

Chapter 2 Blackbody Radiation Uvic

Twelve Years a Slave (1853) is a memoir and slave narrative by Solomon Northup, as told to and edited by David Wilson. Northup, a black man who was born free in New York, details his kidnapping in Washington, D.C. and subsequent sale into slavery. After having been kept in bondage for 12 years in Louisiana by various masters, Northup was able to write to friends and family in New York, who were in turn able to secure his release. Northup's account provides extensive details on the slave markets in Washington, D.C. and New Orleans and describes at length cotton and sugar cultivation on major plantations in Louisiana.

Trans people are increasingly stepping out of the shadow of pathologization and secretiveness to tell their life stories, share information and to connect with like-minded others, using YouTube as a platform. Out Online: Trans Self-Representation and Community Building on YouTube explores the digital revolution of trans video blogging, addressing 'trans' in its many meanings and configurations to examine the different ways in which the body in transformation and the vlog as a medium intersect. Drawing on rich, virtual ethnographic studies of trans video blogging, the author sheds light on the ways in which the video blog (or 'vlog') as a multimodal medium enables trans people to tell their stories with the use of sound, text, music, and pictures - thus offering new ways to construct and archive bodily changes, and to revise the story endlessly. A groundbreaking study of the intersection between trans identity and technology, Out Online explores the transformative and therapeutic potential of the video blog as a means by which trans vloggers can emerge and develop online, using the vlog as a site for creation, intervention, community building and resistance. As such, it will appeal to social scientists and scholars of cultural and media studies with interests in gender, sexuality and embodiment.

This book provides an updated overview of the processes determining the influence of solar forcing on climate. It discusses in particular the most recent developments regarding the role of aerosols in the climate system and the new insights that could be gained from the investigation of terrestrial climate analogues. The book's structure mirrors that of the ISSI workshop held in Bern in June 2005.

Emissions of carbon dioxide from the burning of fossil fuels have ushered in a new epoch where human activities will largely determine the evolution of Earth's climate. Because carbon dioxide in the atmosphere is long lived, it can effectively lock the Earth and future generations into a range of impacts, some of which could become very severe. Emissions reductions decisions made today matter in determining impacts experienced not just over the next few decades, but in the coming centuries and millennia. According to Climate Stabilization Targets: Emissions, Concentrations, and Impacts Over Decades to Millennia, important policy decisions can be informed by recent advances in climate science that

quantify the relationships between increases in carbon dioxide and global warming, related climate changes, and resulting impacts, such as changes in streamflow, wildfires, crop productivity, extreme hot summers, and sea level rise. One way to inform these choices is to consider the projected climate changes and impacts that would occur if greenhouse gases in the atmosphere were stabilized at a particular concentration level. The book quantifies the outcomes of different stabilization targets for greenhouse gas concentrations using analyses and information drawn from the scientific literature. Although it does not recommend or justify any particular stabilization target, it does provide important scientific insights about the relationships among emissions, greenhouse gas concentrations, temperatures, and impacts. *Climate Stabilization Targets* emphasizes the importance of 21st century choices regarding long-term climate stabilization. It is a useful resource for scientists, educators and policy makers, among others.

#1 NEW YORK TIMES BESTSELLER A landmark volume in science writing by one of the great minds of our time, Stephen Hawking's book explores such profound questions as: How did the universe begin—and what made its start possible? Does time always flow forward? Is the universe unending—or are there boundaries? Are there other dimensions in space? What will happen when it all ends? Told in language we all can understand, *A Brief History of Time* plunges into the exotic realms of black holes and quarks, of antimatter and “arrows of time,” of the big bang and a bigger God—where the possibilities are wondrous and unexpected. With exciting images and profound imagination, Stephen Hawking brings us closer to the ultimate secrets at the very heart of creation. This new book describes the basic physics of solar and infrared radiation in the atmosphere. Radiation theory is related to the development of climate prediction models, and to measurement techniques for monitoring the Earth's energy budget and making remote sensing observations from satellites.

