The Physics Of Inertial Fusion Beam Plasma Interaction Hydrodynamics Hot Dense Matter International Series Of Monographs On Physics

The Release of Thermonuclear Energy by Inertial ConfinementAdvanced Diagnostics for Magnetic and Inertial FusionPlasma PhysicsControlled Fusion and Plasma PhysicsMagnetically Confined Fusion Plasma PhysicsInertial Confinement FusionInertial Electrostatic Confinement (IEC) FusionIntroduction to Laser FusionFusion PhysicsHigh-Energy-Density PhysicsThe Physics of Inertial FusionPlasma Physics and Fusion EnergyLaser-Plasma Interactions and ApplicationsPlasma Physics and Fusion Plasma ElectrodynamicsEnergy from Inertial FusionNuclear Fusion by Inertial ConfinementInertial Confinement FusionInertial Confinement Nuclear FusionApplications of Laser-Plasma InteractionsAn Assessment of the Prospects for Inertial Fusion EnergyFusionEdward Teller LecturesPlasma Physics and Controlled Nuclear FusionPlasma Scattering of Electromagnetic RadiationAlternative Fusion Fuels and SystemsInertial Confinement FusionInertial Confinement Fusion Driven Thermonuclear EnergyHigh-Energy-Density PhysicsPlasma Physics and Nuclear Fusion ResearchAn Introduction to Inertial Confinement FusionThe Physics of Inertial FusionNuclear FusionCurrent Trends in International Fusion ResearchAssessment of Inertial Confinement Fusion TargetsThe Interaction of High-Power Lasers with PlasmasStrongly Coupled Plasma PhysicsThe Physics Of Laser Plasma InteractionsControlled Thermonuclear FusionThe Physics of Laser FusionThe Physics of Inertial Fusion

The Release of Thermonuclear Energy by Inertial Confinement

This book is on inertial confinement fusion, an alternative way to produce electrical power from hydrogen fuel by using powerful lasers or particle beams. It involves the compression of tiny amounts (micrograms) of fuel to thousand times solid density and pressures otherwise existing only in the centre of stars. Thanks to advances in laser technology, it is now possible to produce such extreme states of matter in the laboratory. Recent developments have boosted laser intensities again with new possibilities for laser particle accelerators, laser nuclear physics, and fast ignition of fusion targets. This is a reference book for those working on beam plasma physics, be it in the context of fundamental research or applications to fusion energy or novel ultra-bright laser sources. The book combines quite different areas of physics: beam target interaction, dense plasmas, hydrodynamic implosion and instabilities, radiative energy transfer as well as fusion reactions. Particular attention is given to simple and useful modelling, including dimensional analysis and similarity solutions. Both authors have worked in this field for more than 20 years. They want to address in particular those teaching this topic to students and all those interested in understanding the technical basis.

Advanced Diagnostics for Magnetic and Inertial Fusion

This book is on fusion energy, burning hydrogen which is available from water. It is the energy source of the sun. It produces neither greenhouse gases leading to global warming nor long-lived nuclear waste. Here we describe how to use powerful lasers to ignite the hydrogen fuel. There are presently two large laser facilities under construction to demonstrate that this method works. This book is about the physics of this future energy source and addresses peoplewho work on it or want to understand its technical basis.

Plasma Physics

This book takes a holistic approach to plasma physics and controlled fusion via Inertial Confinement Fusion (ICF) techniques, establishing a new standard for clean nuclear power generation. Inertial Confinement Fusion techniques to enable laser-driven fusion have long been confined to the black-box of government classification due to related research on thermonuclear weapons applications. This book is therefore the first of its kind to explain the physics, mathematics and methods behind the implosion of the Nd-Glass tiny balloon (pellet), using reliable and thoroughly referenced data sources. The associated computer code and numerical analysis are included in the book. No prior knowledge of Laser Driven Fusion and no more than basic background in plasma physics is required.

Controlled Fusion and Plasma Physics

The raw numbers of high-energy-density physics are amazing: shock waves at hundreds of km/s (approaching a million km per hour), temperatures of millions of degrees, and pressures that exceed 100 million atmospheres. This title surveys the production of high-energy-density conditions, the fundamental plasma and hydrodynamic models that can describe them and the problem of scaling from the laboratory to the cosmos. Connections to astrophysics are discussed throughout. The book is intended to support coursework in high-energy-density physics, to meet the needs of new researchers in this field, and also to serve as a useful reference on the fundamentals. Specifically the book has been designed to enable academics in physics, astrophysics, applied physics and engineering departments to provide in a single-course, an introduction to fluid mechanics and radiative transfer, with dramatic applications in the field of high-energy-density systems. This second edition includes pedagogic improvements to the presentation throughout and additional material on equations of state, heat waves, and ionization fronts, as well as problem sets accompanied by solutions.

