Engine Thermal Structural Analysis Using Ansys

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Precision Forming Technology of Large Superalloy Castings for Aircraft Engines - Baode Sun 2021-02-06
This book describes systematically the theory and technology of the precision forming of large, complex and thin-walled superalloy castings for aircraft engines, covering all the important basic aspects of the manufacturing process, including process design, wax pattern, ceramic molds, casting and solidification, heat treatment, repair casting and dimension precision control. The correlation of casting defects, structural characteristics and performance of castings is revealed through a range of tests. It also discusses the latest technologies and advances in this field – such as imaging the solidification process by means of synchrotron radiography, 3D computerized tomography and reconstruction of microporosity defects, analysis and diagnosis of error sources for dimension over-tolerance and adjusted pressure casting technology – which are of particular interest. Providing essential insights, the book offers a valuable guide to the design and manufacture of superalloy casting parts for aircraft engines.
Engine Modeling and Simulation - Avinash Kumar Agarwal 2021
This book focuses on the simulation and modeling of internal combustion engines. The contents include various aspects of diesel and gasoline engine modeling and simulation such as spray, combustion, ignition, in-cylinder phenomena, emissions, exhaust heat recovery. It also explored engine models and analysis of cylinder bore piston stresses and temperature effects. This book includes recent literature and focuses on current modeling and simulation trends for internal combustion engines. Readers will gain knowledge about engine process simulation and modeling, helpful for the development of efficient and emission-free engines. A few chapters highlight the review of state-of-the-art models for spray, combustion, and emissions, focusing on the theory, models, and their applications from an engine point of view. This volume would be of interest to professionals, post-graduate students involved in alternative fuels, IC engines, engine modeling and simulation, and environmental research.
CAD/CAM, Robotics and Factories of the Future - Dipak Kumar Mandal 2016-01-05
This volume is based on the proceedings of the 28th International Conference on CAD/CAM, Robotics and Factories of the Future. This book specially focuses on the positive changes made in the field of robotics, CAD/CAM and future outlook for emerging manufacturing units. Some of the important topics discussed in the conference are product development and sustainability, modeling and simulation, automation, robotics and handling systems, supply chain management and logistics, advanced manufacturing processes, human aspects in engineering activities, emerging scenarios in engineering education and training. The contents of this set of proceedings will prove useful to both researchers and practitioners.
Transport Phenomena in Rotating Machinery - J.

H. Kim 1990
Completing the authoritative coverage begun in Dynamics of Rotating Machinery, this text offers 36 current chapters focusing on the areas of fluid flow, heat transfer, multiple flow, cavitation and design.
Thermal-structural Design Study of an Airframe-integrated Scramjet - O. A. Buchmann 1979

