENCE AND TECHNOLOGY EMPHASIZES THE QUANTUM ROOTS OF CLASSICAL PHYSICS AND HOW TO USE QUANTUM TECHNIQUES TO ELUCIDATE CLASSICAL CONCEPTS OR SIMPLIFY CLASSICAL CALCULATIONS FEATURES HUNDREDS OF COLOR FIGURES, SOME FIVE HUNDRED EXERCISES, EXTENSIVE CROSS-REFERENCES, AND A DETAILED INDEX AN ONLINE ILLUSTRATION PACKAGE IS AVAILABLE

THE PHYSICS AND ASTROPHYSICS OF NEUTRON STARS -  
LUCIANO REZZOLLA 2019-01-09

THIS BOOK SUMMARIZES THE RECENT PROGRESS IN THE PHYSICS AND ASTROPHYSICS OF NEUTRON STARS AND, MOST IMPORTANTLY, IT IDENTIFIES AND DEVELOPS EFFECTIVE STRATEGIES TO EXPLORE, BOTH THEORETICALLY AND OBSERVATIONALLY, THE MANY REMAINING OPEN QUESTIONS IN THE FIELD. BECAUSE OF ITS SIGNIFICANCE IN THE SOLUTION OF MANY FUNDAMENTAL QUESTIONS IN NUCLEAR PHYSICS,

ASTROPHYSICS AND GRAVITATIONAL PHYSICS, THE STUDY OF NEUTRON STARS HAS SEEN ENORMOUS PROGRESS OVER THE LAST YEARS AND HAS BEEN VERY SUCCESSFUL IN IMPROVING OUR UNDERSTANDING IN THESE FASCINATING COMPACT OBJECTS. THE BOOK ADDRESSES A WIDE SPECTRUM OF READERS, FROM STUDENTS TO SENIOR RESEARCHERS. THIRTEEN CHAPTERS WRITTEN BY INTERNATIONALLY RENOWNED EXPERTS OFFER A THOROUGH OVERVIEW OF THE VARIOUS FACETS OF THIS INTERDISCIPLINARY SCIENCE, FROM NEUTRON STAR FORMATION IN SUPERNOVAE, PULSARS, EQUATIONS OF STATE SUPER DENSE MATTER, GRAVITATIONAL WAVE EMISSION, TO ALTERNATIVE THEORIES OF GRAVITY. THE BOOK WAS INITIATED BY THE EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY (COST) ACTION MP1304 "EXPLORING FUNDAMENTAL PHYSICS WITH COMPACT STARS" (NewCompStar).

*CONTEMPORARY KINETIC THEORY OF MATTER* - J. R. DORFMAN 2021-06-24

KINETIC THEORY PROVIDES A MICROSCOPIC DESCRIPTION OF MANY OBSERVABLE, MACROSCOPIC PROCESSES AND HAS A WIDE RANGE OF IMPORTANT APPLICATIONS IN PHYSICS, ASTRONOMY, CHEMISTRY, AND ENGINEERING. THIS POWERFUL, THEORETICAL FRAMEWORK ALLOWS A QUANTITATIVE TREATMENT OF MANY NON-EQUILIBRIUM PHENOMENA SUCH AS TRANSPORT PROCESSES IN CLASSICAL AND QUANTUM FLUIDS. THIS BOOK DESCRIBES IN DETAIL THE BOLTZMANN EQUATION

THEORY, OBTAINED IN BOTH TRADITIONAL AND MODERN WAYS. APPLICATIONS AND GENERALIZATIONS DESCRIBING NON-EQUILIBRIUM PROCESSES IN A VARIETY OF SYSTEMS ARE ALSO COVERED, INCLUDING DILUTE AND MODERATELY DENSE GASES, PARTICLES IN RANDOM MEDIA, HARD SPHERE CRYSTALS, CONDENSED BOSE-EINSTEIN GASES, AND GRANULAR MATERIALS. FLUCTUATION PHENOMENA IN NON-EQUILIBRIUM FLUIDS, AND RELATED NON-ANALYTICITIES IN THE HYDRODYNAMIC EQUATIONS ARE ALSO DISCUSSED IN SOME DETAIL. A THOROUGH EXAMINATION OF MANY TOPICS CONCERNING TIME DEPENDENT PHENOMENA IN MATERIAL SYSTEMS, THIS BOOK DESCRIBES BOTH CURRENT KNOWLEDGE AS WELL AS FUTURE DIRECTIONS OF THE FIELD.

*RELATIVISTIC HYDRODYNAMICS* - LUCIANO REZZOLLA  
2013-09-26

RELATIVISTIC HYDRODYNAMICS IS A VERY SUCCESSFUL THEORETICAL FRAMEWORK TO DESCRIBE THE DYNAMICS OF MATTER FROM SCALES AS SMALL AS THOSE OF COLLIDING ELEMENTARY PARTICLES, UP TO THE LARGEST SCALES IN THE UNIVERSE. THIS BOOK PROVIDES AN UP-TO-DATE, LIVELY, AND APPROACHABLE INTRODUCTION TO THE MATHEMATICAL FORMALISM, NUMERICAL TECHNIQUES, AND APPLICATIONS OF RELATIVISTIC HYDRODYNAMICS. THE TOPIC IS TYPICALLY COVERED EITHER BY VERY FORMAL OR BY VERY PHENOMENOLOGICAL BOOKS, BUT IS INSTEAD PRESENTED HERE IN A FORM THAT WILL BE APPRECIATED BOTH BY STUDENTS

