

Icas Science Answer Paper G 2007

This review volume explores how the current knowledge of the biological structures occurring on the surface of moth eyes, leaves, sharkskin, and the feet of reptiles can be transferred to functional technological materials.

"This book highlights and discusses the underlying 00s issues that arise in the delivery of real-time multimedia services over wireless networks"--Provided by publisher.

The future of China, India and Asia's other emerging economies and their ability to take a "low-carbon" and "climate-resilient" development path determine the future of global carbon emissions and climate change. Indeed, the battle to confront global climate change will be won or lost in Asia. The transition to a low-carbon, climate-resilient economy (LCE), which involves many steps towards improved energy efficiency, alternative energy sources and transport systems, sustainable land use, eco-friendly consumption and proactive adaptation, may be regarded as the world's fourth revolution, after the industrial revolution, agricultural revolution, and the information revolution. Asia is highly vulnerable to impacts of climate change. Yet because of its dynamic economies and massive populations, Asia offers the greatest opportunity for overcoming the trade-offs and pursuing low-carbon development pathways. With a growing consensus that there is limited time to avoid the worst impacts of climate change, scientists, engineers, policymakers, and economists across Asia have recently begun discussions on how Asia can make a transition to LCE. Most discussions, however, focused on transfer of technologies from developed to developing countries and overlooked other equally important challenges such as financing, governance, and information dissemination. This book is the first to look at these neglected aspects of LCE and attempt to integrate both market-based and technology-based solutions into a comprehensive strategy to creating a roadmap for LCE in Asia. This book is an essential reading for economists, policy makers, practitioners, engineers and researchers concerned with climate change, energy production and development in Asia and the impacts and potential for the world.

MEGAFLOW - Numerical Flow Simulation for Aircraft Design

18th European Symposium on Computer Aided Process Engineering

Basic Research and Technologies for Two-Stage-to-Orbit Vehicles

Fluid- and Gasdynamics

Lectures given at the 2nd Session of the Centro Internazionale Matematico Estivo (C.I.M.E.)held in Cetarò, Italy, June 15-22, 1996

Functional Properties of Bio-Inspired Surfaces

Results of the closing symposium of the MEGADESIGN and MegaOpt projects, Braunschweig, Germany, May 23 and 24, 2007

The book describes the main findings of the EU-funded project IDIHOM (Industrialization of High-Order Methods - A Top-Down Approach). The goal of this project was the improvement, utilization and demonstration of innovative higher-order simulation capabilities for large-scale aerodynamic application challenges in the aircraft industry. The IDIHOM consortium consisted of 21 organizations, including aircraft manufacturers, software vendors, as well as the major European research establishments and several universities, all of them with proven expertise in the field of computational fluid dynamics. After a general introduction to the project, the book reports on new approaches for curved boundary-grid generation, high-order solution methods and visualization techniques. It summarizes the achievements, weaknesses and perspectives of the new simulation capabilities developed by the project partners for various industrial applications, and includes internal- and external-aerodynamic as well as multidisciplinary test cases.

Hybrid modelling of turbulent flows, combining RANS and LES techniques, has received increasing attention over the past decade to fill the gap between (U)RANS and LES computations in aerodynamic applications at industrially relevant Reynolds numbers. With the advantage of hybrid RANS-LES modelling approaches, being considerably more computationally efficient than full LES and more accurate than (U)RANS, particularly for unsteady aerodynamic flows, has motivated numerous research and development activities. These activities have been increasingly stimulated by the provision of modern computing facilities. The present book contains the contributions presented at the Third Symposium on Hybrid RANS-LES Methods, held in Gdansk, Poland, 10-12 June 2009. To a certain extent, this conference was a continuation of the first symposium taking place in Stockholm (Sweden, 2005) and the second in Corfu (Greece, 2007). Motivated by the extensive interest in the research community, the papers presented at the Corfu symposium were published by Springer in the book entitled "Advances in Hybrid RANS-LES Modelling" (in Notes on Numerical Fluid Mechanics and Multidisciplinary Design, Vol. 97). At the Gdansk symposium, along with four invited keynotes, given respectively by S. Fu, U. Michel, M. Sillen and P. Spalart, another 28 papers were presented on the following topics: Unsteady RANS, LES, Improved DES Methods, Hybrid RANS-LES Methods, DES versus URANS and other Hybrid Methods, Modell- related Numerical Issues and Industrial

Applications. After the symposium all full papers have been further reviewed and revised for publication in the present book.