This book provides a solid introduction to the classical and statistical theories of thermodynamics while assuming no background beyond general physics and advanced calculus. Though an acquaintance with probability and statistics is helpful, it is not necessary. Providing a thorough, yet concise treatment of the phenomenological basis of thermal physics followed by a presentation of the statistical theory, this book presupposes no exposure to statistics or quantum mechanics. It covers several important topics, including a mathematically sound presentation of classical thermodynamics; the kinetic theory of gases including transport processes; and thorough, modern treatment of the thermodynamics of magnetism. It includes up-to-date examples of applications of the statistical theory, such as Bose-Einstein condensation, population inversions, and white dwarf stars. And, it also includes a chapter on the connection between thermodynamics and information theory. Standard International units are used throughout. An important reference book for every professional whose work requires and understanding of thermodynamics: from engineers to industrial

designers.ÿ

These peer-reviewed NIC XV conference proceedings present the latest major advances in nuclear physics, astrophysics, astronomy, cosmochemistry and neutrino physics, which provide the necessary framework for a microscopic understanding of astrophysical processes. The book also discusses future directions and perspectives in the various fields of nuclear astrophysics research. In addition, it also includes a limited number of section of more general interest on double beta decay and dark matter.

Forensic Entomology deals with the use of insects and other arthropods in medico legal investigations. We are sure that many people know this or a similar definition, maybe even already read a scientific or popular book dealing with this topic. So, do we really need another book on Forensic Entomology? The answer is 13, 29, 31, 38, and 61. These are not some golden bingo numbers, but an excerpt of the increasing amount of annual publications in the current decade dealing with Forensic Entomology. Comparing them with 89 articles which were published during the 1990s it illustrates the growing interest in this very special intersection of Forensic Science and Entomology and clearly underlines the statement: Yes, we need this book because Forensic Entomology is on the move with so many new things happening every year. One of the most attractive features of Forensic Entomology is that it is multidisciplinary. There is almost no branch in natural science which cannot find its field of activity here. The chapters included in this book highlight this variety of researches and would like to give the impetus for future work, improving the development of Forensic Entomology, which is clearly needed by the scientific community. On its way to the courtrooms of the world this discipline needs a sound and serious scientific background to receive the acceptance it deserves. Bringing together the contributions of eleven leading photometric experts, this practical reference guide presents common design formulas, essential rules-of-thumb, worked-out examples, and discussions of photometric instruments. Arranged for ease of reference, the twelve chapters, each of which may be read independently, are grouped into three sections. The first contains introductory material, and defines the terminology and units of measurement used in photometry, while the second covers photometric methods and procedures and provides numerous illustrative case studies. The third section contains reports from the frontiers of photometry, and includes a look at the directions future research might take. Abundantly illustrated and thoroughly referenced, this will prove invaluable to those involved in lighting design, optical physics, or applications design, and will be welcomed by workers in government-standards laboratories. The text is supplemented by a list of Web sites which offer photometry information, as well as the editors Web Companion -- an online site for discussion about the book and related issues.

Forests cover approximately 26% of the world's land surface area and represent a distinct biotic community. They interact with water and soil in a variety of ways, providing canopy surfaces which trap precipitation and allow evaporation back into the atmosphere, thus regulating how much water reaches the forest floor as through fall, as well as pull water from the soil for transpiration. The discipline "forest hydrology" has been developed throughout the 20th century. During that time human intervention in natural landscapes has increased, and land use and management practices have intensified. The book will be useful for graduate students, professionals, land managers, practitioners, and researchers with a good understanding of the basic principles of hydrology and hydrologic processes.

Classical and Statistical Thermodynamics Addison-Wesley

This book gives an in-depth account of GaAs, InP and SiGe, technologies and describes all the key techniques for the design of amplifiers, ranging from filters and data converters to image oscillators, mixers, switches, variable attenuators, phase shifters, integrated antennas and complete monolithic transceivers.

