

## Scope

The colloquium addresses the method of multibody system dynamics for advanced technologies and engineering design for which a numerical efficient approach is crucial. In particular a designer can take significant advantage of model based dynamical analysis. The numerical methods applied for multibody systems dynamics have proved to offer solutions for the analysis of systems with interconnected rigid and flexible bodies subject to various loads and undergoing complex motion. While high accuracy can be obtained with extended models including a large number of degrees of freedom, there is a clear need for numerically efficient techniques that still offer an adequate level of accuracy. E.g. the optimisation of the design parameters usually implies that systems with varying parameters have to be analysed in a short time. The modelling techniques applied for this purpose should provide fast simulations of the relevant system's behaviour which exhibits often non-linearities. Depending on the application area, multibody dynamic analysis has to be coupled to other relevant physical domains to address e.g. electrical and thermal effects or fluid-structure interaction. Mechatronic systems are usually modelled as multibody systems subject to sophisticated non-linear control. Model order reduction techniques are required for control design and to increase the computational speed.

The goal of this colloquium is to provide a platform for discussions on the relation between multibody systems analysis tools and the requirements needed for design.

## Topics

- Numerically efficient multibody system dynamics techniques;
- Design principles for exact constraint;
- Underconstraint and overconstraint mechanical systems;
- Underactuated and overactuated compliant mechanisms;
- Flexible multibody dynamics and reduced order modelling;
- Mechatronic design and control systems;
- Parameter optimisation and manufacturing tolerances;
- Simulation for engineering design;
- Applications to engineering systems.

## Multibody System Dynamics Colloquia

The method of multibody system dynamics and its applications belongs to a series of Colloquia promoted by the European Mechanics Society (EUROMECH) taking place in Paris, France (2001), Erlangen, Germany (2003), Halle, Germany (2004), Ferrol, Spain (2006), Bryansk, Russia (2008), Blagoevgrad, Bulgaria (2010) and Açores, Portugal (2011). Essential features of EUROMECH Colloquia are that they are specialized in content, small in size and informal in character. This type of scientific meetings has been found in practice to give good results and to meet a definite need. For further information visit <http://www.euromech.org/>.

## Supporting organisations

- [EUROMECH](#);
- [University of Twente](#);
- [DEMCON advanced mechatronics BV](#);
- [Graduate School on Engineering Mechanics \(EM\)](#);
- [Dutch Institute of Systems and Control \(DISC\)](#).

## Call for Papers

The language of the Colloquium is English. Authors wishing to contribute to the Colloquium are invited to submit a two page abstract to the chairmen by e-mail before October 12, 2011. The abstract shall follow the format of the Colloquium abstract template (see the web site). Authors will receive notification of acceptance of their proposed contribution by November 16, 2011. An abstracts booklet containing all the contributions will be given to the delegates at the Colloquium. The number of participants will be limited and preference will be given to active researchers in the field. Confirmation of participation in the Colloquium by the authors will be required when papers are accepted. Only confirmed presentations of registered participants will be included in the final program. This will enable the participants to fully benefit from the contributions and discussions. Since this meeting follows the EUROMECH Colloquia format, full papers are not required, there will not be parallel sessions, and presentations describing work-in-progress are also welcome.

## Deadlines

Two-page abstract:	October 12, 2011
Notification of acceptance:	November 16, 2011
Early registration:	December 16, 2011
Regular registration:	January 15, 2012

## Registration fees

The colloquium registration fee includes coffee breaks, lunch, the program and abstracts booklet, as well as participation in the social program and conference dinner.

	Early registration:	Late registration:
EUROMECH members:	350 €	400 €
Non EUROMECH members:	375 €	425 €

Accompanying persons can join in the social program paying a contribution to the costs of these activities.



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## Chairmen

Prof. Ben Jonker

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## Scientific Committee

- Prof. Dr. Martin Arnold, Martin-Luther-University Halle-Wittenberg
- Prof. Olivier Brûls, University of Liège
- Prof. Dr.-Ing. Prof. E.h. Peter Eberhard, University of Stuttgart
- Prof.dr.ir. Just L. Herder, Delft University of Technology
- Dr.ir. Jaap P. Meijaard, DEMCON

## Organising Committee

- Dr.ir. Ronald Aarts, University of Twente
- Dr.ir. Dannis Brouwer, University of Twente
- Mrs. Martina Tjapkes, University of Twente

## Venue

The colloquium will take place at the University of Twente in Enschede, the Netherlands.

Twente is a region located in the Eastern part of the Netherlands, near the border with Germany. The University of Twente was founded as a university of technology in 1961 in order to increase the number of academic (university) engineers. The university campus is situated on the beautiful Drienerlo estate, between the two cities of Enschede and Hengelo. Modelled on the Anglo-Saxon example, the UT is the only real campus university in the Netherlands. The beautiful landscape of the UT campus, embellished

with modern architecture, forms a unique environment for student life, sports and study. Up-to-date facilities offer an optimal environment for research. No doubt, the UT campus will offer an inspiring environment for this EUROMECH colloquium.

## Travel information

Enschede can be reached well by train. It has a convenient connection to Amsterdam Schiphol Airport. There are two trains every hour and the travel time is somewhat over two hours.

When travelling by car, there are good connections to the Dutch and German motorways.

More travel details will be available on the colloquium's web site.

## Accommodation

Hotel accommodations are available on and adjacent to the campus:

- Conference Hotel Drienerburght (on the campus) Drienerlolaan 5, 7522 NB Enschede  
<http://www.drienerburght.nl/>  
Phone: +31 (0)53 433 13 66
- Eden Hotel De Broeierd Enschede (adjacent to the campus) Hengelosestraat 725, 7521 PA Enschede  
<http://www.edenhoteldebroeierd.com/en/>  
Tel: +31 (0) 53 850 6500

Other hotels can be found in the cities of Enschede or Hengelo. More information will be available on the colloquium's web site.

## Social Program

On Monday evening a reception will be organized.

On Wednesday afternoon the conference program will be dedicated to a social program which will take place near the [Twickel Castle](#). The history of this castle and its beautiful surroundings starts in the 14<sup>th</sup> century. It is located near Enschede. Transportation to and from this activity will be arranged. It will be concluded with a conference dinner. Further details will be announced later on the colloquium's web site.



# EUROMECH Colloquium 524



UNIVERSITY OF TWENTE.

**Multibody system modelling,  
control and simulation for  
engineering design**

February 27 – March 1, 2012

Enschede, Netherlands

<http://www.utwente.nl/euomech524>

**Call for papers**