Finite Element Modeling and Simulation with ANSYS Workbench, Second Edition - Xiaolin Chen 2018-09-05
Finite Element Modeling and Simulation with ANSYS Workbench 18, Second Edition, combines finite element theory with real-world practice. Providing an introduction to finite element modeling and analysis for those with no prior experience, and written by authors with a combined experience of 30 years teaching the subject, this text presents FEM formulations integrated with relevant hands-on instructions for using ANSYS Workbench 18. Incorporating the basic theories of FEA, simulation case studies, and the use of ANSYS Workbench in the modeling of engineering problems, the book also establishes the finite element method as a powerful numerical tool in engineering design and analysis. Features Uses ANSYS WorkbenchTM 18, which integrates the ANSYS SpaceClaim Direct ModelerTM into common simulation workflows for ease of use and rapid geometry manipulation, as the FEA environment, with full-color screen shots and diagrams. Covers fundamental concepts and practical knowledge of finite element modeling and simulation, with full-color graphics throughout. Contains numerous simulation case studies, demonstrated in a step-by-step fashion. Includes web-based simulation files for ANSYS Workbench 18 examples. Provides analyses of trusses, beams, frames, plane stress and strain problems, plates and shells, 3-D design components, and assembly structures, as well as analyses of thermal and fluid problems.
Current Advances in Mechanical Engineering - Saroj Kumar Acharya 2021-03-18
This book presents select proceedings of the International Conference on Recent Advances in Mechanical Engineering Research and Development (ICRAMERD 2020). The contents focus on latest research and current problems in various branches of mechanical engineering. Some of the topics discussed here include fracture and failure analysis, fuels and alternative fuels, combustion and IC engines, advanced manufacturing technologies, powder metallurgy and rapid prototyping, industrial engineering and automation, supply chain management, design of mechanical systems, vibrations and control engineering, automobile engineering, fluid mechanics and machines, heat transfer, composite materials, micro and nano-engineering for energy storage and conversion, and modeling and simulations. The wide range of topics presented in this book can make it useful for beginners, researchers as well as professionals in mechanical engineering.
ANSYS Workbench 2019 R2: A Tutorial Approach, 3rd Edition - Prof. Sham Tickoo 2019
ANSYS Workbench 2019 R2: A Tutorial Approach book introduces the readers to ANSYS Workbench 2019, one of the world's leading, widely distributed, and popular commercial CAE packages. It is used across the globe in various industries such as aerospace, automotive, manufacturing, nuclear, electronics, biomedical, and so on. ANSYS provides simulation solutions that enable designers to simulate design performance. This book covers various simulation streams of ANSYS such as Static Structural, Modal, Steady-State, and Transient Thermal analyses. Structured in pedagogical sequence for effective and easy learning, the content in this textbook will help FEA analysts in quickly understanding the capability and usage of tools of ANSYS Workbench. Salient Features: Book consisting of 11 chapters that are organized in a pedagogical sequence Summarized content on the first page of the topics that are covered in the chapter More than 10 real-world mechanical engineering problems used as tutorials Additional information throughout the book in the form of notes & tips Self-Evaluation Tests and Review Questions at the end of each chapter to help the users assess their knowledge. Table of Contents Chapter 1: Introduction to FEA Chapter 2: Introduction to ANSYS Workbench Chapter 3: Part Modeling - I Chapter 4: Part Modeling -II Chapter 5: Part Modeling - III Chapter 6: Defining Material Properties Chapter 7: Generating Mesh - I Chapter 8: Generating Mesh – II Chapter 9:

Static Structural Analysis Chapter 10: Modal Analysis Chapter 11: Thermal Analysis Index

Thermal Barrier Coatings - Huibin Xu 2011-01-14

Effective coatings are essential to counteract the effects of corrosion and degradation of exposed materials in high-temperature environments such as gas turbine engines. Thermal barrier coatings reviews the latest advances in processing and performance of thermal barrier coatings, as well as their failure mechanisms. Part one reviews the materials and structures of thermal barrier coatings. Chapters cover both metallic and ceramic coating materials as well as nanostructured coatings. Part two covers established and advanced processing and spraying techniques, with chapters on the latest advances in plasma spraying and plasma vapour deposition as well as detonation gun spraying. Part three discusses the performance and failure of thermal barrier coatings, including oxidation and hot-corrosion, non-destructive evaluation and new materials, technologies and processes. With its distinguished editors and international team of contributors, Thermal barrier coatings is an essential reference for professional engineers in such industries as energy production, aerospace and chemical engineering as well as academic researchers in materials. Reviews the latest advances in processing and performance of thermal barrier coatings, as well as their failure mechanisms Explores the materials and structures of thermal barrier coatings incorporating cover both metallic and ceramic coating materials as well as nanostructured coating Assesses established and advanced processing and spraying techniques, including plasma vapour deposition and detonation gun spraying

ENB311– STRESS ANALYSIS - 2015-05-20

This custom edition is specifically published for Queensland University of Technology.

1989 ANSYS Conference Proceedings - David Dietrich 1989

Ceramic Materials And Components For Engines - Proceedings Of The 5th International Symposium - Fu X R 1995-03-31

The 5th of a prestigious series of conferences, these proceedings are devoted to the latest achievements in ceramic materials and components for engines. Their purpose is to advance structural ceramics and ceramic engine technology on a worldwide scale and provide a state-of-the-art survey of this increasingly important field. The papers presented cover many aspects from basic research and development to production, properties and applications. These proceedings will be of interest to ceramists and mechanical engineers concerned with the potential use of ceramic components in engines.

Finite Element Methods with Programming and Ansys - Meung Kim 2013-02-25

The book introduces the finite element method (FEM) that is one of the most powerful numerical tools these days. FEM is the analysis tool in most of CAD/CAM systems and it is critical to understand FEM for engineering design. It begins with underlying variational calculus and moves to variational/FEM formulations. It covers all basic procedures of assembly and solution procedures in several programming practices. Finally, it introduecs Ansys and Ansys WB software to apply FEM to advanced topics in various areas of engineering.