This entry documents the experimental work conducted in the Department of Aeronautics at Imperial College in connection with Test Problems 1 and 2 of the "Workshop on Hypersonic Flows for Reentry Problems, Part I". These are defined as follows: Test Problem 1 Flow Over a Slender Cone Test Problem 2 Turbulent Base Flow The main requirement of this text is to present the experimental data for direct comparison with the predictions of CFD codes. We have therefore concentrated mainly on a factual statement of measuring techniques and results, together with an assessment of experimental accuracy. Future publications will be devoted to more extensive physical interpretations and discussions of the results. We have produced a large volume of data, some of which were categorised as "MANDATORY" and some as "OPTIONAL" for the purposes of CFD validation. However, only the "MANDATORY" data are presented here, although the other data are available and will be published separately later. 2. EXPERIMENTAL ARRANGEMENT 2. 1 The Test Facility The experiments were conducted in the Imperial College No. 2 Gun tunnel. This facility is a conventional intermittent blowdown tunnel with a contoured Mach 9 (nominal) axisymmetric nozzle fed by a free piston compression heater. The operating condition under which the data contained in this report were obtained is presented in Table 1. Test 2 T (oK) M b. Mm Po (N/m) Re/m T (oK) IX) IX) Case IX) w 1. 1 7 7 +0. 14 9. 16 6. 67x10 5. 5x10 59.

ICT Education

Volume 1 and Volume 2 Theory and Applications

Contributions from a Workshop held at the School of Mathematics in Erice, Italy

Volume II: Test Cases - Experiments and Computations Proceedings of a Workshop Held in Antibes, France, 22-25 January 1990

Quality of Service and Solutions

Characterization and Technological Applications

Computational Structural Mechanics & Fluid Dynamics

A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system and announced in Scientific and technical aerospace reports (STAR) and International aerospace abstracts (IAA)

Focusing on basic aspects of future reusable space transportation systems and covering overall design, aerodynamics, thermodynamics, flight dynamics, propulsion, materials, and structures, this report presents some of the most recent results obtained in these disciplines. The authors are members of three Collaborative Research Centers in Aachen, Munich and Stuttgart concerned with hypersonic vehicles. A major part of the research presented here deals with experimental and numerical aerodynamic topics ranging from low speed to hypersonic flow past the external configuration and through inlet and nozzle. Mathematicians and engineers jointly worked on aspects of flight mechanics like trajectory optimization, stability, control and flying qualities. Structural research and development was predominantly coupled to the needs for high temperature resistant structures for space vehicles.

In a book that will be required reading for engineers, physicists, and computer scientists, the editors have collated a number of articles on fluid mechanics, written by some of the world's leading researchers and practitioners in this important subject area.

The Chemical News and Journal of Physical Science

Results of a Collaborative Research Project Funded by the European Union, 2010 - 2014

Contributions to the 15th STAB/DGLR Symposium Darmstadt, Germany 2006

Analysis of Turbulent Flows with Computer Programs

Multigrid Solution of Compressible Turbulent Flow on Unstructured Meshes Using a Two-equation Model

Aeronautical Engineering

Calculus of Variations and Geometric Evolution Problems

This volume features the contributions to the 15th Symposium of the STAB (German Aerospace Aerodynamics Association). Papers provide a broad overview of ongoing work in Germany, including high aspect ratio wings, low aspect ratio wings, bluff bodies, laminar flow control and transition, active flow control, hypersonic flows, aeroelasticity, aeroacoustics, mathematical fundamentals, numerical simulations, physical fundamentals, and facilities.

The aerodynamics of aircraft at high angles of attack is a subject which is being pursued diligently, because the modern agile fighter aircraft and many of the current generation of missiles must perform well at a very high incidence, near and beyond stall. However, a comprehensive presentation of the methods and results applicable to the studies of the complex aerodynamics at high angle of attack has not been covered in monographs or textbooks. This book is not the usual textbook in that it goes beyond just presenting the basic theoretical and experimental know-how, since it contains reference material to practical calculation methods and technical and experimental results which can be useful to the practicing aerospace engineers and scientists. It can certainly be used as a text and reference book for graduate courses on subjects related to high angles of attack aerodynamics and for topics related to three-dimensional separation in viscous flow courses. In addition, the book is addressed to the aerodynamicist interested in a comprehensive reference to methods of analysis and computations of high angle of attack flow phenomena and is written for the aerospace scientist and engineer who is familiar with the basic concepts of viscous and inviscid flows and with computational methods used in fluid dynamics.