AND RESEARCHERS IN THE FIELD. THE TOPICS COVERED IN THE BOOK ARE THE RESULTS OF WORK CARRIED OUT OVER THE LAST 40 YEARS, WHICH CAN BE FOUND IN RATHER TECHNICAL RESEARCH ARTICLES WITH DISSIMILAR NOTATIONS AND STYLES. THE BOOK IS NOT JUST A COLLECTION OF SCATTERED INFORMATION, BUT A WELL-ORGANIZED DESCRIPTION OF RELATIVISTIC HYDRODYNAMICS, FROM THE BASIC PRINCIPLES OF STATISTICAL KINETIC THEORY, DOWN TO THE TECHNICAL ASPECTS OF NUMERICAL METHODS DEVISED FOR THE SOLUTION OF THE EQUATIONS, AND OVER TO THE APPLICATIONS IN MODERN PHYSICS AND ASTROPHYSICS. NUMEROUS FIGURES, DIAGRAMS, AND A VARIETY OF EXERCISES AID THE MATERIAL IN THE BOOK. THE MOST OBVIOUS APPLICATIONS OF THIS WORK RANGE FROM ASTROPHYSICS (BLACK HOLES, NEUTRON STARS, GAMMA-RAY BURSTS, AND ACTIVE GALAXIES) TO COSMOLOGY (EARLY-UNIVERSE HYDRODYNAMICS AND PHASE TRANSITIONS) AND PARTICLE PHYSICS (HEAVY-ION COLLISIONS). IT IS OFTEN SAID THAT FLUIDS ARE EITHER SEEN AS SOLUTIONS OF PARTIAL DIFFERENTIAL EQUATIONS OR AS "WET". FLUIDS IN THIS BOOK ARE DEFINITELY WET, BUT THE MATHEMATICAL BEAUTY OF DIFFERENTIAL EQUATIONS IS NOT WASHED OUT.

*THE DYNAMICAL PROJECTORS METHOD* - SERGEY LEBLE  
2018-03-12

THE DYNAMICAL PROJECTORS METHOD PROVES TO REDUCE A MULTICOMPONENT PROBLEM TO THE SIMPLEST ONE-

COMPONENT PROBLEM WITH ITS SOLUTION DETERMINED BY SPECIFIC INITIAL OR BOUNDARY CONDITIONS. ITS UNIVERSALITY AND APPLICATION IN MANY DIFFERENT PHYSICAL PROBLEMS MAKE IT PARTICULARLY USEFUL IN HYDRODYNAMICS, ELECTRODYNAMICS, PLASMA PHYSICS, AND BOUNDARY LAYER PROBLEMS. A GREAT VARIETY OF UNDERLYING MECHANISMS ARE INCLUDED MAKING THIS BOOK USEFUL FOR THOSE WORKING IN WAVE THEORY, HYDRODYNAMICS, ELECTROMAGNETISM, AND APPLICATIONS. "THE AUTHORS DEVELOPED A UNIVERSAL AND ELEGANT TOOL - DYNAMICAL PROJECTOR METHOD. USING THIS METHOD FOR VERY COMPLICATED HYDRO-THERMODYNAMIC AND ELECTRODYNAMICS PROBLEM SETTINGS, THEY WERE ABLE TO GET A LOT OF INTERESTING ANALYTICAL RESULTS IN AREAS WHERE BEFORE OFTEN JUST NUMERICAL METHODS WERE APPLICABLE." —L. A. BORDAG, UNIVERSITY OF APPLIED SCIENCES ZITTAU/G<sub>2</sub> RLITZ, ZITTAU, GERMANY "THE BOOK IS INTENDED FOR PROFESSIONALS WORKING IN VARIOUS FIELDS OF LINEAR AND NONLINEAR MATHEMATICAL PHYSICS, PARTIAL DIFFERENTIAL EQUATIONS AND THEORETICAL PHYSICS. THE BOOK IS WRITTEN CLEARLY, AND IN MY OPINION, ITS MATERIAL WILL BE USEFUL AND EASY TO UNDERSTAND FOR PROFESSIONALS AND FOR STUDENTS FAMILIAR WITH ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS." —SERGEY DOBROKHOTOV, RUSSIAN ACADEMY OF SCIENCES, MOSCOW, RUSSIA

## **A SHORTER COURSE OF THEORETICAL PHYSICS: MECHANICS AND ELECTRODYNAMICS** - LEV DAVIDOVICH LANDAU 1972

### **GENERAL PHYSICS** - L D LANDAU 2013-10-22

PRESENTS, AT A LEVEL SUITABLE FOR UNDERGRADUATES AND TECHNICAL COLLEGE STUDENTS, THE BASIC PHYSICAL THEORY OF MECHANICS AND THE MOLECULAR STRUCTURE OF MATTER. THE MATERIAL CONTAINED IN THE WORK SHOULD CORRESPOND QUITE CLOSELY TO COURSES OF LECTURES GIVEN TO UNDERGRADUATE STUDENTS OF PHYSICS IN BRITAIN AND AMERICA.

### THEORY OF ELASTICITY - L D LANDAU 2012-12-02

A COMPREHENSIVE TEXTBOOK COVERING NOT ONLY THE ORDINARY THEORY OF THE DEFORMATION OF SOLIDS, BUT ALSO SOME TOPICS NOT USUALLY FOUND IN TEXTBOOKS ON THE SUBJECT, SUCH AS THERMAL CONDUCTION AND VISCOSITY IN SOLIDS.

### **CLASSICAL KINETIC THEORY OF WEAKLY TURBULENT NONLINEAR PLASMA PROCESSES** - PETER H. YOON

2019-09-12

A SYSTEMATIC OVERVIEW OF THE KINETIC THEORY OF WEAK PLASMA TURBULENCE, INCLUDING THE FOUNDATIONAL CONCEPTS AND MATHEMATICAL AND TECHNICAL DETAILS.