Advances in Manufacturing Technology - Somashekhar S. Hiremath 2019-04-17

This volume comprises select papers presented at the International Conference on Advances in Manufacturing Technology (ICAMT 2018). It includes contributions from different researchers and practitioners working in the field of advanced manufacturing technology. This book covers diverse topics of contemporary manufacturing technology including material processes, machine tools, cutting tools, robotics and automation, manufacturing systems, optimization technologies, 3D scanning and re-engineering, and 3D printing. Computer applications in design, analysis, and simulation tools for solving manufacturing problems at various levels starting from material designs to complex manufacturing systems are also discussed. This book will be useful for students, researchers, and practitioners working in the field of manufacturing technology.

Additive Manufacturing in Industry 4.0 - Vipin Kumar Sharma 2022-12-26

The text covers four important areas: digital manufacturing, modern manufacturing processes, modeling and simulation in smart

industry, and nanotechnology. It further presents mathematical models to represent physical phenomena and applies modern computing methods and simulations in analyzing the same. The text covers key concepts such as abrasive flow machining (AFM), abrasive water jet (AWJ) machining, and hybrid machining for micro/nanomanufacturing. It will serve as an ideal reference text for senior undergraduate, graduate students, and researchers in fields including mechanical engineering, aerospace engineering, manufacturing engineering, and production engineering. Features Discusses sustainable development aspects of additive manufacturing in industry 4.0 Studies electrochemical machining processes for micro-machining Presents experimental Investigation of friction factor and heat transfer rate in the laminar regime Examines the mechanical and microstructural characterization of titanium chips using large strain machining Covers hybrid approaches like electrochemical machining and magnetic abrasive flow machining The book emphasizes linking the computer interface with the digital manufacturing process and their demonstration using commercially available software like Solid-Edge, ProE, and CATIA. It further discusses important aspects of digital manufacturing, advanced composites, artificial intelligence, and modern manufacturing processes.

Advances in Manufacturing Engineering - Mithilesh K. Dikshit 2022

This book presents select peer-reviewed proceedings of the International Conference on Futuristic Advancements in Materials, Manufacturing, and Thermal Sciences (ICFAMMT 2022). The contents of this book provide an overview of the latest research in the area of manufacturing sciences such as metal cutting, metal forming, casting, joining, micromachining, nonconventional machining, and additive manufacturing. Some of the other themes covered in this book are metal-based additive manufacturing, polymer-based additive manufacturing, hybrid additive manufacturing, optimization approach for minimizing GD, and error in additive manufactured parts. The book will be useful for researchers and professionals working in the field of manufacturing engineering.

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

Innovative Processing Methods For Synthesizing Advanced Structural And Functional Materials - Dr. Mohamed Zakaulla

Practical Limits of Efficiency of Engines - 1986

The Elements of Structures - George A. Hool 1912

Multidisciplinary Analysis of a Hypersonic Engine - 2002

Finite Element Modeling and Simulation with ANSYS Workbench - Xiaolin Chen 2014-08-11

Learn Basic Theory and Software Usage from a Single Volume Finite Element Modeling and Simulation with ANSYS Workbench combines finite element theory with real-world practice.

Providing an introduction to finite element modeling and analysis for those with no prior experience, and written by authors with a combined experience of 30 years teaching the subject, this text presents FEM formulations integrated with relevant hands-on applications using ANSYS Workbench for finite element analysis (FEA). Incorporating the basic theories of FEA and the use of ANSYS Workbench in the modeling and simulation of engineering problems, the book also establishes the FEM method as a powerful numerical tool in engineering design and analysis. Include FEA in Your Design and Analysis of Structures Using ANSYS Workbench The authors reveal the basic concepts in FEA using simple mechanics problems as examples, and provide a clear understanding of FEA principles, element behaviors, and solution procedures. They emphasize correct usage of FEA software, and techniques in FEA modeling and simulation. The material in the book discusses one-dimensional bar and beam elements, two-dimensional plane stress and plane strain elements, plate and shell elements, and three-dimensional solid elements in the analyses of structural stresses, vibrations and dynamics, thermal responses, fluid flows, optimizations, and failures. Contained in 12 chapters, the text introduces ANSYS Workbench through detailed examples and hands-on case studies, and includes homework problems and projects using ANSYS Workbench software that are provided at the end of each chapter. Covers solid mechanics and thermal/fluid FEA Contains ANSYS Workbench geometry input files for examples and case studies Includes two chapters devoted to modeling and solution techniques, design optimization, fatigue, and buckling failure analysis Provides modeling tips in case studies to provide readers an immediate opportunity to apply the skills they learn in a problem-solving context Finite Element Modeling and Simulation with ANSYS Workbench benefits upper-level undergraduate students in all engineering disciplines, as well as researchers and practicing engineers who use the finite element method to analyze structures.