Magnetically Confined Fusion Plasma Physics

Laser-Plasma Interactions and Applications covers the fundamental and applied aspects of high power laser-plasma physics. With an internationally renowned team of authors, the book broadens the knowledge of young researchers working in high

power laser-plasma science by providing them with a thorough pedagogical grounding in the interaction of laser radiation with matter, laser-plasma accelerators, and inertial confinement fusion. The text is organised such that the theoretical foundations of the subject are discussed first, in Part I. In Part II, topics in the area of high energy density physics are covered. Parts III and IV deal with the applications to inertial confinement fusion and as a driver of particle and radiation sources, respectively. Finally, Part V describes the principle diagnostic, targetry, and computational approaches used in the field. This book is designed to give students a thorough foundation in the fundamental physics of laser-plasma interactions. It will also provide readers with knowledge of the latest research trends and elucidate future exciting challenges in laser-plasma science.

Inertial Confinement Fusion

This book provides readers with an introductory understanding of Inertial Electrostatic Confinement (IEC), a type of fusion meant to retain plasma using an electrostatic field. IEC provides a unique approach for plasma confinement, as it offers a number of spin-off applications, such as a small neutron source for Neutron Activity Analysis (NAA), that all work towards creating fusion power. The IEC has been identified in recent times as an ideal fusion power unit because of its ability to burn aneutronic fuels like p-B11 as a result of its non-Maxwellian plasma dominated by beam-like ions. This type of fusion also takes place in a simple mechanical structure small in size, which also contributes to its viability as a source of power. This book posits that the ability to study the physics of IEC in very small volume plasmas makes it possible to rapidly investigate a design to create a power-producing device on a much larger scale. Along with this hypothesis the book also includes a conceptual experiment proposed for demonstrating breakeven conditions for using p-B11 in a hydrogen plasma simulation. This book also: Offers an in-depth look, from introductory basics to experimental simulation, of Inertial Electrostatic Confinement, an emerging method for generating fusion power Discusses how the Inertial Electrostatic Confinement method can be applied to other applications besides fusion through theoretical experiments in the text Details the study of the physics of Inertial Electrostatic Confinement in small-volume plasmas and suggests that their rapid reproduction could lead to the creation of a large-scale power-producing device Perfect for researchers and students working with nuclear fusion, Inertial Electrostatic Confinement (IEC) Fusion: Fundamentals and Applications also offers the current experimental status of IEC research, details supporting theories in the field and introduces other potential applications that stem from IEC.

Inertial Electrostatic Confinement (IEC) Fusion

The Interaction of High-Power Lasers with Plasmas provides a thorough self-contained discussion of the physical processes occurring in laser-plasma interactions, including a detailed review of the relevant plasma and laser physics. The book

analyzes laser absorption and propagation, electron transport, and the relevant plasma waves in detail. It al

Introduction to Laser Fusion

This work presents one of the most powerful methods of plasma diagnosis in exquisite detail, to guide researchers in the theory and measurement techniques of light scattering in plasmas. Light scattering in plasmas is essential in the research and development of fusion energy, environmental solutions, and electronics. Referred to as the "Bible" by researchers, the work encompasses fusion and industrial applications essential in plasma research. It is the only comprehensive resource specific to the plasma scattering technique. It provides a wide-range of experimental examples and discussion of their principles with worked examples to assist researchers in applying the theory. Computing techniques for solving basic equations helps researchers compare data to the actual experiment New material on advances on the experimental side, such as the application of high density plasmas of inertial fusion Worked out examples of the scattering technique for easier comprehension of theory