This book offers comprehensive information on the theory, models and algorithms involved in

state-of-the-art multivariate time series analysis and highlights several of the latest research advances in climate and environmental science. The main topics addressed include Multivariate Time-Frequency Analysis, Artificial Neural Networks, Stochastic Modeling and Optimization, Spectral Analysis, Global Climate Change, Regional Climate Change, Ecosystem and Carbon Cycle, Paleoclimate, and Strategies for Climate Change Mitigation. The self-contained guide will be of great value to researchers and advanced students from a wide range of disciplines: those from Meteorology, Climatology, Oceanography, the Earth Sciences and Environmental Science will be introduced to various advanced tools for analyzing multivariate data, greatly facilitating their research, while those from Applied Mathematics, Statistics, Physics, and the Computer Sciences will learn how to use these multivariate time series analysis tools to approach climate and environmental topics. Written by renowned experts in the field, this first book to focus exclusively on energy balance climate models provides a concise overview of the topic. It covers all major aspects, from the simplest zero-dimensional models, proceeding to horizontally and vertically resolved models. The text begins with global average models, which are explored in terms of their elementary forms yielding the global average temperature, right up to the incorporation of feedback mechanisms and some analytical properties of interest. The effect of stochastic forcing is then used to introduce natural variability in the models before turning to the concept of stability theory. Other one dimensional or zonally averaged models are subsequently presented, along with various applications, including chapters on paleoclimatology, the inception of continental glaciations, detection of signals in the climate system, and optimal estimation of large scale quantities from point scale data. Throughout the book, the authors work on two mathematical levels: qualitative physical expositions of the subject material plus optional mathematical sections that include derivations and treatments of the equations along with some proofs of stability theorems. A must-have introduction for policy makers, environmental agencies, and NGOs, as well as climatologists, molecular physicists, and meteorologists.

Whether defined by the comic excesses of Spanish director Alex de la Iglesia, the cult horrors of Black Emanuelle and the Italian 'Nunspolitation' movie, or the surreal vampire experimentations of Jean Rollin, trash and exploitation cinema represents the alternative face of European film. Although extremely popular with post-war audiences, these historically significant traditions of 'Eurotrash' have often been ridiculed or ignored by an established film criticism eager to define 'legitimate' European cinema as either avant-garde or socially realist. *Alternative Europe: Eurotrash and Exploitation Cinema Since 1945* investigates these previously under-explored national traditions of film culture, with essays and festival reports uncovering the social and cultural trends and tensions within a wide range of European exploitation movies.

A three-tier approach is presented: (i) fundamental dynamical concepts of climate processes, (ii) their mathematical formulation based on balance equations, and (iii) the necessary numerical techniques to solve these equations. This book showcases the global energy balance of the climate system and feedback processes that determine the climate sensitivity, initial-boundary value problems, energy transport in the climate system, large-scale ocean circulation and abrupt climate change.

Analogue Gravity Phenomenology is a collection of contributions that cover a vast range of areas in physics, ranging from surface wave propagation in fluids to nonlinear optics. The underlying common aspect of all these topics, and hence the main focus and perspective from which they are explained here, is the attempt to develop analogue models for gravitational systems. The original and main motivation of the field is the verification and study of Hawking radiation from a horizon: the enabling feature is the possibility to generate horizons in the laboratory with a wide range of physical systems that involve a flow of one kind or another. The years around 2010 and onwards witnessed a sudden surge of experimental activity in this