Inelastic Behavior of Materials and Structures Under Monotonic and Cyclic Loading - Holm Altenbach 2015-02-03

This book presents studies on the inelastic behavior of materials and structures under monotonic and cyclic loads. It focuses on the description of new effects like purely thermal cycles or cases of non-trivial damages. The various models are based on different approaches and methods and scaling aspects are taken into account. In addition to purely phenomenological models, the book also presents mechanisms-based approaches. It includes contributions written by leading authors from a host of different countries.

26th Annual Conference on Composites, Advanced Ceramics, Materials, and Structures - A - Hua-Tay Lin 2009-09-28

This volume is part of the Ceramic Engineering and Science Proceeding (CESP) series. This series contains a collection of papers dealing with issues in both traditional ceramics (i.e., glass, whitewares, refractories, and porcelain enamel) and advanced ceramics. Topics covered in the area of advanced ceramic include bioceramics, nanomaterials, composites, solid oxide fuel cells, mechanical properties and structural design, advanced ceramic coatings, ceramic armor, porous ceramics, and more.

An Introduction to ANSYS Fluent 2019 - John Matsson

• Teaches new users how to run Computational Fluid Dynamics simulations using ANSYS Fluent • Uses applied problems, with detailed step-by-step instructions • Designed to supplement undergraduate and graduate courses • Covers the use of ANSYS Workbench, ANSYS DesignModeler, ANSYS Meshing and ANSYS Fluent • Compares results from ANSYS Fluent with numerical solutions using Mathematica As an engineer, you may need to test how a design interacts with fluids. For example, you may need to simulate how air flows over an aircraft wing, how water flows through a filter, or how water seeps under a dam. Carrying out simulations is often a critical step in verifying that a design will be successful. In this hands-on book, you'll learn in detail how to run Computational Fluid Dynamics (CFD) simulations using ANSYS Fluent. ANSYS Fluent is known for its power, simplicity and speed, which has helped make it a world leader in CFD software, both in academia and industry. Unlike any other ANSYS Fluent textbook currently on the market, this book uses applied problems to walk you step-by-step

through completing CFD simulations for many common flow cases, including internal and external flows, laminar and turbulent flows, steady and unsteady flows, and single-phase and multiphase flows. You will also learn how to visualize the computed flows in the post-processing phase using different types of plots. To better understand the mathematical models being applied, we'll validate the results from ANSYS Fluent with numerical solutions calculated using Mathematica. Throughout this book we'll learn how to create geometry using ANSYS Workbench and ANSYS DesignModeler, how to create mesh using ANSYS Meshing, how to use physical models and how to perform calculations using ANSYS Fluent. The twenty chapters in this book can be used in any order and are suitable for beginners with little or no previous experience using ANSYS. Intermediate users, already familiar with the basics of ANSYS Fluent, will still find new areas to explore and learn. An Introduction to ANSYS Fluent 2019 is designed to be used as a supplement to undergraduate courses in Aerodynamics, Finite Element Methods and Fluid Mechanics and is suitable for graduate level courses such as Viscous Fluid Flows and Hydrodynamic Stability. The use of CFD simulation software is rapidly growing in all industries. Companies are now expecting graduating engineers to have knowledge of how to perform simulations. Even if you don't eventually complete simulations yourself, understanding the process used to complete these simulations is necessary to be an effective team member. People with experience using ANSYS Fluent are highly sought after in the industry, so learning this software will not only give you an advantage in your classes, but also when applying for jobs and in the workplace. This book is a valuable tool that will help you master ANSYS Fluent and better understand the underlying theory.

