

## Openfoam Simulation For Electromagnetic Problems

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.

Single and two-phase flows are ubiquitous in most natural process and engineering systems. Examples of systems or process include, packed bed reactors, either single phase or multiphase, absorber and adsorber separation columns, filter beds, plate heat exchangers, flow of viscoelastic fluids in polymer systems, or the enhanced recovery of oil, among others. In each case the flow plays a central role in determining the system or process behavior and performance. A better understanding of the underlying physical phenomena and the ability to describe the phenomena properly are both crucial to improving design, operation and control processes involving the flow of fluids, ensuring that they will be more efficient and cost effective. Expanding disciplines such as microfluidics and the simulation of complex flow physical systems, such as blood flow in physiological networks, also rely heavily on accurate predictions of fluid flow. Recent advances either in computational and experimental techniques are improving the existing knowledge of single and multiphase flows in engineering and physical systems of interest. This ebook is a review on the state-of-the-art and recent advances in critical areas of fluid mechanics and transport phenomena with respect to chemical and biomedical engineering applications.

This book presents the latest research findings, methods and development techniques, challenges and solutions concerning UPC from both theoretical and practical perspectives, with an emphasis on innovative, mobile and Internet services. With the proliferation of wireless technologies and electronic devices, there is a rapidly growing interest in Ubiquitous and Pervasive Computing (UPC), which makes it possible to create a human-oriented computing environment in which computer chips are embedded in everyday objects and interact with the physical world. Through UPC, people can go online even while moving around, thus enjoying nearly permanent access to their preferred services. Though it has the potential to revolutionize our lives, UPC also poses a number of new research challenges.

The annual report of the Institute for Nuclear and Energy Technologies of KIT summarizes its research activities and provides some highlights of each working group, like thermal-hydraulic analyses for fusion reactors, accident analyses for light water reactors, and research on innovative energy technologies: liquid metal technologies for energy conversion, hydrogen technologies and geothermal power plants. The institute has been engaged in education and training in energy technologies.

????: Numerical heat transfer and fluid flow

This is a compilation of papers presented at the 6th International Conference on Asian and Pacific Coasts (APAC2011) held on December 14-16, 2011 in Hong Kong, China. It contains more than 200 articles addressing a wide spectrum of issues, ranging from conventional coastal engineering problems (such as wave hydrodynamics and sediment transport) to issues of contemporary interest (such as tsunami, coastal development, climate change and seawater level rise, shoreline protection, marine energy, nearshore ecology, oil spill, etc.). Authors present their experiences in tackling these problems, by means of theoretical modeling, numerical simulation, laboratory and field observations, with an aim to advance fundamental understanding of the controlling mechanisms, as well as to develop solutions for practical designs. This volume serves to promote technological progress and activities, technical knowledge transfer and cooperation on an international scale. Contents: Beach Erosion and Sediment Transport, Climate Change and Sea Level Rise, Coastal Infrastructure Developments, Hydrodynamics of Offshore Structures, Lowland Development and Reclamation, Marine Ecology and Environments, Marine and Offshore Wind Energy, Oil Spill and Environmental Hazards, Port Works (Dredging, Seawall Design, etc.), Sea Water Intrusion, Tsunami, Waves and Tides, Wastewater Disposal, Wetlands. Readership: Scientists, engineers, researchers, and management professionals in the fields of coastal, ocean, port and marine engineering. Keywords: Coastal Engineering; Tsunami; Waves; Hydrodynamics; Marine Energy; Wetlands

This is a specialized book for researchers and technicians of universities and companies who are interested in the fundamentals of RF power semiconductors, their applications and market penetration. Looking around, we see that products using vacuum tube technology are disappearing. For example, branch tube TVs have changed to liquid crystal TVs, and fluorescent light have turned into LED. The switch from vacuum tube technology to semiconductor technology has progressed remarkably. At the same time, high-precision functionalization, miniaturization and energy saving have advanced. On the other hand, there is a magnetron which is a vacuum tube device for generating microwaves. However, even this vacuum tube technology has come to be replaced by RF power semiconductor technology. In the last few years the price of semiconductors has dropped sharply and its application to microwave heating and energy fields will proceed. In some fields the transition from magnetron microwave oscillator to semiconductor microwave oscillator has already begun. From now on this development will progress remarkably. Although there are several technical books on electrical systems that explain RF power semiconductors, there are no books yet based on users' viewpoints on actual microwave heating and