expanding field of research. However, building an expertise in analogue gravity requires the researcher to be equipped with a rather broad range of knowledge and interests. The aim of this book is to bring the reader up to date with the latest developments and provide the basic background required in order to appreciate the goals, difficulties, and success stories in the field of analogue gravity. Each chapter of the book treats a different topic explained in detail by the major experts for each specific discipline. The first chapters give an overview of black hole spacetimes and Hawking radiation before moving on to describe the large variety of analogue spacetimes that have been proposed and are currently under investigation. This introductory part is then followed by an in-depth description of what are currently the three most promising analogue spacetime settings, namely surface waves in flowing fluids, acoustic oscillations in Bose-Einstein condensates and electromagnetic waves in nonlinear optics. Both theory and experimental endeavours are explained in detail. The final chapters refer to other aspects of analogue gravity beyond the study of Hawking radiation, such as Lorentz invariance violations and Brownian motion in curved spacetimes, before concluding with a return to the origins of the field and a description of the available observational evidence for horizons in astrophysical black holes.

The innovation in space technologies has generated a new method for observing and monitoring tsunamis from space. Most tsunami remote sensing studies focus on using classical image processing tools or conventional edge detection procedures. However, these methods do not use modern physics, applied mathematics, signal communication, remote sensing data and innovative space technologies. This book equips readers to understand how to monitor tsunamis from space with remote sensing technology art to create a better alarm warning system.

This book explores the emerging forms and functions of contemporary mobile borders. It deals with issues of security, technology, migration and cooperation while addressing the epistemological and political questions that they raise. The 'borderities' approach illuminates the question of how borders can be the site of both power and counter-power.

This volume considers the linguistic complexities associated with Shakespeare's presence in South Africa from 1801 to early twentieth-first century televisual updatings of the texts as a means of exploring individual and collective forms of identity. A case study approach demonstrates how Shakespeare's texts are available for ideologically driven linguistic programs. Seeff introduces the African Theatre, Cape Town, in 1801, multilingual site of the first recorded performance of a Shakespeare play in Southern Africa where rival, amateur theatrical groups performed in turn, in English, Dutch, German, and French. Chapter 3 offers three vectors of a broadening Shakespeare diaspora in English, Afrikaans, and Setswana in the second half of the nineteenth century. Chapter 4 analyses André Brink's *Kinkels innie Kabel*, a transposition of Shakespeare's *The Comedy of Errors* into Kaaps, as a radical critique of apartheid's obsession with linguistic and ethnic purity. Chapter 5 investigates John Kani's performance of *Othello* as a Xhosa warrior chief with access to the ancient tradition of Xhosa storytellers. *Shakespeare in Mzansi*, a televisual miniseries uses black actors, vernacular languages, and local settings to Africanize *Macbeth* and reclaim a cross-cultural, multilingualism. An Afterword assesses the future of Shakespeare in a post-rainbow, decolonizing South Africa. Global Sha Any reader interested in Shakespeare Studies, global Shakespeare, Shakespeare in performance, Shakespeare and appropriation, Shakespeare and language, Literacy Studies, race, and South African cultural history will be drawn to this book.

Translated by Morton Masius

As a consequence of recent increased awareness of the social and political dimensions of climate, many non-specialists discover a need for information about the variety of available climate models. *A Climate Modelling Primer, Third Edition* explains the basis and mechanisms

of all types of current physically-based climate models. A thoroughly revised and updated edition, this book assists the reader in understanding the complexities and applicabilities of today's wide range of climate models. Topics covered include the latest techniques for modelling the coupled biosphere-ocean-atmosphere system, information on current practical aspects of climate modelling and ways to evaluate and exploit the results, discussion of Earth System Models of Intermediate Complexity (EMICs), and interactive exercises based on Energy Balance Model (EBM) and the Daisyworld model. Source codes and results from a range of model types allows readers to make their own climate simulations and to view the results of the latest high resolution models. The accompanying CD contains: A suite of resources for those wishing to learn more about climate modelling. A range of model visualisations. Data from climate models for use in the classroom. Windows and Macintosh programs for an Energy Balance Model. Selected figures from the book for inclusion in presentations and lectures. Suitable for 3rd/4th year undergraduates taking courses in climate modelling, economic forecasting, computer science, environmental science, geography and oceanography. Also of relevance to researchers and professionals working in related disciplines with climate models or who need accessible technical background to climate modelling predictions.