### *HANDBOOK OF CONVEYING AND HANDLING OF PARTICULATE SOLIDS* - A. LEVY 2001-10-22

THIS HANDBOOK PRESENTS COMPREHENSIVE COVERAGE OF THE

TECHNOLOGY FOR CONVEYING AND HANDLING PARTICULATE SOLIDS. EACH CHAPTER COVERS A DIFFERENT TOPIC AND CONTAINS BOTH FUNDAMENTALS AND APPLICATIONS. USUALLY, EACH CHAPTER, OR A TOPIC WITHIN A CHAPTER, STARTS WITH ONE OF THE REVIEW PAPERS. CHAPTER 1 COVERS THE CHARACTERIZATION OF THE PARTICULATE MATERIALS. CHAPTER 2 COVERS THE BEHAVIOUR OF PARTICULATE MATERIALS DURING STORAGE, AND PRESENTS RECENT DEVELOPMENTS IN STORAGE AND FEEDERS DESIGN AND PERFORMANCE. CHAPTER 3 PRESENTS FUNDAMENTAL STUDIES OF PARTICULATE FLOW, WHILE CHAPTERS 4 AND 5 PRESENT TRANSPORT SOLUTIONS, AND THE PITFALLS OF PNEUMATIC, SLURRY, AND CAPSULE CONVEYING. CHAPTERS 6, 7 AND 8 COVER BOTH THE FUNDAMENTALS AND DEVELOPMENT OF PROCESSES FOR PARTICULATE SOLIDS, STARTING FROM FLUIDISATION AND DRYING, SEGREGATION AND MIXING, AND SIZE-REDUCTION AND ENLARGEMENT. CHAPTER 9 PRESENTS ENVIRONMENTAL ASPECTS AND THE CLASSIFICATION OF THE PARTICULATE MATERIALS AFTER THEY HAVE BEEN HANDLED BY ONE OF THE ABOVE-MENTIONED PROCESSES. FINALLY, CHAPTER 10 COVERS APPLICATIONS AND DEVELOPMENTS OF MEASUREMENT TECHNIQUES THAT ARE THE HEART OF THE ANALYSIS OF ANY CONVEYING OR HANDLING SYSTEM.

INTRODUCTION TO STATISTICAL PHYSICS - SILVIO SALINAS  
2014-01-15

*PRINCIPLES OF CONDENSED MATTER PHYSICS* - P. M. CHAIKIN  
2000-09-28

NOW IN PAPERBACK, THIS BOOK PROVIDES AN OVERVIEW OF THE PHYSICS OF CONDENSED MATTER SYSTEMS. ASSUMING A FAMILIARITY WITH THE BASICS OF QUANTUM MECHANICS AND STATISTICAL MECHANICS, THE BOOK ESTABLISHES A GENERAL FRAMEWORK FOR DESCRIBING CONDENSED PHASES OF MATTER, BASED ON SYMMETRIES AND CONSERVATION LAWS. IT EXPLORES THE ROLE OF SPATIAL DIMENSIONALITY AND MICROSCOPIC INTERACTIONS IN DETERMINING THE NATURE OF PHASE TRANSITIONS, AS WELL AS DISCUSSING THE STRUCTURE AND PROPERTIES OF MATERIALS WITH DIFFERENT SYMMETRIES. PARTICULAR ATTENTION IS GIVEN TO CRITICAL PHENOMENA AND RENORMALIZATION GROUP METHODS. THE PROPERTIES OF LIQUIDS, LIQUID CRYSTALS, QUASICRYSTALS, CRYSTALLINE SOLIDS, MAGNETICALLY ORDERED SYSTEMS AND AMORPHOUS SOLIDS ARE INVESTIGATED IN TERMS OF THEIR SYMMETRY, GENERALISED RIGIDITY, HYDRODYNAMICS AND TOPOLOGICAL DEFECT STRUCTURE. IN ADDITION TO SERVING AS A COURSE TEXT, THIS BOOK IS AN ESSENTIAL REFERENCE FOR STUDENTS AND RESEARCHERS IN PHYSICS, APPLIED PHYSICS, CHEMISTRY, MATERIALS SCIENCE AND ENGINEERING, WHO ARE INTERESTED IN MODERN CONDENSED MATTER PHYSICS.

**COURSE OF THEORETICAL PHYSICS** - L. P. PITAEVSKII  
2013-10-22

THE APPROACH TO PHYSICAL KINETICS IS CLOSELY

INTEGRATED WITH THAT OF OTHER BRANCHES OF PHYSICS AS PRESENTED IN THE COMPANION VOLUMES OF THIS SERIES. THE MAJOR PART OF THE CONTENTS IS CONCERNED WITH A SYSTEMATIC DEVELOPMENT OF THE THEORY OF PLASMAS, THE AUTHORITY BEING FIRMLY ROOTED IN THE PIONEER WORK OF LANDAU. ALTHOUGH THE MAIN SCOPE CONCERNS FULLY IONIZED GASEOUS PLASMAS, CORRESPONDING RESULTS ARE ALSO GIVEN FOR PARTIALLY IONIZED PLASMAS, RELATIVISTIC PLASMAS, DEGENERATE OR NON-IDEAL PLASMAS AND SOLID STATE PLASMAS. PROBLEMS (WITH ANSWERS) ARE TO BE FOUND IN THE TEXT. THIS WORK COMPLETES THE COURSE OF THEORETICAL PHYSICS BEGUN OVER 20 YEARS AGO

**MECHANICS** - L D LANDAU 1982-01-29

DEVOTED TO THE FOUNDATION OF MECHANICS, NAMELY CLASSICAL NEWTONIAN MECHANICS, THE SUBJECT IS BASED MAINLY ON GALILEO'S PRINCIPLE OF RELATIVITY AND HAMILTON'S PRINCIPLE OF LEAST ACTION. THE EXPOSITION IS SIMPLE AND LEADS TO THE MOST COMPLETE DIRECT MEANS OF SOLVING PROBLEMS IN MECHANICS. THE FINAL SECTIONS ON ADIABATIC INVARIANTS HAVE BEEN REVISED AND AUGMENTED. IN ADDITION A SHORT BIOGRAPHY OF L D LANDAU HAS BEEN INSERTED.

**OBSERVATION, THEORY AND MODELING OF ATMOSPHERIC VARIABILITY** - XUN ZHU 2004-02-25

THIS BOOK CONTAINS TUTORIAL AND REVIEW ARTICLES AS WELL AS SPECIFIC RESEARCH LETTERS THAT COVER A WIDE

RANGE OF TOPICS: (1) DYNAMICS OF ATMOSPHERIC VARIABILITY FROM BOTH BASIC THEORY AND DATA ANALYSIS, (2) PHYSICAL AND MATHEMATICAL PROBLEMS IN CLIMATE MODELING AND NUMERICAL WEATHER PREDICTION, (3) THEORIES OF ATMOSPHERIC RADIATIVE TRANSFER AND THEIR APPLICATIONS IN SATELLITE REMOTE SENSING, AND (4) MATHEMATICAL AND STATISTICAL METHODS. THE BOOK CAN BE USED BY UNDERGRADUATES OR GRADUATE STUDENTS MAJORING IN ATMOSPHERIC SCIENCES, AS AN INTRODUCTION TO VARIOUS RESEARCH AREAS; AND BY RESEARCHERS AND EDUCATORS, AS A GENERAL REVIEW OR QUICK REFERENCE IN THEIR FIELDS OF INTEREST. CONTENTS: DYNAMICS OF ATMOSPHERIC VARIABILITY CLIMATE MODELING AND NUMERICAL WEATHER PREDICTION RADIATIVE TRANSFER AND REMOTE SENSING MATHEMATICAL METHOD READERSHIP: GRADUATE STUDENTS, ACADEMICS AND RESEARCHERS IN METEOROLOGY/CLIMATOLOGY, AS WELL AS EAST ASIAN WEATHER-FORECASTING SERVICES. KEYWORDS: ATMOSPHERIC VARIABILITY; CLIMATE MODELING; NUMERICAL WEATHER PREDICTION; ATMOSPHERIC RADIATION; SATELLITE REMOTE SENSING

*INTRODUCTION TO QUANTUM MECHANICS* - DAVID J.