Computer and Computing Technologies in Agriculture, Volume II - Daoliang Li 2010-05-09

The papers in this volume comprise the refereed proceedings of the First Int- national Conference on Computer and Computing Technologies in Agriculture (CCTA 2007), in Wuyishan, China, 2007. This conference is organized by China Agricultural University, Chinese Society of Agricultural Engineering and the Beijing Society for Information Technology in Agriculture. The purpose of this conference is to facilitate the communication and cooperation between institutions and researchers on theories, methods and implementation of computer science and information technology. By researching information technology development and the - sources integration in rural areas in China, an innovative and effective approach is expected to be explored to promote the technology application to the development of modern agriculture and contribute to the construction of new countryside. The rapid development of information technology has induced substantial changes and impact on the development of China's rural areas. Western thoughts have exerted great impact on studies of Chinese information technology devel- ment and it helps more Chinese and western scholars to expand their studies in this academic and application area. Thus, this conference, with works by many prominent scholars, has covered computer science and technology and information development in China's rural areas; and probed into all the important issues and the newest research topics, such as Agricultural Decision Support System and Expert System, GIS, GPS, RS and Precision Farming, CT applications in Rural Area, Agricultural System Simulation, Evolutionary Computing, etc.

FINITE ELEMENT ANALYSIS USING ANSYS 11.0 - PALETI SRINIVAS, SAMBANA KRISHNA CHAITANYA DATTI RAJESH KUMAR 2010-01-01

"This book is designed for students pursuing a course on Finite Element Analysis (FEA)/Finite Element Methods (FEM) at undergraduate and post-graduate levels in the areas of mechanical, civil, and aerospace engineering and their related disciplines. It introduces the students to the implement-ation of finite element procedures using ANSYS FEA software. The book focuses on analysis of structural mechanics problems and imparts a thorough understanding of the functioning of the software by making the students interact with several real-world problems.

Advances in Engineering Design and Simulation - Chenfeng Li 2019-10-03

This book consists of selected peer-reviewed papers presented at the NAFEMS India Regional Conference (NIRC 2018). It covers current

topics related to advances in computer aided design and manufacturing. The book focuses on the latest developments in engineering modelling and simulation, and its application to various complex engineering systems. Finite element method/finite element analysis, computational fluid dynamics, and additive manufacturing are some of the key topics covered in this book. The book aims to provide a better understanding of contemporary product design and analyses, and hence will be useful for researchers, academicians, and professionals.

Life Cycle Reliability Engineering - Guang Yang 2007-02-02

As the Lead Reliability Engineer for Ford Motor Company, Guangbin Yang is involved with all aspects of the design and production of complex automotive systems. Focusing on real-world problems and solutions, Life Cycle Reliability Engineering covers the gamut of the techniques used for reliability assurance throughout a product's life cycle. Yang pulls real-world examples from his work and other industries to explain the methods of robust design (designing reliability into a product or system ahead of time), statistical and real product testing, software testing, and ultimately verification and warranting of the final product's reliability

Emerging Trends in Mechanical Engineering - L. Vijayaraghavan 2019-12-11

This book comprises select proceedings of the International Conference on Emerging Trends in Mechanical Engineering (ICETME 2018). The book covers various topics of mechanical engineering like computational fluid dynamics, heat transfer, machine dynamics, tribology, and composite materials. In addition, relevant studies in the allied fields of manufacturing, industrial and production engineering are also covered. The applications of latest tools and techniques in the context of mechanical engineering problems are discussed in this book. The contents of this book will be useful for students, researchers as well as industry professionals.

26th Annual Conference on Composites, Advanced Ceramics, Materials, and Structures: A-B - 2002

Advances in Engineering Materials and Applied Mechanics - Guangde Zhang 2015-10-22

With the rapid development of Machinery, Materials Science and Engineering Application, discussion on new ideas related mechanical engineering and materials science arise. In this proceedings volume the author(s) are focussed on Machinery, Materials Science and Engineering Applications and other related topics. The Conference has pro

Air Breathing Engines and Aerospace Propulsion - B. N. Raghunandan 2004

Contributed papers presented at the 7th National Conference on Air Breathing Engines and Aerospace Propulsion, hosted at I.I.T., Kanpur.

Advanced Numerical Simulations in Mechanical Engineering - Kumar, Ashwani 2017-12-01

Recent developments in information processing systems have driven the advancement of numerical simulations in engineering. New models and simulations enable better solutions for problem-solving and overall process improvement. Advanced Numerical Simulations in Mechanical Engineering is a pivotal reference source for the latest research findings on advanced modelling and simulation method adopted in mechanical and mechatronics engineering. Featuring extensive coverage on relevant areas such as fuzzy logic controllers, finite element analysis, and analytical models, this publication is an ideal resource for students, professional engineers, and researchers interested in the application of numerical simulations in mechanical engineering.