All, in the earlier conferences (Tokyo, 1986; Atlanta, 1988; Melbourne, 1991; and Hong Kong, 1992) the response to the call for presentations at ICES-95 in Hawaii has been overwhelming. A very careful screening of the extended abstracts resulted in about 500 paper being accepted for presentation. Out of these, written versions of about 480 papers reached the conference secretariat in Atlanta in time for inclusion in these proceedings. The topics covered at ICES-95 range over the broadest spectrum of computational engineering science. The editors thank the international scientific committee, for their advice and encouragement in making ICES-95 a successful scientific event. Special thanks are expressed to the International Association for Boundary Elements Methods for hosting IABEM-95 in conjunction with ICES-95. The editors here express their deepest gratitude to Ms. Stacy Morgan for her careful handling of a myriad of details of ICES-95, often times under severe time constraints. The editors hope that the readers of this proceedings will find a kaleidoscopic view of computational engineering in the year 1995, as practiced in various parts of the world. Satya N. Atluri Atlanta, Georgia, USA Genki Yagawa Tokyo,Japan Thomas A. Cruse Nashville, TN, USA Organizing Committee Professor Genki Yagawa, University of Tokyo, Japan, Chair Professor Satya Atluri, Georgia Institute of Technology, U.S.A.

Interdisciplinary and Multilevel Optimum Design

Hypersonic Flows for Reentry Problems

High Angle of Attack Aerodynamics

AIAA Journal

Defining the Hypersonic Environment Volume 1

English Mechanics and the World of Science

Research Results of the Collaborative Research Center SFB 401 at RWTH Aachen, University of Technology, Aachen, Germany

The Internet of Things (IoT) can be defined as any network of things capable of generating, storing and exchanging data, and in some cases acting on it. This new form of seamless connectivity has many applications: smart cities, smart grids for energy management, intelligent transport, environmental monitoring, healthcare systems, etc. and EU policymakers were quick to realize that machine-to-machine communication and the IoT were going to be vital to economic development. It was also clear that the security of Commission's Cybersecurity Strategy of the European Union in 2013, the EU's Horizon 2020 programme was set up to explore available options and possible approaches to addressing the security and privacy issues of the IoT. This book presents 10 papers which have emerged from the research of the Horizon 2020 and CHIST-ERA programmes, and which address a wide cross-section of projects ranging from the secure management of personal data and the specific challenges of the IoT with respect to the GDPR, the distributed ledger technologies, to new cryptographic approaches as a counter-measure for side-channel attacks and the vulnerabilities of IoT-based ambient assisted living systems. The security and safety of the Internet of Things will remain high on the agenda of policymakers for the foreseeable future, and this book provides an overview for all those with an interest in the field.

These three volumes entitled Advances in Hypersonics contain the Proceedings of the Second and Third Joint US/Europe Short Course in Hypersonics which took place in Colorado Springs and Aachen. The Second Course was organized at the US Air Force Academy, USA in January 1989 and the Third Course at Aachen, Germany in October 1990. The main idea of these Courses was to present to chemists, computer scientists, engineers, experimentalists, mathematicians, and physicists state of the art lectures in scientific methods necessary to define the aerothermo dynamic environments for space vehicles such as the US Orbiter or the European Hermes flying at hypersonic speeds. The subjects can be grouped into the following areas: Physical environments, configuration requirements, propulsion systems (including airbreathing systems), experimental methods for external and internal flow, theoretical and numerical methods. Since hyper sonic flight requires highly integrated systems, the Short Course also tried to broaden the view of attendees to give them the ability to understand the complex problem of hypersonic flight. Most of the participants in the Short Courses prepared a document based on their presentation for reproduction in the three volumes. Some authors spent considerable time and energy going well beyond their oral presentation to provide a quality assessment of the state of the art in their area of expertise as of 1989 and 1991.