GRIFFITHS 2019-11-20

CHANGES AND ADDITIONS TO THE NEW EDITION OF THIS CLASSIC TEXTBOOK INCLUDE A NEW CHAPTER ON SYMMETRIES, NEW PROBLEMS AND EXAMPLES, IMPROVED EXPLANATIONS,

MORE NUMERICAL PROBLEMS TO BE WORKED ON A COMPUTER, NEW APPLICATIONS TO SOLID STATE PHYSICS, AND CONSOLIDATED TREATMENT OF TIME-DEPENDENT POTENTIALS. *SOLVED PROBLEMS IN CLASSICAL MECHANICS* - O.L. DE LANGE 2010-05-06

SIMULATED MOTION ON A COMPUTER SCREEN, AND TO STUDY THE EFFECTS OF CHANGING PARAMETERS. --

THERMAL NANOSYSTEMS AND NANOMATERIALS - SEBASTIAN VOLZ 2009-12-24

HEAT TRANSFER LAWS FOR CONDUCTION, RADIATION AND CONVECTION CHANGE WHEN THE DIMENSIONS OF THE SYSTEMS IN QUESTION SHRINK. THE ALTERED BEHAVIOURS CAN BE USED EFFICIENTLY IN ENERGY CONVERSION, RESPECTIVELY BIO- AND HIGH-PERFORMANCE MATERIALS TO CONTROL MICROELECTRONIC DEVICES. TO UNDERSTAND AND MODEL THOSE THERMAL MECHANISMS, SPECIFIC METROLOGIES HAVE TO BE ESTABLISHED. THIS BOOK PROVIDES AN OVERVIEW OF ACTUAL DEVICES AND MATERIALS INVOLVING MICRO-NANOSCALE HEAT TRANSFER MECHANISMS. THESE ARE CLEARLY EXPLAINED AND EXEMPLIFIED BY A LARGE SPECTRUM OF RELEVANT PHYSICAL MODELS, WHILE THE MOST ADVANCED NANOSCALE THERMAL METROLOGIES ARE PRESENTED.

**PHYSICAL KINETICS** - EVGENI MIKHAILOVICH LIFSHITS 1981

THE APPROACH TO PHYSICAL KINETICS IS CLOSELY INTEGRATED WITH THAT OF OTHER BRANCHES OF PHYSICS AS

PRESENTED IN THE COMPANION VOLUMES OF THIS SERIES. THE MAJOR PART OF THE CONTENTS IS CONCERNED WITH A SYSTEMATIC DEVELOPMENT OF THE THEORY OF PLASMAS, THE AUTHORITY BEING FIRMLY ROOTED IN THE PIONEER WORK OF LANDAU. ALTHOUGH THE MAIN SCOPE CONCERNS FULLY IONIZED GASEOUS PLASMAS, CORRESPONDING RESULTS ARE ALSO GIVEN FOR PARTIALLY IONIZED PLASMAS, RELATIVISTIC PLASMAS, DEGENERATE OR NON-IDEAL PLASMAS AND SOLID STATE PLASMAS. PROBLEMS (WITH ANSWERS) ARE TO BE FOUND IN THE TEXT. THIS WORK COMPLETES THE COURSE OF THEORETICAL PHYSICS BEGUN OVER 20 YEARS AGO  
**FLUID MECHANICS** - LEV D. LANDAU 1987

**HIGH-ENERGY NUCLEAR OPTICS OF POLARIZED PARTICLES** - VLADIMIR G. BARYSHEVSKY 2012

THE VARIOUS PHENOMENA CAUSED BY REFRACTION AND DIFFRACTION OF POLARIZED ELEMENTARY PARTICLES IN MATTER HAVE OPENED UP A NEW RESEARCH AREA IN THE PARTICLE PHYSICS: NUCLEAR OPTICS OF POLARIZED PARTICLES. EFFECTS SIMILAR TO THE WELL-KNOWN OPTICAL PHENOMENA SUCH AS BIREFRINGENCE AND FARADAY EFFECTS, EXIST ALSO IN PARTICLE PHYSICS, THOUGH THE PARTICLE WAVELENGTH IS MUCH LESS THAN THE DISTANCE BETWEEN ATOMS OF MATTER. CURRENT KNOWLEDGE OF THE QUASI-OPTICAL EFFECTS, WHICH EXIST FOR ALL PARTICLES IN ANY WAVELENGTH RANGE (AND ENERGIES FROM LOW TO EXTREMELY HIGH), WILL ENABLE

US TO INVESTIGATE DIFFERENT PROPERTIES OF INTERACTING PARTICLES (NUCLEI) IN A NEW ASPECT. THIS PIONEERING BOOK WILL PROVIDE DETAILED ACCOUNTS OF QUASI-OPTICAL PHENOMENA IN THE PARTICLE POLARIZATION, AND WILL INTEREST PHYSICISTS AND PROFESSIONALS IN EXPERIMENTAL PARTICLE PHYSICS.

ELECTRODYNAMICS OF CONTINUOUS MEDIA - L D LANDAU  
2013-10-22

COVERS THE THEORY OF ELECTROMAGNETIC FIELDS IN MATTER, AND THE THEORY OF THE MACROSCOPIC ELECTRIC AND MAGNETIC PROPERTIES OF MATTER. THERE IS A CONSIDERABLE AMOUNT OF NEW MATERIAL PARTICULARLY ON THE THEORY OF THE MAGNETIC PROPERTIES OF MATTER AND THE THEORY OF OPTICAL PHENOMENA WITH NEW CHAPTERS ON SPATIAL DISPERSION AND NON-LINEAR OPTICS. THE CHAPTERS ON FERROMAGNETISM AND ANTIFERROMAGNETISM AND ON MAGNETOHYDRODYNAMICS HAVE BEEN SUBSTANTIALLY ENLARGED AND EIGHT OTHER CHAPTERS HAVE ADDITIONAL SECTIONS.