Fusion Physics

This book has two goals. One goal is to provide a means for those new to high-energy-density physics to gain a broad foundation from one text. The second goal is to provide a useful working reference for those in the ?eld. This book has at least four possible applications in an academic c- text. It can be used for training in high-energy-density physics, in support of the growing number of university and laboratory research groups working in this area. It also can be used by schools with an emphasis on ultrafast lasers, to provide some introduction to issues present in all laser–target - perimentswithhigh-powerlasers,andwiththoroughcoverageofthematerial in Chap. 11 on relativistic systems. In addition, it could be used by physics, applied physics, or engineering departments to provide in a single course an introduction to the basics of ?uid mechanics and radiative transfer, with d- matic applications. Finally, it could be used by astrophysics departments for a similar purpose, with the parallel bene?t of training the students in the similarities and di?erences between laboratory and astrophysical systems. The notation in this text is deliberately sparse and when possible a given symbol has only one meaning. A de?nition of the symbols used is given in Appendix A. In various cases, additional subscripts are added to distinguish among cases of the same quantity, as for example in the use of ? and ? 1 2 to distinguish the mass density in two di?erent regions.

High-Energy-Density Physics

Beginning at an introductory level, this text presents a thorough treatment of plasma physics, including an extensive

discussion of its applications in thermonuclear fusion research. A novel feature of this book is its comprehensive description of the various concepts and formulas widely used in fusion theory based on the fundamental equations of the plasma fluid. The physics of fusion plasmas is explained mainly in relation to recent progress in tokamak research, but other plasma confinement schemes, such as stellarators and inertial confinement, are also described. The unique and systematic presentation will help readers to understand the overall structure of plasma theory and will facilitate access to more advanced literature on special topics.

The Physics of Inertial Fusion

Charged particles in dense matter exhibit strong correlations due to the exchange and Coulomb interactions, and thus make a strongly coupled plasma. Examples in laboratory and astrophysical settings include solid and liquid metals, semiconductors, charged particles in lower dimensions such as those trapped in interfacial states of condensed matter or beams, dense multi-ionic systems such a superionic conductors and inertial-confinement-fusion plasmas . The aim of the conference was to elucidate the various physical processes involved in these dense materials. The subject areas covered include plasma physics, atomic and molecular physics, condensed matter physics and astrophysics.

Plasma Physics and Fusion Energy

Laser-Plasma Interactions and Applications

Using four-color throughout, this volume was subsidized by Lawrence Livermore Labs, where the Department of Defense funds research (within the National Ignition Faculty) into nuclear-weapons safety and fusion-energy production. Written by a chief researcher at the pre-eminent center of research in the nation, the book contains sufficient background, introductory material, and valuable information that is required reading in fusion research.

Plasma Physics and Fusion Plasma Electrodynamics

Resulting from ongoing, international research into fusion processes, the International Tokamak Experimental Reactor (ITER) is a major step in the quest for a new energy source.The first graduate-level text to cover the details of ITER, Controlled Fusion and Plasma Physics introduces various aspects and issues of recent fusion research activities through the shortest access path. The distinguished author breaks down the topic by first dealing with fusion and then concentrating on the more complex subject of plasma physics. The book begins with the basics of controlled fusion research, followed by

discussions on tokamaks, reversed field pinch (RFP), stellarators, and mirrors. The text then explores ideal magnetohydrodynamic (MHD) instabilities, resistive instabilities, neoclassical tearing mode, resistive wall mode, the Boltzmann equation, the Vlasov equation, and Landau damping. After covering dielectric tensors of cold and hot plasmas, the author discusses the physical mechanisms of wave heating and noninductive current drive. The book concludes with an examination of the challenging issues of plasma transport by turbulence, such as magnetic fluctuation and zonal flow. Controlled Fusion and Plasma Physics clearly and thoroughly promotes intuitive understanding of the developments of the principal fusion programs and the relevant fundamental and advanced plasma physics associated with each program.

Energy from Inertial Fusion

The book is a presentation of the basic principles and main achievements in the field of nuclear fusion. It encompasses both magnetic and inertial confinements plus a few exotic mechanisms for nuclear fusion. The state-of-the-art regarding thermonuclear reactions, hot plasmas, tokamaks, laser-driven compression and future reactors is given.

