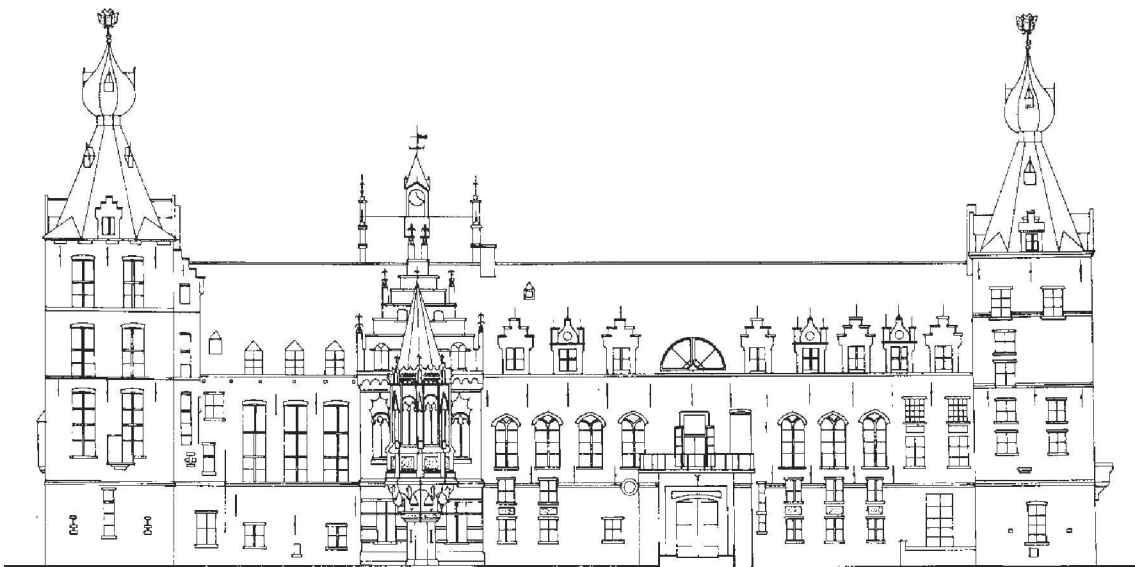


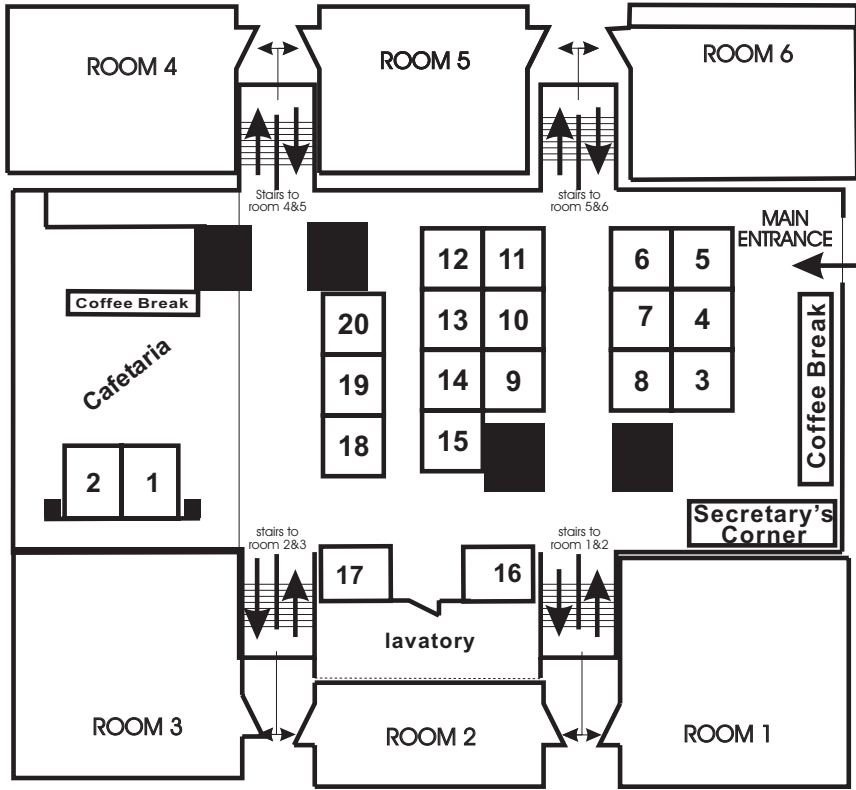


Programme and General Information

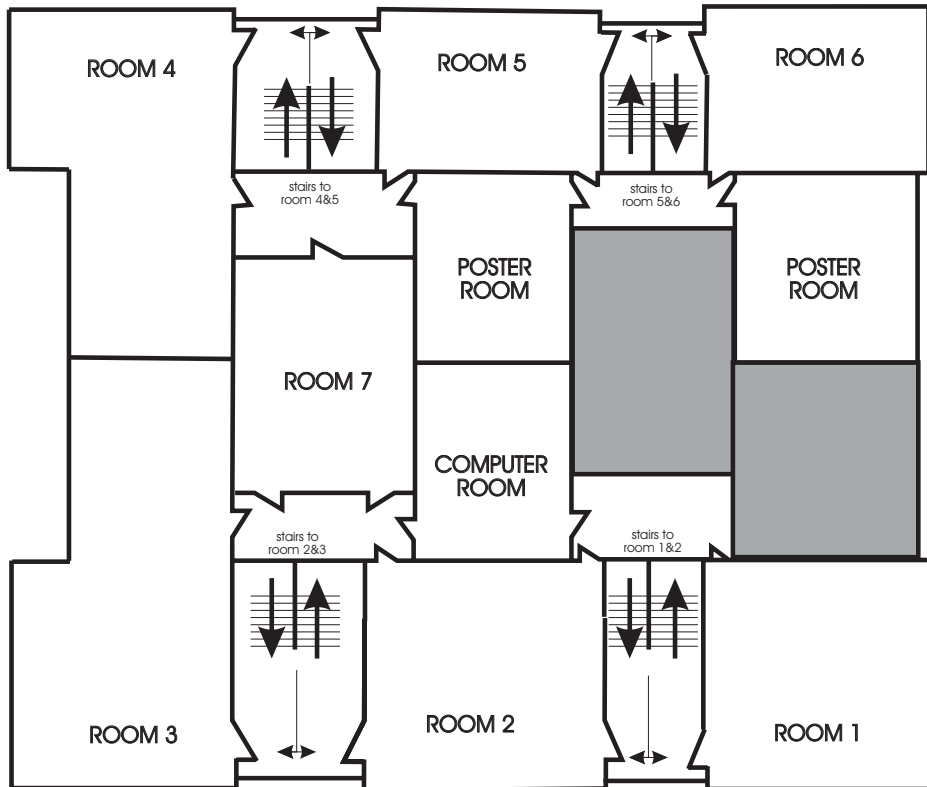


September 20-22, 2004
Katholieke Universiteit Leuven, Belgium

Groundfloor



2nd Floor



Conference information

The ISMA2004 conference is sponsored and organised by the Division PMA (Production engineering, Machine design and Automation) of the Katholieke Universiteit Leuven.

Organising committee

| | | | |
|-----------------|---------------------|------------------|------------------------|
| Paul Sas | Conference chairman | Bert Pluymers | Conference manager |
| Dirk Vandepitte | Conference program | Wim Dewulf | Exhibition |
| Ward Heylen | Conference program | Paul Bielen | Exhibition |
| Jan Swevers | Conference program | Filip De Coninck | Social events |
| Wim Desmet | Conference program | Maarten De Munck | Conference proceedings |
| | | Raymond Wuyts | Technical assistance |

Conference administrator

Mrs. Lieve Notré
Katholieke Universiteit Leuven
Department of Mechanical Engineering, PMA
Celestijnenlaan 300B
B-3001 Heverlee
BELGIUM
Tel (+32) 16 32 24 82 ; Fax (+32) 16 32 29 87
email: lieve.notre@mech.kuleuven.ac.be

Scientific committee

R. Allemang (USA), J.R. Arruda (Br), F. Augusztinovicz (H), R.J. Bernhard (USA), D. Brown (USA), P. Citti (I), J. Cooper (UK), A. Cops (B), J.P. Coyette (B), J. De Baerdemaeker (B), G. De Roeck (B), J. De Schutter (B), S. Elliott (UK), D. Ewins (UK), S.D. Fassois (GR), M. Friswell (UK), J.C. Golinval (B), L. Gaul (D), J.L. Guyader (F), D. Inman (USA), F. Jacobsen (DK), W. Lauriks (B), J. Leuridan (B), M. Link (D), B. Mace (UK), N. Maia (P), J. Mottershead (UK), N. Niedbal (D), A. Nilsson (S), M. Ochmann (D), R. Ohayon (F), N. Okubo (J), A. Preumont (B), H. Ramon (B), B. Randall (AUS), J. Schoukens (B), A. Sestieri (I), C. Soize (F), J. Swevers (B), H. Tjrdeman (NL), E.P. Tomasini (I), G. Tomlinson (UK), J. Verheij (NL), G. Vermeir (B), H. Van Brussel (B), H. Van der Auweraer (B)