**A CONCISE HANDBOOK OF MATHEMATICS, PHYSICS, AND ENGINEERING SCIENCES** - ANDREI D. POLYANIN 2010-10-18

A CONCISE HANDBOOK OF MATHEMATICS, PHYSICS, AND ENGINEERING SCIENCES TAKES A PRACTICAL APPROACH TO THE BASIC NOTIONS, FORMULAS, EQUATIONS, PROBLEMS, THEOREMS, METHODS, AND LAWS THAT MOST FREQUENTLY OCCUR IN SCIENTIFIC AND ENGINEERING APPLICATIONS AND

UNIVERSITY EDUCATION. THE AUTHORS PAY SPECIAL ATTENTION TO ISSUES THAT MANY ENGINEERS AND STUDENTS  
*FUNDAMENTALS OF THEORETICAL PLASMA PHYSICS: MATHEMATICAL DESCRIPTION OF PLASMA WAVES* - LEE HEE J 2019-03-06

THIS BOOK IS WRITTEN AS A SENIOR UNDERGRADUATE AND GRADUATE TEXTBOOK OF THEORETICAL PLASMA PHYSICS; TOPICS INCLUDE BOLTZMANN EQUATION, TWO-FLUID EQUATIONS, MAGNETOHYDRODYNAMICS, VLASOV-MAXWELL PLASMA, ABSOLUTE AND CONVECTIVE INSTABILITIES, FUNDAMENTAL KINETIC THEORY, LENARD-BALESCU EQUATION, ELECTRIC FLUCTUATION, PLASMA ELECTRODYNAMICS AND CAUSALITY, NONLINEAR WAVES, INVERSE SCATTERING METHOD, SURFACE WAVES, AND DUSTY PLASMA. IT ALSO INCLUDES SPECIAL TOPICS LIKE PARAMETRIC INSTABILITIES AND KINETIC THEORY OF SURFACE WAVES IN A PLASMA SLAB. THE DEVELOPMENT OF THEORY IS PRESENTED THROUGH GENTLE MATHEMATICAL STEPS THROUGH EASY AND STRAIGHTFORWARD DEMONSTRATION. THE READERS WILL BE ABLE TO APPRECIATE THE BEAUTY OF MATHEMATICAL ANALYSIS IN CONNECTION WITH THEORETICAL PLASMA PHYSICS.

SIMULATION WITH ENTROPY THERMODYNAMICS - CHRISTOPHE GOUPIL 2021-03-11

BEYOND ITS IDENTIFICATION WITH THE SECOND LAW OF THERMODYNAMICS, ENTROPY IS A FORMIDABLE TOOL FOR



DESCRIBING SYSTEMS IN THEIR RELATIONSHIP WITH THEIR ENVIRONMENT. THIS BOOK PROPOSES TO GO THROUGH SOME OF THESE SITUATIONS WHERE THE FORMULATION OF ENTROPY, AND MORE PRECISELY, THE PRODUCTION OF ENTROPY IN OUT-OF-EQUILIBRIUM PROCESSES, MAKES IT POSSIBLE TO FORGE AN APPROACH TO THE BEHAVIOR OF VERY DIFFERENT SYSTEMS. WHETHER FOR DIMENSIONING STRUCTURES; INFLUENCING PARAMETER VARIABILITY; OR OPTIMIZING POWER, EFFICIENCY, OR WASTE HEAT REDUCTION, SIMULATIONS BASED ON ENTROPY PRODUCTION OFFER A TOOL THAT IS BOTH COMPACT AND RELIABLE. IN THE CASE OF SYSTEMS MARKED BY COMPLEXITY, IT APPEARS TO BE THE ONLY WAY. IN THAT SENSE, REALISTIC OPTIMIZATION CAN BE CARRIED OUT, INTEGRATING WITHIN THE SAME FRAMEWORK BOTH THE SYSTEM AND ALL THE CONSTRAINTS AND BOUNDARY CONDITIONS THAT DEFINE IT. SIMULATIONS BASED ON ENTROPY GIVE THE RESEARCHER A POWERFUL ANALYTICAL FRAMEWORK THAT CROSSES THE DISCIPLINES OF PHYSICS AND LINKS THEM TOGETHER.

**BOSE-EINSTEIN CONDENSATION** - LEV. P. PITAEVSKII  
2003-04-03

BOSE-EINSTEIN CONDENSATION REPRESENTS A NEW STATE OF MATTER AND IS ONE OF THE CORNERSTONES OF QUANTUM PHYSICS, RESULTING IN THE 2001 NOBEL PRIZE. PROVIDING A USEFUL INTRODUCTION TO ONE OF THE MOST EXCITING FIELDS OF PHYSICS TODAY, THIS TEXT WILL BE OF INTEREST TO A

GROWING COMMUNITY OF PHYSICISTS, AND IS EASILY ACCESSIBLE TO NON-SPECIALISTS ALIKE.