The international summer school on Calculus of Variations and Geometric Evolution Problems was held at Cetraro, Italy, 1996. The contributions to this volume reflect quite closely the lectures given at Cetraro which have provided an image of a fairly broad field in analysis where in recent years we have seen many important contributions. Among the topics treated in the courses were variational methods for Ginzburg-Landau equations, variational models for microstructure and phase transitions, a variational treatment of manifolds - both from the classical point of view and in the setting of geometric measure theory. Nuclear Science Abstracts

Transition to Low Carbon and Climate Resilient Economies

High Performance Computing in Science and Engineering '02

Security and Privacy in the Internet of Things: Challenges and Solutions

Scientific and Technical Information Output of the Langley Research Center for Calendar Year 1984

Festschrift for Jürgen Zierep on the Occasion of his 65th Birthday

Papers Contributed to the 3rd Symposium on Hybrid RANS-LES Methods, Gdansk, Poland, June 2009

This volume collects contributions to the 14th Symposium of the STAB (German Aerospace Aerodynamics Association). The association involves German scientists and engineers from universities, research establishments and industry who are doing research and project work in numerical and experimental fluid mechanics and aerodynamics, mainly for aerospace but for other applications, too. The volume gives a broad overview of ongoing work in Germany in this field. The research work of the collaborative research center SFB401, Flow Modulation and Fluid-Structure Interaction at Airplane Wings at the Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, which is reported in this book, was possible due to the financial support of the Deutsche Forschungsgemeinschaft (DFG). The proposal has been approved after evaluation by the referees of DFG selected from other universities and industry, which is gratefully acknowledged. The work is still in progress and now approved to continue until the end of year 2005. More than 50 scientists from universities of the United States, Russia, France, Italy, Japan, Great Britain, Sweden, Netherlands, Switzerland, Austria and research organizations NASA, ONERA, NLR, DLR could be invited and have visited the research center, gave seminars on their research on related topics and some of them stayed longer for joined work. Besides its scientific value, also the importance of the pro gram for scientific educa tion becomes evident by looking at the numbers of completed theses, which are up to now about 15 doctoral theses, 40 diploma theses and 70 study theses. The authors of this book acknowledge the valuable support coming from all these persons and institutions. They are especially grateful to the referees having reviewed this work, A. Cohen (Universite Pierre et Marie Curie), J. Cooper (Manchester School of Engineering), W. Devenport (Virginia Tech.), M. Drela (MIT), F. Germ (Avionics Specialties Inc.), A. Griewank (TU Dresden), H. Hönlinger (DLR), P.

NSA includes citations to international nuclear science and technology literature for the period 1948 through 1976, pre-dating the prestigious INIS database, which began in 1970. NSA existed as a printed product (Volumes 1-33) initially, created by DOE's predecessor, the U.S. Atomic Energy Commission (AEC). NSA includes citations to scientific and technical reports from the AEC, the U.S. Energy Research and Development Administration and its contractors, plus other agencies and international organizations, universities, and industrial and research organizations. References to books, conference proceedings, papers, patents, dissertations, engineering drawings, and journal articles from worldwide sources are also included. Abstracts and full text are provided if available.

The Universal Access Handbook

Final Report of the Collaborative Research Centres 253, 255 and 259

MEGADESIGN and MegaOpt - German Initiatives for Aerodynamic Simulation and Optimization in Aircraft Design

AGARD Conference Proceedings

Variational Analysis and Aerospace Engineering: Mathematical Challenges for Aerospace Design

100 Volumes of 'Notes on Numerical Fluid Mechanics'

46th Annual Conference of the Southern African Computer Lecturers' Association, SACLA 2017, Magaliesburg, South Africa, July 3-5, 2017, Revised Selected Papers

The steady state solution of the system of equations consisting of the full Navier Stokes equations and two turbulence equations was first obtained using a multigrid strategy on unstructured and meshless. The flow equations and turbulence equations are solved in a loosely coupled manner. The flow equations are advanced in time using a multi-stage Runge Kutta time stepping scheme with a stability bound local time-step, while the turbulence equations are advanced in a point-implicit scheme with a time-step which guarantees stability and positivity. Low Reynolds number modifications to the original two-equation model are incorporated in a manner which results in well behaved equations for arbitrarily small wall distances. A variety of aerodynamic flows are solved for, initializing all quantities with uniform freestream values. Rapid and uniform convergence rates for the flow and turbulence equations are observed. The scientific monograph Mobility IoT deals with innovative technologies influencing industry and connectivity sectors in the future industrial, urban, social and sustainable development. The mobility and Internet of Things are worldwide phenomena almost in everyday life. It is a challenge in many industries, not only in car manufacturing sector but additionally in e-mobility, smart cities, smart factories (Industry 4.0), smart logistics, social mobility, technological innovations, sustainable multicultural development, Internet of Things sectors, etc., belonging to the topic of SMART Mobility IoT issue. Features practical, tested applications in Internet of Things mobility as presented at Mobility IoT 2018 Includes application domains such as urban mobility, smart factory, social mobility, and sustainability Applicable to researchers, academics, students, and professionals