Conference objectives

The 2004 Leuven Conference on Noise and Vibration Engineering is held from September 20 to 22 in Leuven, Belgium. It is the 29th in a series of annual courses and biennial conferences on structural dynamics, modal analysis and noise and vibration engineering, organised by the Department of Mechanical Engineering of the Katholieke Universiteit Leuven. The conference provides a forum for engineers, researchers and other professionals active in the field of modelling, analysing, testing and improving the noise and vibration characteristics of mechanical systems and civil struc-

tures. The conference combines expertise in the noise and vibration fields by stressing common measurement, modelling, analysis and control technologies. The meeting provides a further impetus to the cross fertilisation of ideas in both areas.

Conference site

The plenary opening session will be held in University Hall (Promotiezaal). The seven parallel technical sessions and the plenary poster sessions will be held in the new building of College De Valk. The technical exhibition will be organised in the foyer.

Opening session - Registration office on September 20, a.m.

Registration starts at 8.00 a.m. on September 20, 2004, at:
University Hall (Jubileumzaal)
Naamsestraat 22
3000 Leuven
Look for the signs ISMA2004.

Conference venue - Registration office on September 20, p.m.

College 'De Valk'
Tiensestraat 41
3000 Leuven
Look for the signs ISMA2004.

Conference secretariat

During the conference messages for the participants can be left at the conference secretariat. Telephone number: +32 16 325290 between 8.00 a.m.- 12.00 and 2.00 p.m.- 6.00 p.m. Fax number +32 16 325505. These numbers are only connected during the conference (20-22 September). Before and after the conference, the organisation can be reached at telephone number +32 16 322482 and fax number +32 16 322987.

Course - seminar

In conjunction with the conference, a short course and seminar have been scheduled.