### **MOLECULAR PHYSICAL CHEMISTRY FOR ENGINEERING**

**APPLICATIONS** - FLORIN EMILIAN DANE<sup>?</sup> 2021-07-06

THIS TEXTBOOK INTRODUCES THE MOLECULAR SIDE OF PHYSICAL CHEMISTRY. IT OFFERS STUDENTS AND PRACTITIONERS A NEW APPROACH TO THE SUBJECT BY PRESENTING NUMEROUS APPLICATIONS AND SOLVED PROBLEMS THAT ILLUSTRATE THE CONCEPTS INTRODUCED FOR VARIED AND COMPLEX TECHNICAL SITUATIONS. THE BOOK OFFERS A BALANCE BETWEEN THEORY, TOOLS, AND PRACTICAL APPLICATIONS. THE TEXT AIMS TO BE A PRACTICAL MANUAL FOR SOLVING ENGINEERING PROBLEMS IN INDUSTRIES WHERE PROCESSES DEPEND ON THE CHEMICAL COMPOSITION AND PHYSICAL PROPERTIES OF MATTER. THE BOOK IS ORGANIZED INTO THREE MAIN TOPICS: (I) THE MOLECULAR STRUCTURE OF MATTER, (II) MOLECULAR MODELS IN THERMODYNAMICS, AND (III) TRANSPORT PHENOMENA AND MECHANISMS. PART I PRESENTS METHODS OF ANALYSIS OF THE MOLECULAR BEHAVIOR IN A GIVEN SYSTEM, WHILE THE FOLLOWING PARTS USE THESE METHODS TO STUDY THE EQUILIBRIUM STATES OF A MATERIAL SYSTEM AND TO ANALYZE THE PROCESSES THAT CAN TAKE PLACE WHEN THE SYSTEM IS IN A STATE OF NON-EQUILIBRIUM, IN PARTICULAR THE TRANSPORT PHENOMENA. MOLECULAR PHYSICAL CHEMISTRY FOR ENGINEERING APPLICATIONS IS DESIGNED FOR UPPER-LEVEL UNDERGRADUATE

AND GRADUATE COURSES IN PHYSICAL CHEMISTRY FOR ENGINEERS, APPLIED PHYSICAL CHEMISTRY, TRANSPORT PHENOMENA, COLLOIDAL CHEMISTRY, AND TRANSPORT/TRANSFER PROCESSES. THE BOOK WILL ALSO BE A VALUABLE REFERENCE GUIDE FOR ENGINEERS, TECHNICIANS, AND SCIENTISTS WORKING IN INDUSTRY. OFFERS MODELING TECHNIQUES AND TOOLS FOR SOLVING EXERCISES AND PRACTICAL CASES; PROVIDES SOLUTIONS AND CONCLUSIONS SO STUDENTS CAN FOLLOW RESULTS MORE CLOSELY; STEP-BY-STEP PROBLEM SOLVING ENABLES STUDENTS TO UNDERSTAND HOW TO APPROACH COMPLEX ISSUES.

**A KINETIC VIEW OF STATISTICAL PHYSICS** - PAVEL L. KRAPIVSKY 2010-11-18

AIMED AT GRADUATE STUDENTS, THIS BOOK EXPLORES SOME OF THE CORE PHENOMENA IN NON-EQUILIBRIUM STATISTICAL PHYSICS. IT FOCUSES ON THE DEVELOPMENT AND APPLICATION OF THEORETICAL METHODS TO HELP STUDENTS DEVELOP THEIR PROBLEM-SOLVING SKILLS. THE BOOK BEGINS WITH MICROSCOPIC TRANSPORT PROCESSES: DIFFUSION, COLLISION-DRIVEN PHENOMENA, AND EXCLUSION. IT THEN PRESENTS THE KINETICS OF AGGREGATION, FRAGMENTATION AND ADSORPTION, WHERE THE BASIC PHENOMENOLOGY AND SOLUTION TECHNIQUES ARE EMPHASIZED. THE FOLLOWING CHAPTERS COVER KINETIC SPIN SYSTEMS, BOTH FROM A DISCRETE AND A CONTINUUM PERSPECTIVE, THE ROLE OF DISORDER IN NON-EQUILIBRIUM PROCESSES, HYSTERESIS FROM

THE NON-EQUILIBRIUM PERSPECTIVE, THE KINETICS OF CHEMICAL REACTIONS, AND THE PROPERTIES OF COMPLEX NETWORKS. THE BOOK CONTAINS 200 EXERCISES TO TEST STUDENTS' UNDERSTANDING OF THE SUBJECT. A LINK TO A WEBSITE HOSTED BY THE AUTHORS, CONTAINING SUPPLEMENTARY MATERIAL INCLUDING SOLUTIONS TO SOME OF THE EXERCISES, CAN BE FOUND AT [WWW.CAMBRIDGE.ORG/9780521851039](http://WWW.CAMBRIDGE.ORG/9780521851039).

**VAPOR-LIQUID INTERFACES, BUBBLES AND DROPLETS** - SHIGEO FUJIKAWA 2011-04-18

PHYSICALLY CORRECT BOUNDARY CONDITIONS ON VAPOR-LIQUID INTERFACES ARE ESSENTIAL IN ORDER TO MAKE AN ANALYSIS OF FLOWS OF A LIQUID INCLUDING BUBBLES OR OF A GAS INCLUDING DROPLETS. SUITABLE BOUNDARY CONDITIONS DO NOT EXIST AT THE PRESENT TIME. THIS BOOK IS CONCERNED WITH THE KINETIC BOUNDARY CONDITION FOR BOTH THE PLANE AND CURVED VAPOR-LIQUID INTERFACES, AND THE FLUID DYNAMICS BOUNDARY CONDITION FOR NAVIER-STOKES (FLUID DYNAMICS) EQUATIONS. THE KINETIC BOUNDARY CONDITION IS FORMULATED ON THE BASIS OF MOLECULAR DYNAMICS SIMULATIONS AND THE FLUID DYNAMICS BOUNDARY CONDITION IS DERIVED BY A PERTURBATION ANALYSIS OF GAUSSIAN-BGK BOLTZMANN EQUATION APPLICABLE TO POLYATOMIC GASES. THE FLUID DYNAMICS BOUNDARY CONDITION IS APPLIED TO ACTUAL FLOW PROBLEMS OF BUBBLES IN A LIQUID AND DROPLETS IN A

GAS.

PHYSICAL KINETICS - L. P. PITAEVSKII 2012-12-02

THIS VOLUME IS MAINLY CONCERNED WITH A SYSTEMATIC DEVELOPMENT OF THE THEORY OF PLASMAS, THE AUTHORITY BEING FIRMLY ROOTED IN THE PIONEERING WORK OF LANDAU. CORRESPONDING RESULTS ARE ALSO GIVEN FOR PARTIALLY IONIZED PLASMAS, RELATIVISTIC PLASMAS, DEGENERATE OR NON-IDEAL PLASMAS AND SOLID STATE PLASMAS.

