



Preface for the Special Issue IMSD2022

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Multibody System Dynamics is not only a mature field of Mechanics, but is also still experiencing rapid growth. It has been experiencing significant increase in its relevance to a variety of applications in the development of complex state-of-the-art systems. Multibody system dynamics, in general, addresses research problems in computational mechanics, solid mechanics, nonlinear dynamics, and control. Major developments have been taking place in several thematic areas such as Theoretical modeling, formalisms, and computational methods; Flexible multibody systems; Contact and impact problems; Mechatronics, Robotics and control; Multidisciplinary approaches; Efficient computational methods and real-time applications; Experiments and numerical verifications; Optimization, sensitivity analysis, and parameter identification; Dynamics of machines; Vehicle dynamics and aerospace applications; Biomechanics; and various other topics.

The IMSD Conference on Multibody Dynamics is a biannual conference series established in 2010 with its inaugural edition in Lappeenranta, Finland. The following editions of the series took place in Busan, Korea (2012), Stuttgart, Germany (2014), Montreal, Canada (2016), and Lisbon, Portugal (2018). The conference series serves as a prime opportunity for researchers and professionals worldwide to exchange ideas in multibody dynamics concerning theoretical aspects and computational approaches and in applied research such as vehicle dynamics, robotics, mechatronics, and biomechanics. The conference provides an excellent platform for sharing novel ideas within the continuously growing multibody community. This is, therefore, a privileged ground for the dissemination of new developments in multibody dynamics that, being mature, must be published.

This thematic issue results from the 6th Joint International Conference on Multibody Dynamics, which took place in 16–20 October 2022 in New Delhi with a mixed online and onsite participation. Originally planned for 2020, due to the pandemic, it was postponed by two years, being one of the first conferences with onsite participation, after the pandemic. The conference covered all areas of multibody dynamics and included 92 contributed presentations from 23 countries. In the face of the excellence, novelty, and maturity of the works presented, we were invited to organize a Thematic Issue of Multibody System Dynamics from the papers presented at the conference to reflect the novel developments in various areas that contribute to multibody dynamics. We invited the authors to submit full manuscripts to the journal reflecting novel developments that are representative of the advances in the field. These manuscripts underwent the rigorous peer-review process, which is a hallmark of this journal. Among the manuscripts accepted, we

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selected 6 contributions for inclusion in the thematic issue. We hope you enjoy reading them.

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Declarations

Competing interests The authors declare no competing interests.

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