This book focuses on multiculturalism, racism and the interests of nonhuman animals. Each are, in their own right, rapidly growing and controversial fields of enquiry, but how do multiculturalism and racism intersect with the debate concerning animals and their interests? This a deceptively simple question but on that is becoming ever more pressing as we examine our societal practices in a pluralistic world. Collating the work of a diverse group of academics from across the world, the book includes writing on a wide range of subjects and addressing contemporary issues in this critical arena. Subjects covered include multiculturalism, group rights and the limits of tolerance; ethnocentrism and animals; racism and discrimination and non-Western alternatives to animal rights and welfare. The book will be of interest to researchers, lecturers and advanced students as well as range of social justice organisations, government institutions, animal activist organisations and environmental groups.

Ocean color measured by satellite-mounted optical sensors is an essential climate variable that is routinely used as a central element for assessing the health and productivity of marine ecosystems and the role of oceans in the global carbon cycle. For satellite ocean color to be reliable and used in these and other important environmental applications, the data must be trustworthy and high quality. Pre-flight and on-board calibration of satellite ocean color sensors is conducted; however, once in orbit, the data quality can only be fully assessed via independent calibration and validation activities using surface measurements. These measurements therefore need to be at least as high quality as the satellite data, which necessitates SI traceability and a full uncertainty budget. This is the basis for fiducial reference measurements (FRMs) and the FRM4SOC project, which was an European Space Agency (ESA) initiative to establish and maintain SI-traceable ground-based FRM for satellite ocean color, thus providing a fundamental contribution to the European system for monitoring the Earth (Copernicus). This Special Issue of MDPI Remote Sensing is designed to showcase this essential Earth observation work through the publication of the project's main achievements and results accompanied by other select relevant articles.

This book offers a much-needed new political theory of an old phenomenon. The last decade alone has marked the highest number of migrations in recorded history. Constrained by environmental, economic, and political instability, scores of people are on the move. But other sorts of changes—from global tourism to undocumented labor—have led to the fact that to some extent, we are all becoming migrants. The migrant has become the political figure of our time. Rather than viewing migration as the exception to the rule of political fixity and citizenship, Thomas Nail reinterprets the history of political power from the perspective of the movement

that defines the migrant in the first place. Applying his "kinopolitics" to several major historical conditions (territorial, political, juridical, and economic) and figures of migration (the nomad, the barbarian, the vagabond, and the proletariat), he provides fresh tools for the analysis of contemporary migration.

This book is about applications of remote sensing techniques in the studies on soils. In pursuance of the objective, the book initially provides an introduction to various elements and concepts of remote sensing, and associated technologies, namely Geographic Information System (GIS), Global Positioning System (GPS) in chapter-1. An overview of the sensors used to collect remote sensing data and important Earth observation missions is provided in chapter-2. The processing of satellite digital data (geometric and radiometric corrections, feature reduction, digital data fusion, image enhancements and analysis) is dealt with in Chapter-3. In the chapter to follow the interpretation of remote sensing data, very important and crucial step in deriving information on natural resources including soils resources, is discussed. An introduction to soils as a natural body with respect to their formation, physical and chemical properties used during inventory of soils, and soil classification is given in Chapter-5. The spectral response patterns of soils including hyperspectral characteristics -fundamental to deriving information on soils from spectral measurements, and the techniques of soil resources mapping are discussed in chapter-6 and -7, respectively. Furthermore, the creation of digital soil resources database and the development of soil information systems, a very important aspect of storage and dissemination of digital soil data to the end users are discussed in chapter-8. Lastly, the applications of remote sensing techniques in soil moisture estimation and soil fertility evaluation are covered in chapter-9 and -10, respectively.

