

Openfoam Programming

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[International Workshop on Fluid-Structure Interaction. Theory, Numerics and Applications](#) - Stefan Hartmann 2009

The OpenFOAM Technology Primer - Tomislav Marić 2014

Modelling and Optimization of Wave Energy Converters - Dezhi Ning 2022-07-28

Wave energy offers a promising renewable energy source, however, technologies converting wave energy into useful electricity face many design challenges. This guide presents numerical modelling and optimization methods for the development of wave energy converter technologies, from principles to applications. It covers the development status and perspectives of wave energy converter systems; the fundamental theories on wave power absorption; the modern wave energy converter concepts including oscillating bodies in single and multiple degree of freedom and oscillating water column technologies; and the relatively hitherto unexplored topic of wave energy harvesting farms. It can be used as a specialist student textbook as well as a reference book for the design of wave energy harvesting systems, across a broad range of disciplines, including renewable energy, marine engineering, infrastructure engineering, hydrodynamics, ocean science, and mechatronics engineering. The Open Access version of this book, available at www.routledge.com has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 license.

Falling Films in Desalination - Henning Raach 2019-08-05

This book covers the simulation of evaporating saltwater falling films with and without turbulence wires. The methods presented within can be applied to a variety of applications including the food and pharmaceutical industry, as well as in nuclear technology. This topic is ideal for researchers in chemical engineering.

Parallel Computing: On the Road to Exascale - G.R. Joubert 2016-04-28

As predicted by Gordon E. Moore in 1965, the performance of computer processors increased at an exponential rate. Nevertheless, the increases in computing speeds of single processor machines were eventually curtailed by physical constraints. This led to the development of parallel computing, and whilst progress has been made in this field, the complexities of parallel algorithm design, the deficiencies of the available software development tools and the complexity of scheduling tasks over thousands and even millions of processing nodes represent a major challenge to the construction and use of more powerful parallel systems. This book presents the proceedings of the biennial International Conference on Parallel Computing (ParCo2015), held in Edinburgh, Scotland, in September 2015. Topics covered include computer architecture and performance, programming models and methods, as well as applications. The book also includes two invited talks and a number of mini-symposia. Exascale computing holds enormous promise in terms of increasing scientific knowledge acquisition and thus contributing to the future well-being and prosperity of mankind. A number of innovative approaches to the development and use of future high-performance and high-throughput systems are to be found in this book, which will be of interest to all those whose work involves the handling and processing of large amounts of data.

Fundamentals of Computational Fluid Dynamics - H. Lomax 2013-03-09

The chosen semi-discrete approach of a reduction procedure of partial differential equations to ordinary differential equations and finally to difference equations gives the book its distinctiveness and provides a sound basis for a deep understanding of the fundamental concepts in computational fluid dynamics.

Encyclopedia of Computer Science and Technology - Phillip A. Laplante 2017-10-02

With breadth and depth of coverage, the Encyclopedia of Computer Science and Technology, Second Edition has a multi-disciplinary scope,

drawing together comprehensive coverage of the inter-related aspects of computer science and technology. The topics covered in this encyclopedia include: General and reference Hardware Computer systems organization Networks Software and its engineering Theory of computation Mathematics of computing Information systems Security and privacy Human-centered computing Computing methodologies Applied computing Professional issues Leading figures in the history of computer science The encyclopedia is structured according to the ACM Computing Classification System (CCS), first published in 1988 but subsequently revised in 2012. This classification system is the most comprehensive and is considered the de facto ontological framework for the computing field. The encyclopedia brings together the information and historical context that students, practicing professionals, researchers, and academicians need to have a strong and solid foundation in all aspects of computer science and technology.

