

Computational Science for the 21st century

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COMPUTATIONAL SCIENCE FOR THE 21ST CENTURY

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Computational science can loosely be defined as the endeavour to develop and analyse models for the simulation and control of complex processes. This is achieved by making optimal use of computer resources and by drawing upon a variety of disciplines, techniques and theories. With the emergence of advanced computational and information technologies, computational science now has a significant impact on engineering, physical, biological, management and social sciences.

The contributions in this state-of-the-art volume range from theoretical and numerical topics to practical implementations. The subject matter includes modelling, mathematical and numerical analysis, differential equations, linear algebra, optimization, domain decomposition, computational fluid dynamics, computational mechanics, elasticity, structures, computational physics and chemistry, electromagnetics, control theory and other applications.

This volume is dedicated to Roland Glowinski on the occasion of his 60th birthday. It is aimed at the next generation of scientists, applied mathematicians, computer scientists, practitioners and engineers who will define computational science within the context of the challenging scientific, industrial, economic and societal problems of the 21st century.

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