
Introduction

The modelling and the numerical simulation of the behaviour of structures or manufacturing processes is a growing research field in high demand with industry.

The national colloquium in computational mechanics (colloque national en calcul des structures) is organised every two years by the Computational Structural Mechanics Association (CSMA). CSMA is affiliated to the “Association Française de Mécanique (AFM)”, to the International Association for Computational Mechanics (IACM) and to European Community on COmputational Methods in Applied Sciences (ECCOMAS). This regular and well-established event is the unique national manifestation dedicated to this field. The colloquium attracts an increasing audience composed both of scientists and engineers. The eighth edition, “Giens 2007”, was held from may 21 to 25, 2007, at the holiday village of Giens (near Toulon). It gathered more than 320 participants from all French laboratories associated with computational mechanics and also about 15 participants from foreign countries like Canada, Belgium, Germany, UK, Spain, and Tunisia. About 10% of the participants were delegates from industry.

This special issue of the European Journal of Computational Mechanics gathered 34 papers selected from more than 210 presentations at the colloquium. These contributions have been selected on quality criteria but also in order to give a general overview of the research work in the field of computational mechanics.

A large variety of topics are addressed :

*Multiphysics problems,
Multiscale analyses,
Manufacturing processes,
Discontinuous finite elements,
Dynamics and vibroacoustics,
Materials constitutive equations,
Contact and friction,
Stochastic mechanics.*

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