### TIME TABLE

<table>
<thead>
<tr>
<th>TIME</th>
<th>Monday 27 May</th>
<th>Tuesday 28 May</th>
<th>Wednesday 29 May</th>
<th>Thursday 30 May</th>
<th>Friday 31 May</th>
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<tbody>
<tr>
<td>9.00 - 9.45</td>
<td>Hagedorn</td>
<td>Spelsberg-K</td>
<td>Preumont</td>
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<td>9.45 - 10.30</td>
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<td>11.00 - 11.45</td>
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<td>Spelsberg-K</td>
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<td>14.45 - 16.45</td>
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<td>Skelton</td>
<td>Spelsberg-K</td>
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### ADMISSION AND ACCOMMODATION

Applicants must apply at least one month before the beginning of the course. Application forms should be sent on-line through our web site: [http://www.cism.it](http://www.cism.it) or by post.

A message of confirmation will be sent to accepted participants. If you need assistance for registration please contact our secretariat.

The 700,00 Euro registration fee includes a complimentary bag, four fixed menu buffet lunches (Friday not included), hot beverages, on-line/downloadable lecture notes and wi-fi internet access.

A limited number of participants from universities and research centres who are not supported by their own institutions can be offered board and/or lodging in a reasonably priced hotel. Requests should be sent to CISM Secretariat by **March 27, 2013** along with the applicant's curriculum and a letter of recommendation by the head of the department or a supervisor confirming that the institute cannot provide funding. Preference will be given to applicants from countries that sponsor CISM.

The coordinators have applied with the German Science Foundation (DFG) for support for German participants. During the course German participants may apply with the coordinators for a refund of part of their expenses.

Information about travel and accommodation is available on our web site, or can be mailed upon request.

### For further information please contact:

CISM
Palazzo del Torso
Piazza Garibaldi 18
33100 Udine (Italy)
tel. +39 0432 248511 (6 lines)
fax +39 0432 248550
e-mail: cism@cism.it
ACTIVE AND PASSIVE VIBRATION CONTROL OF STRUCTURES

Active and Passive Vibration Control of Structures forms an issue of very actual interest in many different fields of engineering, for example in the automotive and aerospace industry, in precision engineering (e.g. in large telescopes), and also in civil engineering. The course intends to bring together engineers of different background, and it will try to fill gaps between structural mechanics, vibrations and modern control theory. It will also establish links between the different applications in structural control.

To a large extent, in vibration control it is still common practice to regard the design of mechanical structures and their damping and control as different issues. Thus they are often treated sequentially, with the design of the structure carried out first, followed later by designing the active and passive vibration control. Similarly, in the standard curricula at most universities, the mechanical modelling and the design of structures, as well as their control, are treated as separate subjects. The present course intends to fill some of the gaps between these different issues. The intention is to give a solid foundation of the mechanical modelling and the vibration control for discrete and continuous structures, with an emphasis on the interfaces of the different disciplines.

A thorough introduction into the relevant theory both of mechanical modelling and vibration control theory are presented and the most important design goals are discussed. Various strategies for modelling complex mechanical structures are given and an introduction to active, passive and semi-active strategies for vibration control are discussed.

In a number of examples from different areas it will be shown that a comprehensive approach, in which both the mechanical design problem and the development of suitable controls are considered simultaneously, can present considerable advantages. Even in research communities, the problem of integrating structure and control design is not always satisfactorily dealt with. As opposed to a control system pushing a structure away from its equilibrium, it can be far more promising to modify the equilibrium positions of the uncontrolled structure in such way as to achieve the desired shapes with moderate control effort, possibly in such a way that no control power at all is required to hold the new shape. Tensegrity structures will be discussed in this context.

Summarizing, the course will offer a unified view on active and passive control, and the mechanical modelling of structures. The underlying theory is presented and applied to different challenging engineering examples. The course is directed to young researchers, to doctoral students and also to engineers working in fields related to structures, vibrations and control.

PRELIMINARY SUGGESTED READINGS


INVITED LECTURERS

Peter Hagedorn - fnb, TU Darmstadt, Germany
5 lectures on:
Equations of motion for discrete and continuous mechanical systems.

Gottfried Spelsberg-Korspeter - fnb, TU Darmstadt, Germany
6 lectures on:
Variational principles in mechanics and control.

André Preumont - ULB Brussels, Belgium
8 lectures on:
Smart actuators for active and semi-active control, control-structure interaction.

Robert Skelton - University of California, San Diego, CA, USA
8 lectures on:
Structure and design of control systems.

Adnan Akay - Bilkent University, Turkey
4 lectures on:
Physics and modelling of structural damping.

Rainer Nordmann - Technical Univ. of Darmstadt, Germany
4 lectures on:
Active Vibration Control in Rotordynamics.

LECTURES

All lectures will be given in English. Lecture notes can be downloaded from the CISM web site, instructions will be sent to accepted participants.
ACTIVE AND PASSIVE VIBRATION CONTROL
OF STRUCTURES
Udine, May 27 - 31, 2013
Application Form
(Please print or type)

Surname ___________________________________________________________________________________

Name ________________________________________________________________________________________

Affiliation ___________________________________________________________________________________

Address ______________________________________________________________________________________
_________________________________________________________________________________________________

E-mail _______________________________________________________________________________________

Phone _____________________________________ Fax ________________________________________________

Method of payment upon receipt of confirmation (Please check the box)

The fee of Euro 700,00 includes IVA/VAT tax and excludes bank charges

☒ I shall send a check of Euro

☒ Payment will be made to CISM - Bank Account N° 094570210900, VENETO BANCA - Udine (CAB 12300 - ABI 05035 - SWIFT/BIC VEBHT2UM - IBAN CODE IT46 N 05035 12300 09457 0210900).

Copy of the receipt should be sent to the secretariat

☒ I shall pay at the registration counter with check, cash or VISA Credit Card (Mastercard/Eurocard, Visa, CartaSi)

IMPORTANT: CISM is obliged to present an invoice for the above sum. Please indicate to whom the invoice should be addressed.

Name ____________________________________________________________________________________________________________

Address ________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________________________

C.F.* ________________________________________________________________________________________________________________

VAT/IVA* No. _______________________________________________________________________________________________

(“) Only for EU residents or foreigners with a permanent business activity in Italy

Only for Italian Public Companies

☒ I ask for IVA exemption (ex law n. 537/1993 - art. 14 comma 10).

Privacy policy: I understand that data received via this form will be used only to provide information about CISM and its activities, within the limits set by the Italian legislative decree no. 196/2003 and subsequent amendments. Complete information on CISM’s privacy policy is available at www.cism.it.

I have read the “Admission and Accommodation” terms and conditions and agree.

Date ___________________ Signature ____________________________