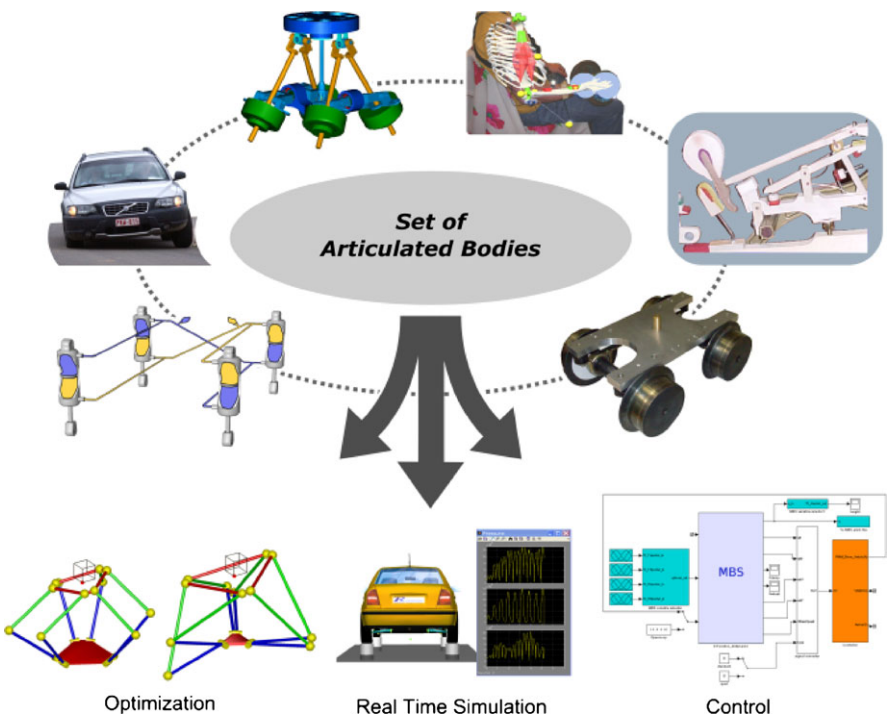


Preface

Multibody Dynamics is an exciting area of Computational Mechanics which merges and blends various disciplines in order to provide methods and tools for the virtual prototyping of complex mechanical systems. Multibody dynamics plays a central role these days in the modeling, analysis, simulation and optimization of mechanical and mechatronic systems in a variety of fields and for a wide range of scientific and industrial applications, some of which are illustrated below.



As new methods and procedures are being proposed at a fast pace in academia, research laboratories and industry, it is becoming important to provide researchers

in multibody dynamics with appropriate venues for exchanging ideas and results. To answer these needs, the ECCOMAS Thematic Conference on Multibody Dynamics was initiated in Lisbon in 2003, and continued in Madrid in 2005, Milan in 2007 and Warsaw in 2009. Continuing this very successful series, the 2011 edition of the ECCOMAS Thematic Conference on Multibody Dynamics was held in Brussels, Belgium and organized by the Université catholique de Louvain, from 4th to 7th July 2011. More than 250 participants were attending the conference which provided a forum for fruitful discussion and technical exchanges.

This book contains the contributions of participants selected by the organizers that reflect the State-of-Art in the application of Multibody Dynamics to different areas of engineering. The chapters of this book are enlarged and revised versions of the communications, delivered at the conference, which were enhanced in terms of self-containment and tutorial quality by the authors. The result is a comprehensive text that constitutes a valuable reference for researchers and design engineers which helps to appraise the potential for the application of multibody dynamics methodologies to a wide range of areas of scientific and engineering relevance.

Louvain-la-Neuve, Belgium

Jean-Claude Samin
Paul Fisette



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Samin, J.-C.; Fisette, P. (Eds.)

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