EUROPEAN MECHANICS SOCIETY EUROMECH Colloquium 578



EUROMECH Colloquium 578

EUROPEAN MECHANICS SOCIETY Colloquium 578













SPONSORS AND SUPPORTING ORGANIZATIONS

EUROMECH – European Mechanics Society APMTAC – Portuguese Association for Theoretical, Applied and Computational Mechanics IDMEC – Institute of Mechanical Engineering FCT – Foundation for Science and Technology FLAD – Luso-American Development Foundation

SECRETARIAT

Mrs. Paula Jorge IDMEC – Instituto Superior Técnico Av. Rovisco Pais 1 1049-001 Lisboa – Portugal Tel: +351 218419044 – Fax: +351 218417915 e-mail: Euromech578@dem.ist.utl.pt

More detailed information is available on the EUROMECH Colloquium home page www.dem.ist.utl.pt/euromech578

Rolling Contact Mechanics for Multibody System Dynamics



www.dem.ist.utl.pt/euromech578





www.dem.ist.utl.pt/euromech578

EUROPEAN MECHANICS EUROMECH Colloquium 578

GENERAL

SOCIETY

Rolling elements play a pivotal role in almost all modern engineering systems characterized by large relative motion between its mechanical components. Multibody dynamics, being the best suited discipline to deal with the computational dynamic aspects of the analysis and modelling of systems with very large motion, requires computationally efficient approaches, and algorithms, to deal with the rolling contact mechanics.

SCOPE

The colloquium will address the scientific topics that contribute to the mechanical and computational challenges to handle rolling contact mechanics in the context of multibody dynamics. The reviewing of the classic theories in elastic and plastic contact, the computational algorithms for their efficient use in the framework of multibody dynamics applications, the tribology aspects characteristic of many of the mechanical systems of interest, the consequences of wear both in the response of the system and in the use of the background contact theories are just some of the aspects of relevance that justify a close loop. The application of the theories, methods and algorithms, and their inherent numerical issues, to road and railway vehicle dynamics, mechanical systems with rolling elements, ball and roller bearings or biomechanical joints and systems are just few of the areas in which the overview of the computational methods associated to rolling contact mechanics are of major importance. This Colloquium will bring together developers of different background and schools of thought and for the purpose of presentation, discussion, refinement of a comprehensive work on different methodologies. The foreseen participants constitute a diverse, but consistent, group of researchers, industry specialists, advanced students dealing with the methodological aspects of rolling contact mechanics and computational multibody dynamics.

TOPICS

- Elastic rolling contact •
- Plastic rolling contact
- Multibody dynamics with rolling elements ٠
- **Bail-wheel contact** .
- Tire-road contact .
- Finite element analysis of rolling elements .
- . Tribology of rolling elements
- Biomechanics of natural joints .
- Roller bearing contact dynamics
- Wear in rolling elements

ORGANIZATION

Chairmen

Jorge A. C. Ambrósio, IST – ULisbon Av. Rovisco Pais 1: 1049-001 Lisbon: Portugal Tel: +351 218417680: Email: Jorge@dem.ist.utl.pt

Werner Schiehlen, University of Stuttgart, Germany, Institut für Technische und Numerische Mechanik Universität Stuttgart Pfaffenwaldring 9 70569 Stuttgart, Germany Tel: +49 711 68566391 Email: werner.schiehlen@itm.uni-stuttgart.de

João Pombo, Heriot-Watt University

Room G.14 William Arrol Building School of Built Environment Heriot-Watt University Edinburah, EH14 4AS, United Kinadom Tel: +44 (0)131 451 4186; Email: j.c.pombo@hw.ac.uk

CALL FOR CONTRIBUTIONS

Authors wishing to contribute to the colloquium are invited to submit a single page abstract (see format in the conference web page). Authors will receive notification of acceptance of their proposed contribution and invited to submit full papers (not mandatory). The following deadlines apply:

Abstract submission: December 1, 2016 Notification of acceptance: December 15, 2016 Paper submission: February 1, 2017

A thematic issue of the journal Multibody System Dynamics dedicated to this EUROMECH Colloquium in Rolling Contact Mechanics is being organized. Papers, supporting presentations, will be selected and the authors invited to have them considered for the thematic issue. The papers will be peer-reviewed and, if accepted, will be part of the thematic issue.

Author's instructions are found on the Conference Home Page: www.dem.ist.utl.pt/euromech578

GENERAL

The Colloquium will last 4 days, including the half-day reserved for a tour, during which the oral presentations and the roundtable discussions will take place. No poster or parallel sessions will be organized.

LOCATION AND TRANSPORTS

The Colloquium will be held in Funchal, Madeira Island, Portugal, which includes a UNESCO World Heritage Site. This city is served with an International Airport receives many flights direct from a some European cities, North American cities and via Lisbon. The conference is located at a convenient distance from hotels. restaurants and diverse cultural sites.

ACCOMODATION

The official hotel for the colloquium is the VIDAMAR RESORTS MADEIRA (https://www.vidamarresorts.com/resort-madeira/en/), located 5 min from the city of Funchal. Several other hotels are located at walking distance from the VIDAMAR RESORTS MADEIRA. More detailed information is available on the conference homepage. One solution for travel and accommodations, from most of the European countries, United States and Canada. is to use a tour package. Notice that the Colloquium takes place in the week that proceeds the Easter Sunday.

REGISTRATION

Early registration before January 15, 2017 is advised. The following fees apply:

Early Registration Late Registration

EUROMECH members:	400€	450€
Non-EUROMECH members:	425€	475€

The registration fees include the book of abstracts, CD with full length papers, participation in all sessions, lunches and coffee breaks, reception, half day tour and banquet. The lunches for participants will be organized in the campus.

SOCIAL PROGRAMME

The social programme, included in the registration fee, comprises the reception, conference tour and Colloquium banquet.