[Selected Problems in Fluid Flow and Heat Transfer](#) - Artur J. Jaworski 2019-09-20

Fluid flow and heat transfer processes play an important role in many areas of science and engineering, from the planetary scale (e.g., influencing weather and climate) to the microscopic scales of enhancing heat transfer by the use of nanofluids; understood in the broadest possible sense, they also underpin the performance of many energy systems. This topical Special Issue of Energies is dedicated to the recent advances in this very broad field. This book will be of interest to readers not only in the fields of mechanical, aerospace, chemical, process and petroleum, energy, earth, civil, and flow instrumentation engineering but, equally, biological and medical sciences, as well as physics and mathematics; that is, anywhere that “fluid flow and heat transfer” phenomena may play an important role or be a subject of worthy research pursuits.

High Performance Computing - Esteban Mocskos 2017-12-26

This book constitutes the proceedings of the 4th Latin American Conference on High Performance Computing, CARLA 2017, held in Buenos Aires, Argentina, and Colonia del Sacramento, Uruguay, in September 2017. The 29 papers presented in this volume were carefully reviewed and selected from 50 submissions. They are organized in topical sections named: HPC infrastructures and datacenters; HPC industry and education; GPU, multicores, accelerators; HPC applications and tools; big data and data management; parallel and distributed algorithms; Grid, cloud and federations.

Artificial Intelligence and Architecture - Stanislas Chaillou 2022-03-07

Künstliche Intelligenz (KI) hat Eingang in unzählige Branchen gefunden. In der Architektur steckt der Einsatz von KI noch in den Kinderschuhen, doch die Entwicklung der letzten Jahre hat vielversprechende Ergebnisse gebracht. Das Buch ist eine gut verständliche Einführung. Sie bietet einen Überblick über die Geschichte der KI und ihre ersten Anwendungen in der Architektur. Im zweiten Teil präsentiert der Autor konkrete Beispiele für den kreativen Einsatz von KI in der Praxis. Führende Experten, von der Havard-University bis zur Bauhaus Universität, eröffnen schließlich in Essays vielfältige Perspektiven auf das Potenzial von KI. Als Einführung zeigt das Buch ein Panorama dieser neuen technologischen Möglichkeiten und verdeutlicht so das Versprechen, das sie für die Architektur darstellen.

[Numerical and experimental investigations of distribution of gaseous emissions with the air flow in the indoor environment](#) - Umer Afzal 2017-09-24

There are many sources of emissions produced by burning fuel for power or heat, through chemical reactions, and from leaks from industrial processes or equipment. There is always a possibility of a potential hazard when these gases enter into the indoor environment with the air flow. The determination of the concentration profiles are necessary to evaluate the potential hazard posed by the gas spread. The main

objectives of this work are to develop an appropriate measurement methodology and a 3D CFD transient multicomponent simulation model for the determination of spatial and temporal distribution of gaseous emissions with the air flow in the indoor environment. This work is also aimed at comparing the numerical simulation results of different CFD programs for a 2D base case model of indoor air flow with and without emission source under laminar and turbulent flow conditions for the purpose of developing a better basic understanding of the physical phenomena and for the selection of the suitable and appropriate CFD program for the further development of the simulation model. One of the goals is also to apply the developed simulation model to the loss prevention and risk mitigation in the indoor environment and to study the influence of different parameters on the concentration distribution of gaseous pollutants in the presence of air flow in the indoor environment to minimize the expensive and time consuming experimentation efforts.

Modelling Diesel Combustion - P. A. Lakshminarayanan 2022

This book comprehensively discusses diesel combustion phenomena like ignition delay, fuel-air mixing, rate of heat release, and emissions of smoke, particulate and nitric oxide. It enables quantitative evaluation of these important phenomena and parameters. Most importantly, it attempts to model them with constants that are independent of engine types and hence they could be applied by the engineers and researchers for a general engine. This book emphasizes the importance of the spray at the wall in precisely describing the heat release and emissions for most of the engines on and off-road. It gives models for heat release and emissions. Every model is thoroughly validated by detailed experiments using a broad range of engines. The book describes an elegant quasi-one-dimensional model for heat release in diesel engines with single as well as multiple injections. The book describes how the two aspects, namely, fuel injection rate and the diameter of the combustion bowl in the piston, have enabled meeting advanced emission, noise, and performance standards. The book also discusses the topics of computational fluid dynamics encompassing RANS and LES models of turbulence. Given the contents, this book will be useful for students, researchers and professionals working in the area of vehicle engineering and engine technology. This book will also be a good professional book for practising engineers in the field of combustion engines and automotive engineering.