Nuclear Fusion by Inertial Confinement

- Broad understandable summaries of leading experts - Unique review of inexhaustive, clean, safe and low-cost energy production for the future - Discussion of very short laser pulses, 1000 times more powerful than all the power stations on earth

Inertial Confinement Fusion

The primary objectives of this book are, firstly, to present the essential theoretical background needed to understand recent fusion research and, secondly, to describe the current status of fusion research for graduate students and senior undergraduates. It will also serve as a useful reference for scientists and engineers working in the related fields. In Part I, Plasma Physics, the author explains the basics of magneto-hydrodynamics and kinetic theory in a simple and compact way and, at the same time, covers important new topics for fusion studies such as the ballooning representation, instabilities driven by energetic particles and various plasma models for computer simulations. Part II, Controlled Nuclear Fusion, attempts to review the "big picture" in fusion research. All important phenomena and technologies are addressed, with a particular emphasis on the topics of most concern in current research.

Inertial Confinement Nuclear Fusion

There has been an increase in interest worldwide in fusion research over the last decade and a half due to the recognition that a large number of new, environmentally attractive, sustainable energy sources will be needed to meet ever increasing demand for electrical energy. Based on a series of course notes from graduate courses in plasma physics and fusion energy at MIT, the text begins with an overview of world energy needs, current methods of energy generation, and the potential role that fusion may play in the future. It covers energy issues such as the production of fusion power, power balance, the design of a simple fusion reactor and the basic plasma physics issues faced by the developers of fusion power. This book is suitable for graduate students and researchers working in applied physics and nuclear engineering. A large number of problems accumulated over two decades of teaching are included to aid understanding.

Applications of Laser-Plasma Interactions

Plasma is a ubiquitous state of matter at high temperatures. The electrodynamics of plasmas encompasses many applications, from understanding plasmas in space and the stars, to their use in processing semiconductors. This textbook at the early graduate level covers basic plasma physics and illustrates its use in many current applications

An Assessment of the Prospects for Inertial Fusion Energy

Plasma Physics and Nuclear Fusion Research covers the theoretical and experimental aspects of plasma physics and nuclear fusion. The book starts by providing an overview and survey of plasma physics; the theory of the electrodynamics of deformable media and magnetohydrodynamics; and the particle orbit theory. The text also describes the plasma waves; the kinetic theory; the transport theory; and the MHD stability theory. Advanced theories such as microinstabilities, plasma turbulence, anomalous transport theory, and nonlinear laser plasma interaction theory are also considered. The book further tackles the pinch and tokamak confinement devices; the stellarator confinement devices; the mirror devices; and the next generation tokamaks. The text also encompasses the fusion reactor studies; heating; and diagnostics. Physicists and people involved in the study of plasma physics and nuclear fusion will find the book invaluable.

Fusion

Newcomers to the field of inertial confinement fusion (ICF) often have difficulty establishing a clear picture of the overall field. The reason for this is because, while there are many books devoted to special topics within the field, there is none that provides an overview of the field as a whole. An Introduction to Inertial Confinement Fusion fi

Edward Teller Lectures

Plasma Physics and Controlled Nuclear Fusion

Plasma Scattering of Electromagnetic Radiation

Nuclear Fusion by Inertial Confinement provides a comprehensive analysis of directly driven inertial confinement fusion. All important aspects of the process are covered, including scientific considerations that support the concept, lasers and particle beams as drivers, target fabrication, analytical and numerical calculations, and materials and engineering considerations. Authors from Australia, Germany, Italy, Japan, Russia, Spain, and the U.S. have contributed to the volume, making it an internationally significant work for all scientists working in the Inertial Confinement Fusion (ICF) field, as well as for graduate students in engineering and physics with interest in ICF.

Alternative Fusion Fuels and Systems

Proceedings of the International Conference on Advanced Diagnostics for Magnetic and Inertial Fusion, held September 3-7, 2001 at Villa Monastero, Varenna, Italy. This volume focuses on future diagnostic requirements for fusion energy research emphasizing advanced diagnostics, new techniques and areas where further progress is required.

Inertial Confinement Fusion

This publication is a comprehensive reference book for graduate students and an invaluable guide for more experienced researchers. It provides an introduction to nuclear fusion and its status and prospects, and features specialised chapters written by leaders in the field, presenting the main research and development concepts in fusion physics. It starts with an introduction to the case for the development of fusion as an energy source. Magnetic and inertial confinement are addressed. Dedicated chapters focus on the physics of confinement, the equilibrium and stability of tokamaks, diagnostics, heating and current drive by neutral beam and radiofrequency waves, and plasma-wall interactions. While the tokamak is a leading concept for the realisation of fusion, other concepts (helical confinement and, in a broader sense, other magnetic and inertial configurations) are also addressed in the book. At over 1100 pages, this publication provides an unparalleled resource for fusion physicists and engineers.