- Intensive course on 'Modal Analysis: Theory and Practice', September 23 - 24, 2004.
- Seminar on 'Advanced Techniques in Applied and Numerical Acoustics' ISAAC15, September 23 - 24, 2004.

The course and seminar will be organised at the Heverlee campus of K.U.Leuven (Department of Mechanical Engineering). More details can be found on the website <http://www.isma-isaac.be>

Proceedings

The **CDROM** with the proceedings of ISMA2004 is included in the registration fee. The CDROMs of previous editions of ISMA are available during the conference.

| | |
|--------------------|---|
| ISMA2002 | 60 EUR |
| ISMA25 (2000) | 40 EUR |
| ISMA23 (1998) | 30 EUR |
| ISMA library CDROM | 120 EUR (contains the papers from ISMA13 (1988) to ISMA21 (1996)) |

Name badge

All registrants for ISMA2004, exhibitors, deskstaff and technical staff members will receive a badge. Everybody is asked to wear this badge at all sessions and social events.

Computer facilities

Computers are available to allow participants to check the CDROM proceedings and for e-mail and internet access (room 01.08) from 08.00 a.m. till 6.00 p.m.

Switch off your mobile phone

All conference participants are kindly requested to switch off their mobile phone during the presentations.

Coffee breaks and lunches

Mid-morning and afternoon coffee will be served in the exhibition area. Lunch is not included in the registration fee. However a large number of restaurants are located in the surroundings of the conference site within walking distance. People wishing to sample the wide variety of cuisines available have a large number of choices in Leuven and the surroundings. Belgium is world famous for its beers, numbering more than five hundred, and today Leuven is still proud to be known as the beer capital of Belgium.

Conference social event

On Monday evening, September 20 at 7 p.m., a reception will be organised in the famous fourteenth century University Hall (Jubuleumzaal). The University Hall is located near to the conference venue (Naamsestraat 22, 3001 Leuven). All conference participants are invited to attend this event which is sponsored by LMS International, PCB Piezotronics and InterBrew. Don't miss this opportunity to taste some of the typical Belgian specialities.

Conference banquet

The banquet will be organised in the Faculty Club (Groot Begijnhof 14 in Leuven, tel: +32 16 329500) on Tuesday evening, September 21, at 7.30 p.m. Only participants who have registered for the banquet can participate.

Useful hints

Weather

September is late summer in Belgium, with the daily temperatures ranging from 15°C to 20°C, although occasionally the maximum may reach 25°C. On average, the weather is sunny with a few days of rain during the month. An umbrella and a light raincoat are advisable.

Electricity

The electric power is 220 V AC, 50Hz.

Opening hours banks and stores

Banks are generally open from 09.00 a.m. till 3.30 p.m., department stores from 09.30 a.m. till 6.00 p.m., while most other shops stay open from 09.00 a.m. till 06.00 p.m. Mid-day, most shops generally remain open, although you may find a few closed from 12.00 till 02.00 p.m. On Fridays, supermarkets and department stores are generally open until 08.00 p.m. Money changing after banking hours is possible at the airport.

Credit cards

Shops and restaurants usually accept major international credit cards such as EuroCard-MasterCard, Visa, American Express, Diners Club, etc., with a preference to EuroCard-MasterCard and Visa.

Car rental

If you wish to rent a car, it is often advantageous to do so from your own country, often in conjunction with the purchase of your airline ticket. Local car rental companies are : AVIS, Budget, Car Rental, Hertz, Europcar.

Rules of the road In Belgium, the speed limit on freeways and divided four-lane highways is 120 km/h. On most other roads, it is 70 km/h, but in towns and cities, you are restricted to 50 km/h. Wearing seat and shoulder belts is mandatory for both the driver and passengers. In parts of most towns and cities, you have to pay for parking.

