Preface

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As a rapidly growing branch of mechanical dynamics, Multibody System Dynamics is seeing more and more use, and is becoming increasingly important in the development of complex engineered systems. Multibody system dynamics, which encompasses computational mechanics, nonlinear dynamics and control design, is experiencing rapid growth in specific thematic areas such as Theoretical and computational methods; Flexible multibody systems; Contact and impact problems; Control and mechatronics; Multidisciplinary approaches; Algorithms, integration codes and software; Efficient methods and real-time applications; Experiments and numerical verifications; Optimization and sensitivity analysis; Dynamics of machines and rotating structures; Dynamics of all vehicles; Robotic systems; Biomechanics; and other topics.

The International Association for Multibody System Dynamics established a biannual international conference to foster research on the dynamics of multibody systems and related fields, and to promote international cooperation between scientists and engineers in industry. The IMSD conference is a biannual series that serves as a meeting point for the international multibody community and provides an opportunity to exchange high-level, current information on the theory and applications of multibody system dynamics.

The 4th Joint International Conference on Multibody System Dynamics (IMSD), held in 2016 at McGill University in Montreal, Canada, enjoyed a large participation of the Multibody Dynamics scientific community with technical presentations by authors from 31 different countries who addressed the foremost developments in the field.

Due to the excellence of the new developments identified, we were invited to organize a Thematic Issue of Multibody System Dynamics to reflect the most up-to-date novel developments in the different areas that contribute to Multibody Dynamics. With the help of

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the Thematic Session Organizers, we invited authors in the thematic areas to submit full manuscripts to the journal. These manuscripts underwent the rigorous peer review that is a hallmark of this journal. Among the accepted submissions, seven high-quality papers that reflect novel advances in the thematic areas have been selected for publication in this issue. We hope you enjoy reading them.