Global Physical Climatology is an introductory text devoted to the fundamental physical principles and problems of climate sensitivity and change. Addressing some of the most critical issues in climatology, this text features incisive coverage of topics that are central to understanding orbital parameter theory for past climate changes, and for anthropogenic and natural causes of near-future changes--

- * Covers the physics of climate change
- * Examines the nature of the current climate and its previous changes
- * Explores the sensitivity of climate and the mechanisms by which humans are likely to produce near-future climate changes
- * Provides instructive end-of-chapter exercises and appendices

In this book, we try to make our case through examples in different fields of science, including missiology, ecclesiology, and also medicine and economics theorizing. We try to be (almost) everything for everyone, while keep being humble as two unprofitable servants. That way we would quote the title of Borges' short story: Everything and nothing.

A self-contained, accessible introduction to the basic concepts, formalism and recent advances in electromagnetic scattering, for researchers and graduate students.

The Global Carbon Cycle is a short introduction to this essential geochemical driver of the Earth's climate system, written by one of the world's leading climate-science experts. In this one-of-a-kind primer, David Archer engages readers in clear and simple terms about the many ways the global carbon cycle is woven into our climate system. He begins with a concise overview of the subject, and then looks at the carbon cycle on three different time scales, describing how the cycle interacts with climate in very distinct ways in each. On million-year time scales, feedbacks in the carbon cycle stabilize Earth's climate and oxygen concentrations. Archer explains how on hundred-thousand-year glacial/interglacial time scales, the carbon cycle in the ocean amplifies climate change, and how, on the human time scale of decades, the carbon cycle has been dampening climate change by absorbing fossil-fuel carbon dioxide into the oceans

and land biosphere. A central question of the book is whether the carbon cycle could once again act to amplify climate change in centuries to come, for example through melting permafrost peatlands and methane hydrates. The Global Carbon Cycle features a glossary of terms, suggestions for further reading, and explanations of equations, as well as a forward-looking discussion of open questions about the global carbon cycle. The touchscreen belongs to a century-long history of hands-on media practices and touchable art objects. This media-archaeological excavation examines the nature of our sensual involvement with media and invites the reader to think about the touchscreen beyond its technological implications. In six chapters, the book questions and historicizes both aspects of the touchscreen, considering "touch" as a media practice and "screen" as a touchable object.

This book is a radical piece of counter-intuitive rethinking of the clash of civilizations theory and global politics. In this richly detailed criticism of contemporary politics, Hamid Dabashi argues that after 9/11 we have not seen a new phase in a long running confrontation between Islam and the West, but that such categories have in fact collapsed and exhausted themselves. The West is no longer a unified actor and Islam is ideologically depleted in its confrontation with colonialism. Rather we are seeing the emergence of the US as a lone superpower, and a confrontation between a form of imperial globalized capital and the rising need for a new Islamic theodicy. The combination of political salience and theoretical force makes Islamic Liberation Theology a cornerstone of a whole new generation of thinking about political Islamism and a compelling read for anyone interested in contemporary Islam, current affairs and US foreign policy. Dabashi drives his well-supported and thoroughly documented points steadily forward in an earnest and highly readable style.

This book looks at the staging and performance of normality in early modern drama. Analysing conventions and rules, habitual practices, common things and objects, and mundane sights and experiences, this volume foregrounds a staged normality that has been heretofore unseen, ignored, or taken for granted. It draws together leading and emerging scholars of early modern theatre and culture to debate the meaning of normality in an early modern context and to discuss how it might transfer to the stage. In doing so, these original critical essays unsettle and challenge scholarly assumptions about how normality is represented in the performance space. The volume, which responds to studies of the everyday and the material turn in cultural history, as well as to broader philosophical engagements with the idea of normality and its opposites, brings to light the essential role that normality plays in the composition and performance of early modern drama.

Explores some of the less well understood physical processes involved in the modeling of stars.

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