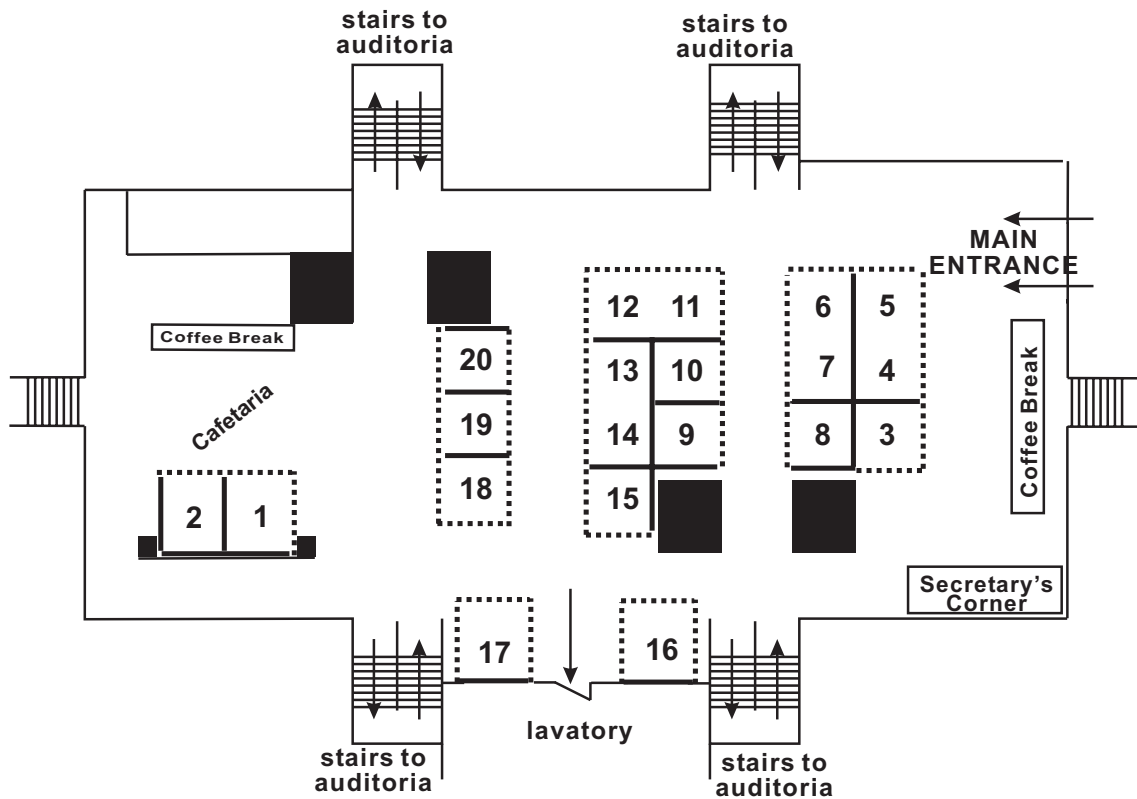
Taxi service

Taxi service in Leuven is available at telephone number: 016/20.20.20 (Taxi Breckpot).

Exhibition

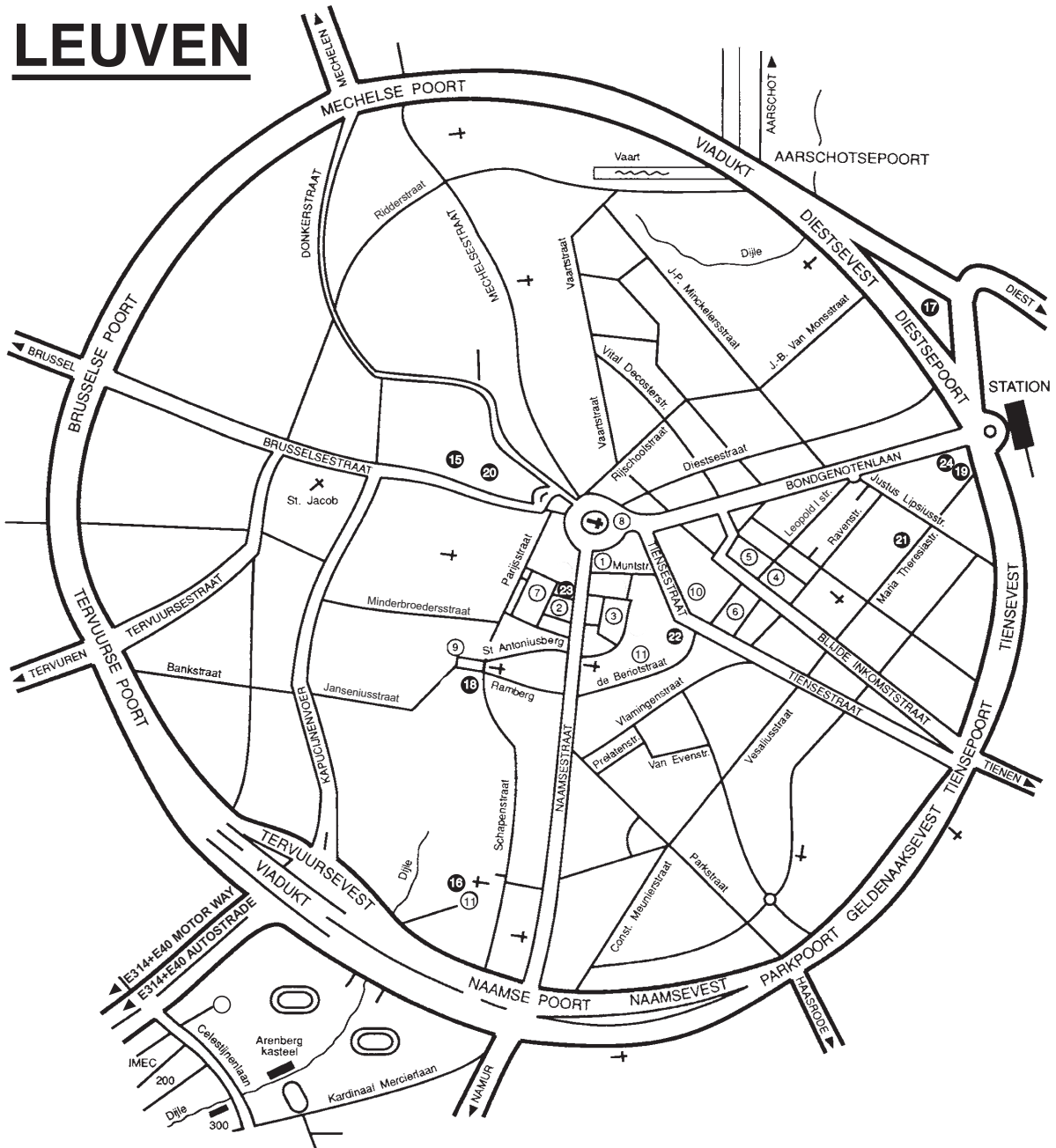
The exhibition is organised in the foyer of the new building of College De Valk. The exhibition will be officially opened after the opening session on Monday, September 20 at 1.00 p.m. We would like to emphasise that it is forbidden to park around the College De Valk.