Algorithms and Architectures for Parallel Processing, Part II - Yang Xiang 2011-10-07

This two volume set LNCS 7016 and LNCS 7017 constitutes the refereed proceedings of the 11th International Conference on Algorithms and Architectures for Parallel Processing, ICA3PP 2011, held in Melbourne, Australia, in October 2011. The second volume includes 37 papers from one symposium and three workshops held together with ICA3PP 2011 main conference. These are 16 papers from the 2011 International Symposium on Advances of Distributed Computing and Networking (ADCN 2011), 10 papers of the 4th IEEE International Workshop on Internet and Distributed Computing Systems (IDCS 2011), 7 papers belonging to the III International Workshop on Multicore and Multithreaded Architectures and Algorithms (M2A2 2011), as well as 4 papers of the 1st IEEE International Workshop on Parallel Architectures for Bioinformatics Systems (HardBio 2011).

Bioengineering and Biomaterials in Ventricular Assist Devices - Eduardo Guy Perpétuo Bock 2021-10-07

Often associated with artificial hearts, ventricular assist devices (VADs) are blood pumps that can provide circulatory assistance to the left ventricle, the right ventricle, or both. Bioengineering and Biomaterials in Ventricular Assist Devices reviews constructive details of VADs and the biomaterials used in their development and support. FEATURES Establishes an area of intersection between engineering and medicine Shows process development from mechanical design to automation and control Discusses biofunctional materials, tribology in ceramic biomaterials, biosensors, and surface engineering and blood This text is aimed at advanced students, researchers, and practicing engineers conducting work on VADs and will be of interest to a broad interdisciplinary group, including bioengineers, materials engineers, chemical engineers, mechanical engineers, and electrical engineers.

Modern Fluid Dynamics - Clement Kleinstreuer 2018-04-25

Modern Fluid Dynamics, Second Edition provides up-to-date coverage of intermediate and advanced fluids topics. The text emphasizes fundamentals and applications, supported by worked examples and case studies. Scale analysis, non-Newtonian fluid flow, surface coating, convection heat transfer, lubrication, fluid-particle dynamics, microfluidics, entropy generation, and fluid-structure interactions are among the topics covered. Part A presents fluids principles, and prepares

readers for the applications of fluid dynamics covered in Part B, which includes computer simulations and project writing. A review of the engineering math needed for fluid dynamics is included in an appendix.

Object, Models, Components, Patterns - Carlo A. Furia 2012-05-27

This book constitutes the refereed proceedings of the 50th International Conference on Objects, Models, Components, Patterns, TOOLS Europe 2012, held in Prague, Czech Republic, during May 29-31, 2012. The 24 revised full papers presented were carefully reviewed and selected from 77 submissions. The papers discuss all aspects of object technology and related fields and demonstrate practical applications backed up by formal analysis and thorough experimental evaluation. In particular, every topic in advanced software technology is addressed the scope of TOOLS.

An Introduction to Computational Fluid Dynamics The Finite Volume Method, 2/e - Versteeg 2007

Multiphysics Modelling of Fluid-Particulate Systems - Hassan Khawaja 2020-03-14

Multiphysics Modelling of Fluid-Particulate Systems provides an explanation of how to model fluid-particulate systems using Eulerian and Lagrangian methods. The computational cost and relative merits of the different methods are compared, with recommendations on where and how to apply them provided. The science underlying the fluid-particulate phenomena involves computational fluid dynamics (for liquids and gases), computational particle dynamics (solids), and mass and heat transfer. In order to simulate these systems, it is essential to model the interactions between phases and the fluids and particles themselves. This book details instructions for several numerical methods of dealing with this complex problem. This book is essential reading for researchers from all backgrounds interested in multiphase flows or fluid-solid modeling, as well as engineers working on related problems in chemical engineering, food science, process engineering, geophysics or metallurgical processing. Provides detailed coverage of Resolved and Unresolved Computational Fluid Dynamics - Discrete Element Method (CFD-DEM), Smoothed Particle Hydrodynamics, and their various attributes Gives an excellent summary of a range of simulation techniques and provides numerical examples Starts with a broad introduction to fluid-particulate systems to help readers from a range of disciplines grasp fundamental principles

