Preface

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EUROMECH intends to promote the development of mechanics, from fundamental research to applied research in engineering. With this aim, the society organizes the EUROMECH Solid Mechanics Conference every three years, to provide scientists and engineers with the opportunity to meet and discuss current research, new concepts and ideas, and establish contacts for future collaborations in all aspects of solid mechanics. The 7th EUROMECH Solid Mechanics Conference was held on September 7–11, 2009, at the Technical University of Lisbon, in Lisbon, Portugal. The conference included seven general sessions and 25 mini-symposia, featuring more than 550 presentations.

Multibody dynamics falls within the large and general field of solid mechanics. Despite its relative novelty if compared with other mechanical disciplines, it is an active and promising area and, therefore, the multibody dynamics community felt that this big event on solid mechanics was a suitable forum to increase visibility. Consequently, the publication of a special issue of the journal *Multibody System Dynamics* from contributions presented at the conference was proposed. Papers were selected from the three mini-symposia with strong presence of the multibody approach: Multibody Dynamics, Biomechanics of Human Locomotion, and Vehicle Dynamics.

This special issue, constituted by a total number of seven papers, aims to show some of the most relevant topics that are currently subject of active research in the multibody dynamics field, along with examples of application to engineering problems. The first three papers can be considered theoretical, focusing the first one on numerical integration and implementation, and on contact the other two (contact detection and friction model). The

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last four papers present applications of the multibody approach to chain-sprocket mechanisms, automotive (crash) and railway (wheel wear) systems, and biomechanics (foot-ankle orthoses).

We hope that this special issue serves to emphasize the relevant role that multibody dynamics is called to play within the solid mechanics field. We deeply appreciate the authors' effort in writing the extended version of their papers on time, and the outstanding work of all reviewers, which allowed this special issue to be published as initially scheduled.

Guest Editors