Analysis of Turbulent Flows is written by one of the most prolific authors in the field of CFD. Professor of Aerodynamics at SUPAERO and Director of DMAE at ONERA, Professor Tuncer Cebeci calls on both his academic and industrial experience when presenting this work. Each chapter has been specifically constructed to provide a comprehensive overview of turbulent flow and its measurement. Analysis of Turbulent Flows serves as an advanced textbook for PhD candidates working in the field of CFD and is essential reading for researchers, practitioners in industry and MSc and MEng students. The field of CFD is strongly represented by the following corporate organizations: Boeing, Airbus, Thales, United Technologies and General Electric. Government bodies and academic institutions also have a strong interest in this exciting field. An overview of the development and application of computational fluid dynamics (CFD), with real applications to industry Contains a unique section on short-cut methods - simple approaches to practical engineering problems

Progress in Hybrid RANS-LES Modelling

Digest of Technical Papers

39th AIAA Aerospace Sciences Meeting and Exhibit

IDIHOM: Industrialization of High-Order Methods - A Top-Down Approach

Flow Modulation and Fluid-Structure Interaction at Airplane Wings

Subsonic, Transonic, and Supersonic Flows

New Results in Numerical and Experimental Fluid Mechanics VI

This volume consists of papers presented at the Variational Analysis and Aerospace Engineering Workshop II held in Erice, Italy in September 2010 at the International School of Mathematics "Guido Stampacchia". The workshop provided a platform for aerospace engineers and mathematicians (from universities, research centers and industry) to discuss the advanced problems requiring an extensive application of mathematics. The presentations were dedicated to the most advanced subjects in engineering and, in particular to computational fluid dynamics methods, introduction of new materials, optimization in aerodynamics, structural optimization, space missions, flight mechanics, control theory and optimization, variational methods and applications, etc. This book will capture the interest of researchers from both academia and industry.

This volume offers a wide range of theoretical, numerical and experimental research papers on fluid dynamics. The major fields of research - fundamentals of fluid mechanics as well as their applications - are treated: - stability phenomena: convective flow, thermal and hydrodynamic systems - transition, turbulence and separation: boundary-layer, turbulent combustion, rarefied gasdynamics, near wall and off wall flow fields, energy dissipation - transonic flow: homogeneous condensation, shock-waves, effects at Mach number unity - hypersonic flow: flow over spheres, aerothermodynamics, relaxation - fluid machinery: axial fans, compressor cascades, fluid couplings - computational fluid dynamics: passive shock control, zonal computation, cylinderflow, flow over wings - miscellaneous problems.

This book presents the state-of-the-art in modeling and simulation on supercomputers. Leading German research groups present their results achieved on high-end systems of the High Performance Computing Center Stuttgart (HLRS) for the year 2002. Reports cover all fields of supercomputing simulation ranging from computational fluid dynamics to computer science. Special emphasis is given to industrially relevant applications. Moreover, by presenting results for both vector sytems and micro-processor based systems the book allows to compare performance levels and usability of a variety of supercomputer architectures. It therefore becomes an indispensable guidebook to assess the impact of the Japanese Earth Simulator project on supercomputing in the years to come.

New Results in Numerical and Experimental Fluid Mechanics V

Climate Smart Development in Asia

Handbook of Research on Wireless Multimedia: Quality of Service and Solutions

Advances and Trends

Computational Mechanics '95

Mobility Internet of Things 2018

Advances in Hypersonics

The aerospace industry increasingly relies on advanced numerical simulation tools in the early design phase. This volume provides the results of a German initiative which combines many of the CFD development activities from the German Aerospace Center (DLR), universities, and aircraft industry. Numerical algorithms for structured and hybrid Navier-Stokes solvers are presented in detail. The capabilities of the software for complex industrial applications are demonstrated. Computational structural mechanics (CSM) and computational fluid dynamics (CFD) have emerged in the last two decades as new disciplines combining structural mechanics and fluid dynamics with approximation theory, numerical analysis and computer science. Their use has transformed much of technological mechanics and abstract science into practical and essential tools for a multitude of technological developments which affect many facets of our life. This collection of over 40 authoritative documents provides an overview of major advances in both CSM and CFD, helping to identify promising directions of development in these rapidly changing fields. Key areas covered are fluid structure interaction and aeroelasticity, CFD technology and reacting flows, micromechanics, stability and eigenproblems, probabilistic methods and chaotic dynamics, perturbation and spectral methods, element technology (finite volume, finite elements and boundary elements), adaptive methods, parallel processing machines and applications, and visualization, mesh generation and artificial intelligence interfaces.