The Finite Volume Method in Computational Fluid Dynamics - F. Moukalled 2015-08-13

This textbook explores both the theoretical foundation of the Finite Volume Method (FVM) and its applications in Computational Fluid Dynamics (CFD). Readers will discover a thorough explanation of the FVM numerics and algorithms used for the simulation of incompressible and compressible fluid flows, along with a detailed examination of the components needed for the development of a collocated unstructured pressure-based CFD solver. Two particular CFD codes are explored. The first is uFVM, a three-dimensional unstructured pressure-based finite volume academic CFD code, implemented within Matlab. The second is OpenFOAM®, an open source framework used in the development of a range of CFD programs for the simulation of industrial scale flow problems. With over 220 figures, numerous examples and more than one hundred exercise on FVM numerics, programming, and applications, this textbook is suitable for use in an introductory course on the FVM, in an advanced course on numerics, and as a reference for CFD programmers and researchers.

Advances in Polymer Processing 2020 - Christian Hopmann 2020-03-10

This book gathers the proceedings of the International Symposium on Plastics Technology, which was held on March 10, 2020 in Aachen, Germany, and was organised by the Institute for Plastics Processing (IKV) in Industry and Craft at RWTH Aachen University. Peer-reviewed by an international scientific committee, the conference proceedings comprise the papers presented by the international speakers. Topics covered include - circular economy- extrusion- lightweight technologies- simulation and digitisation - injection moulding- hybrid materials and additive manufacturing. In these fields, key themes for plastics technologies have been identified that will shape the face of research and industry for the next decade. In their contributions, the authors present the latest scientific findings, and discuss topical issues in plastics technologies. The symposium offered an inspiring forum for the exchange on research and innovation, for discussing urgent questions and providing impulses for the future of plastics technology.

Responsive Architecture - Dusan Katunsky 2019-11-20

This book is a collection of articles that have been published in the

Special Issue "Responsive Architecture" of the MDPI journal Buildings. The eleven articles within cover various areas of sensitive architecture, including the design of packaging structures reacting to supporting components; structural efficiency of bent columns in indigenous houses; roof forms responsive to buildings depending on their resiliently transformed steel shell parts; creative design of building free shapes covered with transformed shells; artistic structural concepts of the architect and civil engineer; digitally designed airport terminal using wind analysis; rationalized shaping of sensitive curvilinear steel construction; interactive stories of responsive architecture; transformed shell roof constructions as the main determinant in the creative shaping of buildings without shapes that are sensitive to man-made and natural environments; thermally sensitive performances of a special shielding envelope on balconies; quantification of generality and adaptability of building layout using the SAGA method; and influence of initial conditions on the simulation of the transient temperature field inside a wall.

Finite Element Analysis Applications - Zhuming Bi 2017-12-16

Finite Element Analysis Applications: A Systematic and Practical Approach strikes a solid balance between more traditional FEA textbooks that focus primarily on theory, and the software specific guidebooks that help teach students and professionals how to use particular FEA software packages without providing the theoretical foundation. In this new textbook, Professor Bi condenses the introduction of theories and focuses mainly on essentials that students need to understand FEA models. The book is organized to be application-oriented, covering FEA modeling theory and skills directly associated with activities involved in design processes. Discussion of classic FEA elements (such as truss, beam and frame) is limited. Via the use of several case studies, the book provides easy-to-follow guidance on modeling of different design problems. It uses SolidWorks simulation as the platform so that students do not need to waste time creating geometries for FEA modelling. Provides a systematic approach to dealing with the complexity of various engineering designs Includes sections on the design of machine elements to illustrate FEA applications Contains practical case studies presented as tutorials to facilitate learning of FEA methods Includes ancillary materials, such as a solutions manual for instructors, PPT lecture slides and downloadable CAD models for examples in SolidWorks