Inertial Confinement Fusion Driven Thermonuclear Energy

In the fall of 2010, the Office of the U.S. Department of Energy's (DOE's) Secretary for Science asked for a National Research Council (NRC) committee to investigate the prospects for generating power using inertial confinement fusion (ICF) concepts, acknowledging that a key test of viability for this concept-ignition -could be demonstrated at the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL) in the relatively near term. The committee was asked to provide an unclassified report. However, DOE indicated that to fully assess this topic, the committee's deliberations would have to be informed by the results of some classified experiments and information, particularly in the area of ICF targets and nonproliferation. Thus, the Panel on the Assessment of Inertial Confinement Fusion Targets ("the panel") was assembled, composed of experts able to access the needed information. The panel was charged with advising the Committee on the Prospects for Inertial Confinement Fusion Energy Systems on these issues, both by internal discussion and by this unclassified report. A Panel on Fusion Target Physics ("the panel") will serve as a technical resource to the Committee on Inertial Confinement Energy Systems ("the Committee") and will prepare a report that describes the R&D challenges to providing suitable targets, on the basis of parameters established and provided to the Panel by the Committee. The Panel on Fusion Target Physics will prepare a report that will assess the current performance of fusion targets associated with various ICF concepts in order to understand: 1. The spectrum output; 2. The illumination geometry; 3. The high-gain geometry; and 4. The robustness of the target design. The panel addressed the potential impacts of the use and development of current concepts for Inertial Fusion Energy on the proliferation of nuclear weapons information and technology, as appropriate. The Panel examined technology options, but does not provide recommendations specific to any currently operating or proposed ICF facility.

High-Energy-Density Physics

This book is on fusion energy, burning hydrogen which is available from water. It is the energy source of the sun. It produces neither greenhouse gases leading to global warming nor long-lived nuclear waste. Here we describe how to use powerful lasers to ignite the hydrogen fuel. There are presently two large laser facilities under construction to demonstrate that this method works. This book is about the physics of this future energy source and addresses people who work on it or want to understand its technical basis.

Plasma Physics and Nuclear Fusion Research

This book describes the ideal magnetohydrodynamic theory for magnetically conned fusion plasmas. Advanced topics are presented in attempting to fill the gap between the up-to-date research developments and plasma physics textbooks. Nevertheless, they are self contained and trackable with the mathematical treatments detailed and underlying physics explained. Both analytical theories and numerical schemes are given. Besides the current research developments in this

field, the future prospects are also discussed. Nowadays, it is believed that, if the ideal MHD theory predicts major instabilities, none of the magnetic confinements of fusion plasmas can survive. The author has also written the book Advanced Tokamak Stability Theory. In view of its importance, the MHD theory is further systematically elaborated in this book. The conventional ideal MHD framework is reviewed together with the newly developed multi-parallel-fluid MHD theory. The MHD equilibrium theory and code are described with the non-letter-'X' separatrix feature pointed out. The continuum modes, quasi-modes, phase mixing, and Alfven resonance heating are analysed. The analytical theories for MHD stability in tokamak configurations are systematically presented, such as the interchange, peeling, ballooning, toroidal Alfven modes, and kink type of modes. The global stability computations are also addressed, including resistive wall modes, error-field amplifications, and Alfven modes, etc.

An Introduction to Inertial Confinement Fusion

Market: Students and professionals in plasma and energy research. A cohesive assessment of current and future research trends in what may be the most challenging area of contemporary energy research. This work is edited by K.A. Brueckner--one of the pioneers in inertial confinement fusion--and examines the latest thinking regarding worldwide research in driver energy deposition, thermal and suprathermal electron transport, ICF diagnostics, and targets, drivers, and reactors.

The Physics of Inertial Fusion

Fusion: The Energy of the Universe, 2e is an essential reference providing basic principles of fusion energy from its history to the issues and realities progressing from the present day energy crisis. The book provides detailed developments and applications for researchers entering the field of fusion energy research. This second edition includes the latest results from the National Ignition Facility at the Lawrence Radiation Laboratory at Livermore, CA, and the progress on the International Thermonuclear Experimental Reactor (ITER) tokamak programme at Caderache, France. Comprehensive coverage- basic principles, detailed developments and practical applications Wide accessibility, but with sufficient detail to keep the technical reader engaged Details the initial discovery of nuclear fusion, current attempts to create nuclear fusion here on earth and today's concern over future energy supply Color illustrations and examples Includes technical notes for aspiring physicists

Nuclear Fusion

The book describes the history of the research on inertial confinement nuclear fusion. This book presents the direct

testimony and open account of the facts, events, dates, and contrasting research which culminated in 1988 with the Madrid Manifesto.

