

# Preface

This book contains the Proceedings of the seventh International Workshop on Computational Kinematics (CK2017) sponsored by IFToMM, the International Federation for the Promotion of Mechanism and Machine Science.

CK 2017, IFToMM International Workshop on Computational Kinematics, is the seventh event of a series that started in 1993 as a specific conference on computational kinematics. The first event was held at the International Conference and Research Center for Computer Science (IBFI), Germany, in October 1993; the second was held at INRIA Sophia Antipolis, France, in September 1995; the third was held in Seoul, South Korea, 2001; the fourth was held at the University of Cassino, Italy, in May 2005; the fifth was held at the University of Duisburg-Essen, Germany, in May 2009; and the sixth was held in Barcelona, Spain, in May 2013.

The aim of CK workshop is to bring together researchers from the broad range of disciplines related to computational kinematics in an intimate, collegial, and stimulating environment, where they can present and exchange their newest scientific results.

The seventh CK workshop comes to Poitiers, taking place from 22 to 24, May 2017. The workshop received 78 papers. After peer-reviewed evaluation, 69 papers, from 24 different countries, have been accepted for presentation. The topics of the papers are related to computational kinematics, including kinematic design and synthesis, computational geometry in kinematics, motion analysis and synthesis, theory of mechanisms, mechanism design, kinematical analysis of serial and parallel robots, kinematical issues in biomechanics, kinematical motion analysis and simulation, geometric constraint solvers, deployable and tensegrity structures, robot motion planning, applications of computational kinematics, education in computational kinematics, and theoretical foundations of kinematics.

The community of kinematicians, thus, continues to exhibit its traditional vitality. The reader will find here a representative sample of the most modern techniques available nowadays for the solution of challenging problems arising in computational kinematics. In light of its contents, this book should be of interest to researchers, graduate students, and practicing engineers working in kinematics or related areas. The researchers gathering in Poitiers on the occasion of CK2017 will

continue to make this truth and to show how their results have an important impact in several different domains.

We thank the authors who have contributed with very interesting papers on several subjects, covering many areas linked to computational kinematics and additionally for their cooperation in revising papers in a short time in agreement with the reviewers' comments. We are grateful to the 65 reviewers for the time and efforts they spent in evaluating the papers with a tight schedule that has permitted the publication of this Proceedings volume in time for the workshop.

We thank the University of Poitiers, in particular, the Fundamental and Applied Science Faculty, for having hosted the CK 2017 event.

We also thank the support of International Federation for the Promotion of Mechanism and Machine Science (IFToMM). The symposium received generous support from local sponsors, namely the University of Poitiers, the Grand Poitiers, the Nouvelle Aquitaine region, and the Aquitaine Robotics cluster, which were critical to make this workshop possible.

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