Proceeding of the VI International Ship Design & Naval Engineering Congress (CIDIN) and XXVI Pan-American Congress of Naval Engineering, Maritime Transportation and Port Engineering (COPINAVAL) - Vice Admiral Jorge Enrique Carreño Moreno 2020-03-10

This book presents the proceedings of CIDIN and COPINAVAL. The papers present the development of the navy, maritime and riverine industry, contributing to the scientific and technological progress and development in the sector. In 2019 the congresses occurred in Cartagena, Colombia, a reference for science and technology innovation for Latin-American naval industry.

Electrochemical Cell Calculations with OpenFOAM - Steven Beale 2022-04-23

This unique book is at the nexus of modern software programming practices and electrochemical process engineering. It is the authoritative text on developing open source software for many applications, including: • fuel cells; • electrolyzers; and • batteries. Written by experts in the field in the open source computational fluid dynamics (CFD) code suite OpenFOAM, this book is intended for process engineering professionals developing practical electrochemical designs for industry, as well as researchers focused on finding tomorrow's answers today. The book covers everything from micro-scale to cell-scale to stack-scale models, with numerous illustrations and programming examples. Starting from a clear explanation of electrochemical processes and simple illustrative examples, the book progresses in complexity through a range of diverse applications. After reading this book, the reader is able to take command and control of model development as an expert. The book is aimed at all engineers and scientists with basic knowledge of calculus and programming in C++.

AeroStruct: Enable and Learn How to Integrate Flexibility in Design - Ralf Heinrich 2018-01-30

This book reports on the German research initiative AeroStruct, a three-year collaborative project between universities and the aircraft industry. It describes the development of an integrated multidisciplinary simulation environment for aircraft analysis and optimization using high-fidelity methods. This system is able to run at a high level of automatism, thus representing a step forward with respect to previous ones. Its

special features are: a CAD description that is independent from the disciplines involved, an automated CFD mesh generation and an automated structure model generation including a sizing process. The book also reports on test cases by both industrial partners and DLR demonstrating the advantages of the new environment and its suitability for the industry. These results were also discussed during the AeroStruct closing Symposium, which took place on 13-14 October 2015 at the DLR in Braunschweig, Germany. The book provides expert readers with a timely report on multidisciplinary aircraft design and optimization. Thanks to a good balance between theory and practice, it is expected to address an audience of both academics and professional, and to offer them new ideas for future research and development.

Research on Ship Design and Optimization Based on Simulation-Based Design (SBD) Technique - Bao-Ji Zhang 2018-05-30

Ship optimization design is critical to the preliminary design of a ship. With the rapid development of computer technology, the simulation-based design (SBD) technique has been introduced into the field of ship design. Typical SBD consists of three parts: geometric reconstruction; CFD numerical simulation; and optimization. In the context of ship design, these are used to alter the shape of the ship, evaluate the objective function and to assess the hull form space respectively. As such, the SBD technique opens up new opportunities and paves the way for a new method for optimal ship design. This book discusses the problem of optimizing ship's hulls, highlighting the key technologies of ship optimization design and presenting a series of hull-form optimization platforms. It includes several improved approaches and novel ideas with significant potential in this field

The Finite Volume Method in Computational Fluid Dynamics - F. Moukalled 2015-08-25

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High Performance Computing in Science and Engineering 16 - Wolfgang E. Nagel 2017-01-11

This book presents the state-of-the-art in supercomputer simulation. It includes the latest findings from leading researchers using systems from the High Performance Computing Center Stuttgart (HLRS) in 2016. The reports cover all fields of computational science and engineering ranging from CFD to computational physics and from chemistry to computer science with a special emphasis on industrially relevant applications. Presenting findings of one of Europe's leading systems, this volume covers a wide variety of applications that deliver a high level of sustained performance. The book covers the main methods in high-performance computing. Its outstanding results in achieving the best performance for production codes are of particular interest for both scientists and engineers. The book comes with a wealth of color illustrations and tables of results.