Opening hours: Monday, September 20: 1.00 p.m. - 6.00 p.m.
Tuesday, September 21: 9.00 a.m. - 6.00 p.m.
Wednesday, September 22: 9.00 a.m. - 2.00 p.m.



| Booth | Company |
|--------------|-----------------------------------|
| 1 | M+P International |
| 2 | National Instruments Belgium n.v. |
| 3 | Abtronix BV |
| 4-5 | LMS International |
| 6-7 | Microflown Technologies BV |
| 8 | Cambridge Collaborative Inc. |
| 9 | OROS |
| 10 | EMTEC |
| 11-12 | Brüel & Kjær |
| 13-14 | K. Peeraer BVBA |
| 15 | PCB Europe GmbH |
| 16 | Krypton Ind. Metrology |
| 17 | MSC Software Benelux |
| 18 | MTS Noise & Vibration Division |
| 19 | Open Engineering |
| 20 | J.J. Bos BV |

LEUVEN



- | | |
|---|----------------------------------|
| ① Stadhuis / Town Hall | ⑮ Hotel Jackson's |
| ② University Hall (Opening Session / Reception) | ⑯ Begijnhof Congres Hotel |
| ③ Hogeschoolplein | ⑰ Novotel Leuven Centrum |
| ④ Universiteitsbibliotheek | ⑱ Hotel New Damshire |
| ⑤ Mgr. Ladeuzeplein / Parking | ⑲ Hotel La Royale |
| ⑥ Herbert Hooverplein | ⑳ Hotel Ibis Leuven Centrum |
| ⑦ Oude Markt | ㉑ Hotel Binnenhof |
| ⑧ Fochplein | ㉒ Hotel Holiday Inn Garden Court |
| ⑨ Damiaanplein | ㉓ Hotel Professor |
| ⑩ College De Valk (Conference) | ㉔ Hotel Industrie |
| ⑪ Faculty Club (Dinner) | |

Conference schedule

Monday September 20, 2004

- 8:00 - 11:30 Registration - University Hall (Jubileumzaal)
9:30 - 11:30 Opening Session - University Hall (Promotiezaal)
9:30 Welcome
Paul Sas, Conference Chairman
9:45 Opening
Yves Willems, Dean of the Faculty of Engineering
10:00 Keynote lecture
Linking analysis to test - Parameter Identification and Validation
Michael Link, Universität Kassel, Germany
B. Staples, Rolls-Royce plc, United Kingdom
M. Böswald, Th. Boettcher, Universität Kassel, Germany
D. Göge, German Aerospace Center, Germany
10:45 Keynote lecture
Shaping the sound of the next-generation BMW
Filip Penne, BMW Group, Germany
11:30 - 13:00 Lunch Break
13:00 - 18:25 Technical Sessions - College 'De Valk'
13:00 - 18:25 Plenary Poster Sessions - College 'De Valk'
13:00 - 18:00 Exhibition - College 'De Valk'
19:00 Conference Reception, University Hall (Jubileumzaal)

Tuesday September 21, 2004

- 9:00 - 12:20 Technical Sessions - College 'De Valk'
9:00 - 12:20 Plenary Poster Sessions - College 'De Valk'
9:00 - 18:00 Exhibition - College 'De Valk'
12:20 - 13:45 Lunch Break
13:45 - 18:20 Technical Sessions - College 'De Valk'
13:45 - 18:20 Plenary Poster Sessions - College 'De Valk'
19:30 Conference Dinner - Faculty Club

Wednesday September 22, 2004

- 9:00 - 12:20 Technical Sessions - College 'De Valk'
9:00 - 12:20 Plenary Poster Sessions - College 'De Valk'
9:00 - 14:00 Exhibition - College 'De Valk'
12:20 - 13:45 Lunch Break
13:45 - 15:50 Technical Sessions - College 'De Valk'

Technical program

The technical program of ISMA2004 includes two keynote lectures, some tutorial lectures and about 300 technical papers in specialised areas of noise and vibration engineering and structural dynamics. The conference focuses on experimental and numerical analysis methods, with special attention to recent applications in automotive, railway, aerospace and civil engineering. Fields with a strong interaction between noise and vibration behaviour are stressed.

The topics of the technical sessions are:

- Active noise control (ANC)
- Active suspensions (AS)
- Active vibration control and smart structures (AVC)
- Aeroacoustics and flow noise (AA)
- Damage monitoring and identification (DMI)
- Damping (D)
- Durability testing (DT)
- Dynamic behavior of civil structures (DCS)
- Dynamic modelling and numerical methods (DMNM)
- Engines, gearbox and driveline dynamics (ENG)
- Flite Eureka project (FLI)
- Human vibrations (HUM)
- Joints (JOI)
- Material characterisation based on dynamic measurements (MAT)
- Medium and high frequency techniques (MHF)
- Modal testing and FRF estimation (MT)
- Modal updating and correlation (MU)
- Multi-body dynamics and control (MB)
- Non-linearities: identification and modelling (NL)
- Operational modal analysis (OMA)
- Optical measurement techniques OPTIMESS (OPT)
- Parameter estimation (PE)
- Rotating machinery (RM)
- Signal processing and instrumentation (SP)
- Substructuring and coupling (SC)
- Traffic induced vibrations (TRAF)
- Transfer path analysis (TPA)
- Uncertainties in structural dynamics and acoustics (UNC)
- Validation of aeroengine models to predict the dynamic response caused by fan blade off and subsequent windmill events - Results from CERES (CER)
- Variability (VAR)
- Vehicle noise and vibration (NVH)
- Vibration control and isolation (VCON)
- Vibro-acoustic analysis (VAA)
- Vibro-acoustic modelling and prediction (VAM)
- Wind turbine dynamics (WT)