This book constitutes the refereed proceedings of the 46th Annual Conference of the Southern African Computer Lecturers' Association on ICT Education, SACLA 2017, held in Magaliesburg, South Africa, in July 2017. The 22 revised full papers presented together with an extended abstract of a keynote paper were carefully reviewed and selected from 63 submissions. The papers are organized in topical sections on ICT students of a new generation: technology and gaming in nowadays education; educational cooperation with the ICT industry; computer programming education; ICT courses and curricula.

Monthly Catalog of United States Government Publications

8-11 January 2001, Reno, NV.

Results of the second phase of the German CFD Initiative MEGAFLOW, presented during its closing symposium at DLR, Braunschweig, Germany, December 10 and 11, 2002

Physics Briefs

Transactions of the High Performance Computing Center Stuttgart (HLRS) 2002

40 Years of Numerical Fluid Mechanics and Aerodynamics in Retrospect

Mobility IoT

In recent years, the field of Universal Access has made significant progress in consolidating theoretical approaches, scientific methods and technologies, as well as in exploring new application domains. Increasingly, professionals in this rapidly maturing area require a comprehensive and multidisciplinary resource that addresses current principles, methods, and tools. Written by leading international authorities from academic, research, and industrial organizations and nonmarket institutions, The Universal Access Handbook covers the unfolding scientific, methodological, technological, and policy issues involved in the process of achieving universal access in the information society. In a collection of 61 chapters, the book discusses how to systematically apply universal design principles to information technologies. It explains the various dimensions of diversity in the technological platforms and contexts of use, including trends in mobile interaction and ambient intelligence environments. The implications of Universal Access on the development life cycle of interactive applications and services are unfolded, addressing user interface architectures and related components. Novel interaction methods and techniques for Universal Access are analyzed, and a variety of applications in diverse domains are discussed. The book reflects recent developments, consolidates present knowledge, and points towards new perspectives for the future. A quick glance through the contents demonstrates not only the breadth and depth of coverage but also the caliber of the contributions. An indispensable source of information for interdisciplinary and cross-thematic study, the book provides a baseline for further in-depth studies, as well as an important educational tool in an increasingly globalized research and development environment.

This volume contains results of the German CFD initiative MEGADESIGN which combines CFD development activities from DLR, universities and aircraft industry. Based on the DLR flow solvers FLOWer and TAU the main objectives of the four-years project is to ensure the prediction accuracy with a guaranteed error bandwidth for certain aircraft configurations at design conditions, to reduce the simulation turn-around time for large-scale applications significantly, to improve the reliability of the flow solvers for full aircraft configurations in the complete flight regime, to extend the flow solvers to allow for multidisciplinary simulations and to establish numerical shape optimization as a vital tool within the aircraft design process. This volume highlights recent improvements and enhancements of the flow solvers as well as new developments with respect to aerodynamic and multidisciplinary shape optimization. Improved numerical simulation capabilities are demonstrated by several industrial applications.

The 18th European Symposium on Computer Aided Process Engineering contains papers presented at the 18th European Symposium of Computer Aided Process Engineering (ESCAPE 18) held in Lyon, France, from 1-4 June 2008. The ESCAPE series brings the latest innovations and achievements by leading professionals from the industrial and academic communities. The series serves as a forum for engineers, scientists, researchers, managers and students from academia and industry to: - present new computer aided methods, algorithms, techniques related to process and product engineering, - discuss innovative concepts, new challenges, needs and trends in the area of CAPE. This research area bridges fundamental sciences (physics, chemistry, thermodynamics, applied mathematics and computer sciences) with

the various aspects of process and product engineering. The special theme for ESCAPE-18 is CAPE for the Users! CAPE systems are to be put in the hands of end users who need functionality and assistance beyond the scientific and technological capacities which are at the core of the systems. The four main topics are: - off-line systems for synthesis and design, - on-line systems for control and operation, - computational and numerical solutions strategies, - integrated and multi-scale modelling and simulation, Two general topics address the impact of CAPE tools and methods on Society and Education. * CD-ROM that accompanies the book contains all research papers and contributions * International in scope with guest speeches and keynote talks from leaders in science and industry * Presents papers covering the latest research, key top areas and developments in Computer Aided Process Engineering
Physikalische Berichte
Contributions to the 14th STAB/DGLR Symposium Bremen, Germany 2004