Augmented and Virtual Reality - Lucio Tommaso De Paolis 2015-08-14

This book constitutes the refereed proceedings of the Second International Conference on Augmented and Virtual Reality, AVR 2015, held in Lecce, Italy, in September 2015. The 32 papers and 8 short papers presented were carefully reviewed and selected from 82 submissions. The SALENTO AVR 2015 conference brings together a community of researchers from academia and industry, computer scientists, engineers, and physicians in order to share points of views, knowledge, experiences, and scientific and technical results related to state-of-the-art solutions and technologies on virtual and augmented reality applications for medicine, cultural heritage, education, industrial sectors, as well as the demonstration of advanced products and technologies.

Fire and Explosion Hazards - 2011

Fundamentals of Wind Farm Aerodynamic Layout Design -

Farschad Torabi 2022-01-17

Fundamentals of Wind Farm Aerodynamic Layout Design, Volume Four provides readers with effective wind farm design and layout guidance through algorithm optimization, going beyond other references and general approaches in literature. Focusing on interactions of wake models, designers can combine numerical schemes presented in this book which also considers wake models' effects and problems on layout optimization in order to simulate and enhance wind farm designs.

Covering the aerodynamic modeling and simulation of wind farms, the book's authors include experimental tests supporting modeling simulations and tutorials on the simulation of wind turbines. In addition, the book includes a CFD technique designed to be more computationally efficient than currently available techniques, making this book ideal for industrial engineers in the wind industry who need to produce an accurate simulation within limited timeframes. Features novel CFD modeling Offers global case studies for turbine wind farm layouts Includes tutorials on simulation of wind turbine using OpenFoam

Modern Water Resources Engineering -

Lawrence K. Wang 2014-01-11

The Handbook of Environmental Engineering series is an incredible collection of methodologies that study the effects of pollution and waste in their three basic forms: gas, solid, and liquid. This exciting new addition to the series, Volume 15: Modern Water Resources Engineering

, has been designed to serve as a water resources engineering reference book as well as a supplemental textbook. We hope and expect it will prove of equal high value to advanced undergraduate and graduate students, to designers of water resources systems, and to scientists and researchers. A critical volume in the Handbook of Environmental Engineering series, chapters employ methods of practical design and calculation illustrated by numerical examples, include pertinent cost data whenever possible, and explore in great detail the fundamental principles of the field. Volume 15: Modern Water Resources Engineering, provides information on some of the most innovative and ground-breaking advances in the field today from a panel of esteemed experts.

Wave and Tidal Energy -

Deborah Greaves 2018-07-23

A comprehensive text covering all aspects of wave and tidal energy Wave and Tidal Energy provides a comprehensive and self-contained review of the developing marine renewable energy sector, drawing from the latest research and from the experience of device testing. The book has a twofold objective: to provide an overview of wave and tidal energy suitable for newcomers to the field and to serve as a reference text for advanced study and practice. Including detail on key issues such as resource characterisation, wave and tidal technology, power systems, numerical and physical modelling, environmental impact and policy. The book also includes an up-to-date review of developments worldwide and case studies of selected projects. Key features: A comprehensive and self-contained text covering all aspects of the multidisciplinary fields of wave and tidal energy. Draws upon the latest research in wave and tidal energy and the experience of leading practitioners in numerical and laboratory modelling. Regional developments worldwide are reviewed and representative projects are presented as case studies. Wave and Tidal Energy is an invaluable resource to a wide range of readers, from engineering students to technical managers and policymakers to postgraduate students and researchers.