Special session in commemoration of Prof. Bruno Piombo

Bruno Piombo has been Professor of Mechanical Vibrations at the Politecnico di Torino since 1983, where he lectured Applied Mechanics and Dynamical Systems. He died much too early in December 2002. Bruno's scientific interest was focused on Modal Analysis, he contributed not only scientifically to this domain, but he was a key person in the dissipation of Modal Analysis in Italy and abroad. He was very well known and appreciated in the Modal Analysis Community for his intellectual qualities, his friendly and amazing personality, all of us deeply miss him. In this special session, which will take place on Tuesday September 21, 2004 from 13:45 until 17:05, a number of papers dedicated to him by his good 'modal' friends, are presented.

40 years of modal analysis at K.U.Leuven

Paul Sas, Katholieke Universiteit Leuven, Belgium

Modal analysis of continuous systems with fractional derivative damping distributions

S. Sorrentino, Luigi Garibaldi, Politecnico di Torino, Italy

Development in Damping Technologies

Geoff Tomlinson, University of Sheffield, United Kingdom

Modal models of cracked composite beams

K. Wang, Dan Inman, Virginia Polytechnic Institute and State University, United States of America

Improving NVH performances through optimisation techniques

Paolo Citti, Monica Carfagni, Università degli Studi di Firenze, Italy

The New Paradigm of Testing in Today's Product Development Process

Herman Van der Auweraer, Jan Leuridan, LMS International, Belgium

Observations concerning modern modal parameter estimation

Dave Brown, Randy Allemang, University of Cincinnati, United States of America

List of tutorials

Monday September 20, 2004, 13:00 - 13:50

Simulating the Noise Radiation of a Powertrain : Chances and Limits

Christoph Meier, DaimlerChrysler AG, Germany

Tuesday September 21, 2004, 9:00 - 9:50

Non-probabilistic approaches for non-deterministic dynamic FE analysis of imprecisely defined structures

David Moens, D. Vandepitte, Katholieke Universiteit Leuven, Belgium

Wednesday September 22, 2004, 9:00 - 9:50

The Unified Matrix Polynomial Approach to Understanding Modal Parameter Estimation: An Update

Randall Allemang, Allyn Phillips, University of Cincinnati, United States of America

Active vibration control and smart structures – AVC1

Room 1 – Chairman: A. de Boer

- 13:00 Experimental multivariable tracking control on an automotive vibration test rig (ID 332)
David Vaes, Jan Swevers, Paul Sas, Katholieke Universiteit Leuven, Belgium
- 13:25 Real-time control of a shape memory alloy adaptive tuned vibration absorber (ID 137)
Emiliano Rustighi, Brian Mace, Mike Brennan, University of Southampton, United Kingdom
- 13:50 Near-source error sensor strategies for active vibration isolation of machines (ID 130)
Tom Basten, TNO TPD, Netherlands
Clemens Beijers, University of Twente, Netherlands
Daan van den Brink, Jan Verheij, TNO TPD, Netherlands
André de Boer, University of Twente, Netherlands
- 14:15 Tailoring the dynamics of a miniature scanning mirror: the road from theory to a working device (ID 34)
Izhak Bucher, Gal Avivi, Technion, Israel
- 14:40 Feedback control of broadband disturbances on a one-degree-of-freedom vibration isolation set-up (ID 74)
Gerard Nijse, Johannes van Dijk, Ben Jonker, University of Twente, Netherlands
- 15:05 Design of a Lightweight, Electrodynamic, Inertial Actuator with Integrated Velocity Sensor for Active Vibration Control of a Thin Lightly-Damped Panel (ID 265)
Christoph Paulitsch, Paolo Gardonio, S.J. Elliott, University of Southampton, United Kingdom
Paul Sas, Rene Boonen, Katholieke Universiteit Leuven, Belgium

Vibration control and isolation – VCON1

Room 1 – Chairman: M. Pierini

- 15:55 Laplace transfer function modeling of multi-link flexible structures (ID 24)
Yoram Halevi, Virginia Polytechnic Institute and State University, United States of America
Clarice Wagner-Nachshoni, Technion, Israel
- 16:20 Vibration isolation of substructures using attached absorbers (ID 33)
Mia Loccufer, Erik Noldus, Ghent University, Belgium
- 16:45 Implementation of a theoretical-experimental model for improving the comfort in lift installations (ID 71)
Juan Manuel Pagalday, Xabier Sagartzazu, Arkaitz Mardaras, Ikerlan, Spain
Miguel Ángel Madoz, Orona, S. Coop., Spain
M. Calzada, Ikerlan, Spain
- 17:10 Reducing mechanical oscillations by improved measurement of position, speed and acceleration in electrical drive control (ID 209)
Roland Kirchberger, Wolf-Dieter Lehner, A. Hafla, Günter Pritschow, University of Stuttgart, Germany
- 17:35 Shape and size optimization of an engine suspension system (ID 387)
Niccolò Baldanzini, Antonio Scippa, Università di Firenze, Italy
- 18:00 Active auxiliary mass damper (ID 239)
C. Brecher, A. Schulz, RWTH Aachen, Germany

Vibro-acoustic analysis – VAA1

Room 2 – Chairman: F. Marulo

- 13:00 Acoustical Performances of Double Ventilated Glass Façades (ID 45)