**PARTICLE INTERACTIONS IN HIGH-TEMPERATURE PLASMAS** -

OLIVER JAMES PIKE 2017-08-17

THIS THESIS MAKES TWO IMPORTANT CONTRIBUTIONS TO PLASMA PHYSICS. THE FIRST IS THE EXTENSION OF THE SEMINAL THEORETICAL WORKS OF SPITZER AND BRAGINSKII, WHICH DESCRIBE THE BASICS OF PARTICLE INTERACTIONS IN PLASMA, TO RELATIVISTIC SYSTEMS. RELATIVISTIC PLASMAS HAVE LONG BEEN STUDIED IN HIGH-ENERGY ASTROPHYSICS AND ARE BECOMING INCREASINGLY ATTAINABLE IN THE LABORATORY. THE SECOND IS THE DESIGN OF A NEW CLASS OF PHOTON-PHOTON COLLIDER, WHICH IS THE FIRST CAPABLE OF DETECTING THE BREIT-WHEELER PROCESS. THOUGH IT OFFERS THE SIMPLEST WAY FOR LIGHT TO BE CONVERTED INTO MATTER, THE PROCESS HAS NEVER BEEN DETECTED IN THE 80 YEARS SINCE ITS THEORETICAL PREDICTION. THE EXPERIMENTAL SCHEME PROPOSED HERE EXPLOITS THE RADIATION USED IN INERTIAL CONFINEMENT FUSION EXPERIMENTS AND COULD IN PRINCIPLE BE IMPLEMENTED IN ONE OF SEVERAL CURRENT-

GENERATION FACILITIES.

**STATISTICAL PHYSICS** - LEV DAVIDOVICH LANDAU 1980

A LUCID PRESENTATION OF STATISTICAL PHYSICS AND THERMODYNAMICS WHICH DEVELOPS FROM THE GENERAL PRINCIPLES TO GIVE A LARGE NUMBER OF APPLICATIONS OF THE THEORY.

**FLUID MECHANICS** - L D LANDAU 2013-09-03

FLUID MECHANICS, SECOND EDITION DEALS WITH FLUID MECHANICS, THAT IS, THE THEORY OF THE MOTION OF LIQUIDS AND GASES. TOPICS COVERED RANGE FROM IDEAL FLUIDS AND VISCOUS FLUIDS TO TURBULENCE, BOUNDARY LAYERS, THERMAL CONDUCTION, AND DIFFUSION. SURFACE PHENOMENA, SOUND, AND SHOCK WAVES ARE ALSO DISCUSSED, ALONG WITH GAS FLOW, COMBUSTION, SUPERFLUIDS, AND RELATIVISTIC FLUID DYNAMICS. THIS BOOK IS COMPRISED OF 16 CHAPTERS AND BEGINS WITH AN OVERVIEW OF THE FUNDAMENTAL EQUATIONS OF FLUID DYNAMICS, INCLUDING EULER'S EQUATION AND BERNOULLI'S EQUATION. THE READER IS THEN INTRODUCED TO THE EQUATIONS OF MOTION OF A VISCOUS FLUID; ENERGY DISSIPATION IN AN INCOMPRESSIBLE FLUID; DAMPING OF GRAVITY WAVES; AND THE MECHANISM WHEREBY TURBULENCE OCCURS. THE FOLLOWING CHAPTERS EXPLORE THE LAMINAR BOUNDARY LAYER; THERMAL CONDUCTION IN FLUIDS; DYNAMICS OF DIFFUSION OF A MIXTURE OF FLUIDS; AND THE PHENOMENA THAT OCCUR NEAR THE SURFACE SEPARATING TWO CONTINUOUS MEDIA. THE

ENERGY AND MOMENTUM OF SOUND WAVES; THE DIRECTION OF VARIATION OF QUANTITIES IN A SHOCK WAVE; ONE- AND TWO-DIMENSIONAL GAS FLOW; AND THE INTERSECTION OF SURFACES OF DISCONTINUITY ARE ALSO ALSO CONSIDERED. THIS MONOGRAPH WILL BE OF INTEREST TO THEORETICAL PHYSICISTS.

**MATHEMATICA FOR THEORETICAL PHYSICS** - GERD BAUMANN  
2006-01-16

CLASS-TESTED TEXTBOOK THAT SHOWS READERS HOW TO SOLVE PHYSICAL PROBLEMS AND DEAL WITH THEIR UNDERLYING THEORETICAL CONCEPTS WHILE USING MATHEMATICA® TO DERIVE NUMERIC AND SYMBOLIC SOLUTIONS. DELIVERS DOZENS OF FULLY INTERACTIVE EXAMPLES FOR LEARNING AND IMPLEMENTATION, CONSTANTS AND FORMULAE CAN READILY BE ALTERED AND ADAPTED FOR THE USER'S PURPOSES. NEW EDITION OFFERS ENLARGED TWO-VOLUME FORMAT SUITABLE TO COURSES IN MECHANICS AND ELECTRODYNAMICS, WHILE OFFERING DOZENS OF NEW EXAMPLES AND A MORE REWARDING INTERACTIVE LEARNING ENVIRONMENT.

**QUANTUM MECHANICS** - L D LANDAU 2013-10-22  
QUANTUM MECHANICS, THIRD EDITION: NON-RELATIVISTIC THEORY IS DEVOTED TO NON-RELATIVISTIC QUANTUM MECHANICS. THE THEORY OF THE ADDITION OF ANGULAR MOMENTA, COLLISION THEORY, AND THE THEORY OF SYMMETRY ARE EXAMINED, TOGETHER WITH SPIN, NUCLEAR STRUCTURE, MOTION IN A MAGNETIC FIELD, AND DIATOMIC AND

POLYATOMIC MOLECULES. THIS BOOK IS COMPRISED OF 18 CHAPTERS AND BEGINS WITH AN INTRODUCTION TO THE BASIC CONCEPTS OF QUANTUM MECHANICS, WITH EMPHASIS ON THE UNCERTAINTY PRINCIPLE, THE PRINCIPLE OF SUPERPOSITION, AND OPERATORS, AS WELL AS THE CONTINUOUS SPECTRUM AND THE WAVE FUNCTION. THE FOLLOWING CHAPTERS EXPLORE ENERGY AND MOMENTUM; SCHRÖDINGER'S EQUATION; ANGULAR MOMENTUM; AND MOTION IN A CENTRALLY SYMMETRIC FIELD AND IN A MAGNETIC FIELD. PERTURBATION THEORY, SPIN, AND THE PROPERTIES OF QUASI-CLASSICAL SYSTEMS ARE ALSO CONSIDERED. THE REMAINING CHAPTERS DEAL WITH THE IDENTITY OF PARTICLES, ATOMS, AND DIATOMIC AND POLYATOMIC MOLECULES. THE FINAL TWO CHAPTERS DESCRIBE ELASTIC AND INELASTIC COLLISIONS. THIS MONOGRAPH WILL BE A VALUABLE SOURCE OF INFORMATION FOR PHYSICISTS.