Proceedings of the 18th Annual Fall Technical Conference of the ASME Internal Combustion Engine Division: Advanced designs and operations - American Society of Mechanical Engineers. Internal Combustion Engine Division. Technical Conference 1996

Techno-Societal 2018 - Prashant M. Pawar 2019-11-06

This book, divided in two volumes, originates from Techno-Societal 2018: the 2nd International Conference on Advanced Technologies for Societal Applications, Maharashtra, India, that brings together faculty members of various engineering colleges to solve Indian regional relevant problems under the guidance of eminent researchers from various reputed organizations. The focus is on

technologies that help develop and improve society, in particular on issues such as the betterment of differently abled people, environment impact, livelihood, rural employment, agriculture, healthcare, energy, transport, sanitation, water, education. This conference aims to help innovators to share their best practices or products developed to solve specific local problems which in turn may help the other researchers to take inspiration to solve problems in their region. On the other hand, technologies proposed by expert researchers may find applications in different regions. This offers a multidisciplinary platform for researchers from a broad range of disciplines of Science, Engineering and Technology for reporting innovations at different levels.

Experimental and Applied Mechanics, Volume 4 - Carlos E. Ventura 2012-11-29
Experimental and Applied Mechanics, Volume 4: Proceedings of the 2012 Annual Conference on Experimental and Applied Mechanics, the fourth volume of seven from the Conference, brings together 54 contributions to this important area of research and engineering. The collection presents early findings and case studies on fundamental and applied aspects of Experimental and Applied Mechanics, including papers on: Fracture & Fatigue Microscale & Microstructural Effects in Fatigue & Fracture Material Applications Composite Characterization Using Digital Image Correlation Techniques Multi-Scale Simulation and Testing of Composites Residual Stress Inverse Problems/Hybrid Methods Nano-Composites Microstructure Material Characterization Modeling and Uncertainty Quantification Impact Behavior of Composites

Advances in Power and Electrical Engineering - Mo Jie Sun 2012-12-13
This 2-volumes set contains selected and peer-review papers in the subject areas of engineering thermo physics, applied thermal engineering, power machinery and engineering, fluid engineering and machinery, HVAC, air conditioning and refrigeration, power system and automation, high voltage and insulation technology, motor and electrical, electrical engineering principles and applications, power electronics and power drives, smart grid technologies, power system management.

Advances in Electromechanical Technologies - V. C. Pandey 2020-09-24
This book comprises select peer-reviewed papers from the International Conference on Emerging Trends in Electromechanical Technologies & Management (TEMT) 2019. The focus is on current research in interdisciplinary areas of mechanical, electrical, electronics and information technologies, and their management from design to market. The book covers a wide range of topics such as computer integrated manufacturing, additive manufacturing, materials science and engineering, simulation and modelling, finite element analysis, operations and supply chain management, decision sciences, business analytics, project management, and sustainable freight transportation. The book will be of interest to researchers and practitioners of various disciplines, in particular mechanical and industrial engineering.

30th International Symposium on Shock Waves 1 - Gabi Ben-Dor 2017-08-09
These proceedings collect the papers presented at the 30th International Symposium on Shock Waves (ISSW30), which was held in Tel-Aviv Israel from July 19 to July 24, 2015. The Symposium was organized by Ortra Ltd. The ISSW30 focused on the state of knowledge of the following areas: Nozzle Flow, Supersonic and Hypersonic Flows with Shocks, Supersonic Jets, Chemical Kinetics, Chemical Reacting Flows, Detonation, Combustion, Ignition, Shock Wave Reflection and Interaction, Shock Wave Interaction with Obstacles, Shock Wave Interaction with Porous Media, Shock Wave Interaction with Granular Media, Shock Wave Interaction with Dusty Media, Plasma, Magnetohyrdrodynamics, Re-entry to Earth Atmosphere, Shock Waves in Rarefied Gases, Shock Waves in Condensed Matter (Solids and Liquids), Shock Waves in Dense Gases, Shock Wave Focusing, Richtmyer-Meshkov Instability, Shock Boundary Layer Interaction, Multiphase Flow, Blast Waves, Facilities, Flow Visualization, and Numerical Methods. The two volumes serve as a reference for the participants of the ISSW30 and anyone interested in these fields.