Marcelo Blasco, C. Crispin, B. Ingelaere, BBRI, Belgium

13:25 Comparisons of panel solutions for noise and vibration reduction (ID 268)

Francesco Marulo, Tiziano Polito, University of Naples Federico II, Italy

13:50 Investigations into Noise Emission and Measures Reducing Noise of Wood Cutting Machinery (ID 469)

Uwe Heisel, Harold Kuolt, Stuttgart University, Germany

Flite Eureka – FLI1

Room 2 – Chairman: H. Van der Auweraer

15:05 PolyMAX modal parameter estimation from operational data (ID 87)

Bart Peeters, Antonio Vecchio, Herman Van der Auweraer, LMS International, Belgium

15:30 Example of autonomous parameter estimation procedure and its application to results of modal testing of an airplane (ID 220)

Wojciech Lisowski, Tadeusz Uhl, Piotr Kurowski, Krzysztof Mendrok, Grzegorz Goral, A. Klepka, AGH - University of Science and Technology, Poland

15:55 Reliable spurious mode rejection using self learning algorithms (ID 227)

Ivan Goethals, Bart Van Luyten, Bart De Moor, Katholieke Universiteit Leuven, Belgium

16:20 On-line monitoring of slow to fast evolving aeronautic structures (ID 125)

Laurent Mevel, Maurice Goursat, Michèle Basseville, Albert Benveniste, Campus de Beaulieu, France

16:45 An overview of frequency-domain identification methods for flight test data analysis (ID 267)

Peter Verboven, Bart Cauberghe, Patrick Guillaume, Vrije Universiteit Brussel, Belgium

17:10 Real time modal model identification and its application for damage detection (ID 260)

Tadeusz Uhl, Mariusz Bogacz, AGH - University of Science and Technology, Poland

17:35 Automated Pole-Selection: Proof-of-Concept and Validation (ID 296)

Jeroen Lanslots, Bert Rodiers, Bart Peeters, LMS International, Belgium

Medium and high frequency techniques – MHF1

Room 3 – Chairman: A. Sestieri

13:00 On the Modeling Reinforced Plates in the mid-frequency range (ID 308)

Jose Roberto Arruda, Lazado Donadon, Ronaldo Nunes, Elson Albuquerque, Universidade Estadual de Campinas, Brazil

13:25 On the use of the wave based method for the steady-state dynamic analysis of three-dimensional plate assemblies (ID 386)

Caroline Vanmaele, Wim Desmet, Dirk Vandepitte, Katholieke Universiteit Leuven, Belgium

13:50 Design of viscoelastic damping treatments in the medium frequency range (ID 313)

Laurent Hazard, Erik De Bel, Philippe Bouillard, Université Libre de Bruxelles, Belgium

Jean-Yves Sener, Arcelor Innovation, Belgium

Jean-Louis Migeot, Free Field Technologies SA, Belgium

14:15 Response of vibroacoustic problems by the complex envelope displacement vectorization (ID 102)

Aldo Sestieri, Antonio Carcaterra, University of Rome La Sapienza, Italy

14:40 Explicit forward-advancing wave expansion method for numerical solution of large-scale sound propagation problems (ID 317)

Leandro Barrera Rolla, Henry Rice, Trinity College Dublin, Ireland

- 15:05 Hybrid finite element – wave based method for steady-state acoustic analysis (ID 411)
Bas Van Hal, Caroline Vanmaele, Wim Desmet, Katholieke Universiteit Leuven, Belgium
Petra Silar, Hans-Herwig Priebisch, ACC Acoustic Competence Center GmbH, Austria
- 15:30 Spatial Trefftz Polynomials Formulation for Elastodynamics in Time Domain (ID 400)
F. Konkol, Vladimir Kompis, University of Zilina, Slovakia (Slovak Republic)

Traffic induced vibrations – TRAF1

Room 3 – Chairman: G. De Roeck

- 16:20 A non-parametric probabilistic model for ground-borne structural vibration due to excitations in a tunnel (ID 346)
Maarten Arnst, Hamid Chebli, Ramzi Othman, Didier Clouteau, Ecole Centrale de Paris, France
Geert Degrande, Katholieke Universiteit Leuven, Belgium
- 16:45 Surface vibration and ground-borne noise impact of the first underground train system in South Africa (ID 430)
John Morgan, R&H Railway Consultants (Pty) Ltd, South Africa
J.L. Van Niekerk, Stellenbosch University, South Africa
D. Cosijn, Jongens Keet Associates, South Africa
- 17:10 The numerical study of vibration isolation for rail traffic (ID 362)
Geert Lombaert, Geert Degrande, Bert Vandeborghht, Bram Vanhauwere, Katholieke Universiteit Leuven, Belgium
- 17:35 Calculation of re-radiated noise in buildings, generated by underground rail traffic (ID 435)
A.B. Nagy, P. Fiala, F. Marki, F. Augusztinovicz, Budapest University of Technology and Economics, Hungary
G. Degrande, S. Jacobs, Katholieke Universiteit Leuven, Belgium

Vehicle noise and vibration – NVH1

Room 4 – Chairman: P. Sas

- 13:00 Simulating the Noise Radiation of a Powertrain : Chances and Limits (ID 295)
Christoph Meier, DaimlerChrysler AG, Germany
- 13:50 A hybrid method for modelling in-vehicle boom noise (ID 235)
R. Rashid, R.S. Langley, Cambridge University, United Kingdom
- 14:15 Tire/Road Noise Reduction (ID 330)
Alexander Ossipov, Wolfgang Gnoerich, Goodyear Technical Center, Luxembourg
- 14:40 NVH discussion session (ID 481)