Current Trends in International Fusion Research

This book focuses on the physics of laser plasma interactions and presents a complementary and very useful numerical model of plasmas. It describes the linear theory of light wave propagation in plasmas, including linear mode conversion into plasma waves and collisional damping.

Assessment of Inertial Confinement Fusion Targets

Explores the systems of magnetic confinement of high-temperature plasma with closed and open magnetic field lines which relate to alternative compact devices of controlled thermonuclear fusion. Energy balance schemes of thermonuclear plasmas and main reactor characteristics are presented as the authors compare conceptual projects based on classical tokamak and stellarator, spherical tokamak and compact torus. They explore the questions and problems of new promising nuclear and thermonuclear power plants that source thermonuclear neutrons on a mixture of deuterium and tritium, and a low-radioactive reactor on a mixture of deuterium and helium-3.

The Interaction of High-Power Lasers with Plasmas

The potential for using fusion energy to produce commercial electric power was first explored in the 1950s. Harnessing fusion energy offers the prospect of a nearly carbon-free energy source with a virtually unlimited supply of fuel. Unlike nuclear fission plants, appropriately designed fusion power plants would not produce the large amounts of high-level nuclear waste that requires long-term disposal. Due to these prospects, many nations have initiated research and development (R&D) programs aimed at developing fusion as an energy source. Two R&D approaches are being explored: magnetic fusion energy (MFE) and inertial fusion energy (IFE). An Assessment of the Prospects for Inertial Fusion Energy describes and assesses the current status of IFE research in the United States; compares the various technical approaches to IFE; and identifies the scientific and engineering challenges associated with developing inertial confinement fusion (ICF) in particular as an energy source. It also provides guidance on an R&D roadmap at the conceptual level for a national program focusing on the design and construction of an inertial fusion energy demonstration plant.

Strongly Coupled Plasma Physics

The Physics Of Laser Plasma Interactions

This is a comprehensive book which describes the three essential parts of what is known as ''Inertial Confinement Fusion'': the way thermonuclear burn takes place in non-magnetized, magnetized and fusion-fission hybrid assemblies; the pulse power ignition technology (nuclear, electrical, optical and chemical); and, the applications of inertial confinement fusion technology for peaceful nuclear energy on Earth and in space. An integrated single text of such extensive technical width is a rare find, and younger generations of nuclear engineers any physicists will appreciate this book as a companion to their traditional textbooks.

Controlled Thermonuclear Fusion

This volume provides a comprehensive introduction to the rapidly developing field of laser fusion. It covers the range of inertial confinement techniques extending from fusion reactions to the laser interaction with plasmas and implosion dynamics. The properties of various fusion drivers are reviewed, as are the current experimental status and future prospects of the technique.

The Physics of Laser Fusion

Recent advances in the development of lasers with more energy, power, and brightness have opened up new possibilities for exciting applications. Applications of Laser-Plasma Interactions reviews the current status of high power laser applications. The book first explores the science and technology behind the ignition and burn of imploded fusion fue

The Physics of Inertial Fusion

The pursuit of nuclear fusion as an energy source requires a broad knowledge of several disciplines. These include plasma physics, atomic physics, electromagnetics, materials science, computational modeling, superconducting magnet technology, accelerators, lasers, and health physics. Nuclear Fusion distills and combines these disparate subjects to create a concise and coherent foundation to both fusion science and technology. It examines all aspects of physics and technology underlying the major magnetic and inertial confinement approaches to developing nuclear fusion energy. It further chronicles latest developments in the field, and reflects the multi-faceted nature of fusion research, preparing advanced undergraduate and graduate students in physics and engineering to launch into successful and diverse fusion-related research. Nuclear Fusion reflects Dr. Morse’s research in both magnetic and inertial confinement fusion, working with the world’s top laboratories, and embodies his extensive thirty-five year career in teaching three courses in fusion plasma

physics and fusion technology at University of California, Berkeley.