**QUANTUM ELECTRODYNAMICS** - V B BERESTETSKII  
2012-12-02

SEVERAL SIGNIFICANT ADDITIONS HAVE BEEN MADE TO THE SECOND EDITION, INCLUDING THE OPERATOR METHOD OF CALCULATING THE BREMSSTRAHLUNG CROSS-SECTION, THE CALCULATION OF THE PROBABILITIES OF PHOTON-INDUCED PAIR PRODUCTION AND PHOTON DECAY IN A MAGNETIC FIELD, THE ASYMPTOTIC FORM OF THE SCATTERING AMPLITUDES AT HIGH ENERGIES, INELASTIC SCATTERING OF ELECTRONS BY HADRONS, AND THE TRANSFORMATION OF ELECTRON-

POSITRON PAIRS INTO HADRONS.

*COURSE OF THEORETICAL PHYSICS, VOL. 10 PHYSICAL KINETICS* - LANDAU 10 2010-01-01

CONDENSED MATTER FIELD THEORY - ALEXANDER ALTLAND 2010-03-11

MODERN EXPERIMENTAL DEVELOPMENTS IN CONDENSED MATTER AND ULTRACOLD ATOM PHYSICS PRESENT FORMIDABLE CHALLENGES TO THEORISTS. THIS BOOK PROVIDES A PEDAGOGICAL INTRODUCTION TO QUANTUM FIELD THEORY IN MANY-PARTICLE PHYSICS, EMPHASIZING THE APPLICABILITY OF THE FORMALISM TO CONCRETE PROBLEMS. THIS SECOND EDITION CONTAINS TWO NEW CHAPTERS DEVELOPING PATH INTEGRAL APPROACHES TO CLASSICAL AND QUANTUM NONEQUILIBRIUM PHENOMENA. OTHER CHAPTERS COVER A RANGE OF TOPICS, FROM THE INTRODUCTION OF MANY-BODY TECHNIQUES AND FUNCTIONAL INTEGRATION, TO RENORMALIZATION GROUP METHODS, THE THEORY OF RESPONSE FUNCTIONS, AND TOPOLOGY. CONCEPTUAL ASPECTS AND FORMAL METHODOLOGY ARE EMPHASIZED, BUT THE DISCUSSION FOCUSES ON PRACTICAL EXPERIMENTAL APPLICATIONS DRAWN LARGELY FROM CONDENSED MATTER PHYSICS AND NEIGHBORING FIELDS. EXTENDED AND CHALLENGING PROBLEMS WITH FULLY WORKED SOLUTIONS PROVIDE A BRIDGE BETWEEN FORMAL MANIPULATIONS AND RESEARCH-ORIENTED THINKING. AIMED AT ELEVATING GRADUATE

STUDENTS TO A LEVEL WHERE THEY CAN ENGAGE IN INDEPENDENT RESEARCH, THIS BOOK COMPLEMENTS GRADUATE LEVEL COURSES ON MANY-PARTICLE THEORY.

**QUANTUM FIELD THEORY I: BASICS IN MATHEMATICS AND PHYSICS** - EBERHARD ZEIDLER 2007-04-18

THIS IS THE FIRST VOLUME OF A MODERN INTRODUCTION TO QUANTUM FIELD THEORY WHICH ADDRESSES BOTH MATHEMATICIANS AND PHYSICISTS, AT LEVELS RANGING FROM ADVANCED UNDERGRADUATE STUDENTS TO PROFESSIONAL SCIENTISTS. THE BOOK BRIDGES THE ACKNOWLEDGED GAP BETWEEN THE DIFFERENT LANGUAGES USED BY MATHEMATICIANS AND PHYSICISTS. FOR STUDENTS OF MATHEMATICS THE AUTHOR SHOWS THAT DETAILED KNOWLEDGE OF THE PHYSICAL BACKGROUND HELPS TO MOTIVATE THE MATHEMATICAL SUBJECTS AND TO DISCOVER INTERESTING INTERRELATIONSHIPS BETWEEN QUITE DIFFERENT MATHEMATICAL TOPICS. FOR STUDENTS OF PHYSICS, FAIRLY ADVANCED MATHEMATICS IS PRESENTED, WHICH GOES BEYOND THE USUAL CURRICULUM IN PHYSICS.

**STATISTICAL MECHANICS** - JAMES SETHNA 2006-04-07

IN EACH GENERATION, SCIENTISTS MUST REDEFINE THEIR FIELDS: ABSTRACTING, SIMPLIFYING AND DISTILLING THE PREVIOUS STANDARD TOPICS TO MAKE ROOM FOR NEW ADVANCES AND METHODS. SETHNA'S BOOK TAKES THIS STEP FOR STATISTICAL MECHANICS - A FIELD ROOTED IN PHYSICS AND CHEMISTRY WHOSE IDEAS AND METHODS ARE NOW CENTRAL

TO INFORMATION THEORY, COMPLEXITY, AND MODERN BIOLOGY. AIMED AT ADVANCED UNDERGRADUATES AND EARLY GRADUATE STUDENTS IN ALL OF THESE FIELDS, SETHNA LIMITS HIS MAIN PRESENTATION TO THE TOPICS THAT FUTURE MATHEMATICIANS AND BIOLOGISTS, AS WELL AS PHYSICISTS

AND CHEMISTS, WILL FIND FASCINATING AND CENTRAL TO THEIR WORK. THE AMAZING BREADTH OF THE FIELD IS REFLECTED IN THE AUTHOR'S LARGE SUPPLY OF CAREFULLY CRAFTED EXERCISES, EACH AN INTRODUCTION TO A WHOLE FIELD OF STUDY: EVERYTHING FROM CHAOS THROUGH INFORMATION THEORY TO LIFE AT THE END OF THE UNIVERSE.