Implementing an IBM High-Performance Computing Solution on

IBM Power System S822LC - Dino Quintero 2016-07-25

This IBM® Redbooks® publication demonstrates and documents that IBM Power Systems™ high-performance computing and technical computing solutions deliver faster time to value with powerful solutions. Configurable into highly scalable Linux clusters, Power Systems offer extreme performance for demanding workloads such as genomics, finance, computational chemistry, oil and gas exploration, and high-performance data analytics. This book delivers a high-performance computing solution implemented on the IBM Power System S822LC. The solution delivers high application performance and throughput based on its built-for-big-data architecture that incorporates IBM POWER8® processors, tightly coupled Field Programmable Gate Arrays (FPGAs) and accelerators, and faster I/O by using Coherent Accelerator Processor Interface (CAPI). This solution is ideal for clients that need more processing power while simultaneously increasing workload density and

reducing datacenter floor space requirements. The Power S822LC offers a modular design to scale from a single rack to hundreds, simplicity of ordering, and a strong innovation roadmap for graphics processing units (GPUs). This publication is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) responsible for delivering cost effective high-performance computing (HPC) solutions that help uncover insights from their data so they can optimize business results, product development, and scientific discoveries

Bounce, Tumble, and Splash! -

Tony Mullen 2008-06-06

Learn all about Blender, the premier open-source 3D software, in Bounce, Tumble, and Splash!: Simulating the Physical World with Blender 3D. You will find step-by-step instructions for using Blender's complex features and full-color visual examples with detailed descriptions of the processes. If you're an advanced Blender user, you will appreciate the sophisticated coverage of Blender's fluid simulation system, a review Blender's latest features, and a guide to the Bullet physics engine, which handles a variety of physics simulations such as rigid body dynamics and rag doll physics.

11th Symposium for Fuel Cell and Battery Modelling and Experimental Validation -

kolektiv autorů 2014-03-05

OpenFOAM® -

J. Miguel Nóbrega 2019-01-24

This book contains selected papers of the 11th OpenFOAM® Workshop that was held in Guimarães, Portugal, June 26 - 30, 2016. The 11th OpenFOAM® Workshop had more than 140 technical/scientific presentations and 30 courses, and was attended by circa 300 individuals, representing 180 institutions and 30 countries, from all continents. The OpenFOAM® Workshop provided a forum for researchers, industrial users, software developers, consultants and academics working with OpenFOAM® technology. The central part of the Workshop was the two-day conference, where presentations and posters on industrial applications and academic research were shown. OpenFOAM® (Open Source Field Operation and Manipulation) is a free, open source computational toolbox that has a larger user base across most areas of engineering and science, from both commercial and academic organizations. As a technology, OpenFOAM® provides an extensive range of features to solve anything from complex fluid flows involving chemical reactions, turbulence and heat transfer, to solid dynamics and electromagnetics, among several others. Additionally, the OpenFOAM technology offers complete freedom to customize and extend its functionalities.

Parallel Computational Fluid Dynamics -

Kenli Li 2014-03-08

This book constitutes the refereed proceedings of the 25th International Conference on Parallel Computational Fluid Dynamics, ParCFD 2013, held in Changsha, China, in May 2013. The 35 revised full papers presented were carefully reviewed and selected from more than 240 submissions. The papers address issues such as parallel algorithms, developments in software tools and environments, unstructured adaptive mesh applications, industrial applications, atmospheric and oceanic global simulation, interdisciplinary applications and evaluation of computer architectures and software environments.

Flow-Based Optimization of Products or Devices -

Nils Tångeford Basse 2020-11-13

Flow-based optimization of products and devices is an immature field compared to the corresponding topology optimization based on solid mechanics. However, it is an essential part of component development with both internal and/or external flow. The aim of this book is two-fold: (i) to provide state-of-the-art examples of flow-based optimization and (ii) to present a review of topology optimization for fluid-based problems.

Developments in Renewable Energies Offshore -

Guedes Soares Carlos 2020-10-13

Developments in Renewable Energies Offshore contains the papers presented at the 4th International Conference on Renewable Energies Offshore (RENEW 2020, Lisbon, Portugal, 12 - 15 October 2020). The book covers a wide range of topics, including: resource assessment; wind energy; wave energy; tidal energy; ocean energy devices; multiuse platforms; PTO design; grid connection; economic assessment; materials and structural design; installation planning and maintenance planning. The book will be invaluable to professionals and academics involved or interested in Offshore Engineering, and Renewable and Wind Energy.