Vibro-acoustic modelling and prediction – VAM1

Room 4 – Chairman: F. Augusztinovicz

- 15:55 Vibro-acoustic numerical simulation of the transmission loss of a firewall (ID 72)
Philippe Brux, Peter Segaeert, F. Gérard, LMS International, Belgium
KwangSeo Park, WooSun Park, GM Daewoo Auto & Technology Co., Korea, Republic of
- 16:20 Prediction of the Non-Linear Response of Clamped Panel to Acoustic Loading (ID 428)
Matthew Acton, Michael Platten, Jan Wright, Jonathan Cooper, University of Manchester, United Kingdom

- Andrew Olsson, BAE Systems, United Kingdom*
- 16:45 Development of models for noise radiation from large structures and industrial plants (ID 434)
F. Augusztinovicz, P. Gajdatsy, F. Marki, P. Fiala, A.B. Nagy, Budapest University of Technology and Economics, Hungary
- 17:10 Optimal shape of the reflex tube of a bass loudspeaker (ID 111)
Jan Mohring, Jevgenijs Jegorovs, Fraunhofer ITWM, Germany
D. Klien, KS Beschallungstechnik GmbH, Germany
- 17:35 Incorporating damping predictions in the vibroacoustic design process (ID 187)
Etienne Balmes, SDTools - Ecole Centrale Paris, France
- 18:00 Modal based predictive piezo modelling evaluated on a plate with piezoelectric-array (ID 340)
Marco Koevoets, Georgo Angelis, Bert Roozen, Philips Centre for Industrial Technology, Netherlands

Non-linearities: identification and modelling – NL1

Room 5 – Chairman: K. Worden

- 13:00 An application of interval-valued neural networks to a regression problem (ID 318)
D. Chetwynd, K. Worden, G. Manson, University of Sheffield, United Kingdom
- 13:25 Stability and Limit Cycle Oscillation Amplitude Prediction for Multi-DOF Aeroelastic Systems with Piecewise Linear Non-Linearities (ID 62)
Grigorios Dimitriadis, Jonathan Cooper, Gareth Vio, University of Manchester, United Kingdom
- 13:50 Performances Analysis of Frequency Domain Nonlinear Identification Techniques. (ID 224)
Alessandro Fasana, Luigi Garibaldi, Stefano Marchesiello, Politecnico di Torino, Italy
- 14:15 Two measurement techniques to determine Higher Order Sinusoidal Input Describing Functions (ID 249)
Pieter Nuij, M. Steinbuch, Eindhoven University of Technology, Netherlands
- 14:40 Identification of a Continuous Structure with Discrete Non-Linear Components using an Extended Modal Model (ID 305)
Michael Platten, Jan Wright, Jonathan Cooper, University of Manchester, United Kingdom
- 15:05 Identification of a beam with a distributed friction nonlinearity (ID 323)
C.X. Wong, N. Tassini, S. Patsias, K. Worden, University of Sheffield, United Kingdom

Damage monitoring and identification – DMI1

Room 5 – Chairman: S. Fassois

- 15:55 Modal filters for vibration based damage detection (ID 9)
André Preumont, Arnaud Deraemaeker, Université Libre de Bruxelles, Belgium
- 16:20 Fault Detection and Identification in a Scale Aircraft Skeleton Structure via a Functional Model Based Method (ID 126)
J.S. Sakellariou, Spilios Fassois, University of Patras, Greece
- 16:45 Structural health monitoring technologies for seismic risk mitigation (ID 151)
G. Fabbrocino, V.F. Grasso, G. Manfredi, University of Naples Federico II, Italy
- 17:10 Structural health monitoring of a crane in variable configurations (ID 174)
Jyrki Kullaa, Helsinki Polytechnic Stadia, Finland
- 17:35 Intelligent damping: condition monitoring of railway shock absorbers (ID 182)

*Wojciech Poprawski, Jozef Krzyzanowski, Wroclaw University of Technology, Poland
J.W. Kars, KONI B.V., Netherlands*

Modal updating and correlation – MU1

Room 6 – Chairman: R. Allemang

- 13:00 An application of genetic algorithms for modal damping updating (ID 178)
Piotr Kurowski, Joanna Iwaniec, Janina Pieczara, Tadeush Uhl, AGH - University of Science and Technology, Poland
- 13:25 CEO - A Combined Expansion and Orthogonalization method (ID 22)
Yoram Halevi, Cesar Morales, Daniel Inman, Virginia Polytechnic Institute and State University, United States of America
- 13:50 Multi level model updating for the evaluation and the optimisation of the sound radiation calculation of a principle gearbox housing (ID 128)
Bernd Graf, Bernd Wender, University of Applied Sciences of Ulm, Germany
- 14:15 Accurate Finite element Model Updating using 3-D digitizing and Sensitivity Analysis (ID 186)
*Masaaki Okuma, Tokyo Institute of Technology, Japan
Atsushi Amano, SUZUKI Ltd, Japan*
- 14:40 Experimental Modal Analysis and Computational Model Updating of a Car Body in White (ID 223)
*Carsten Schedlinski, Falk Wagner, ICS, Germany
Klaus Bohnert, Porsche AG, Germany
Joern Frappier, Volkswagen AG, Germany
Alfred Irrgang, BMW AG, Germany
Ralf Lehmann, DaimlerChrysler AG, Germany
Andreas Mueller, Audi AG, Germany*

Aeroacoustics and flow noise – AA1

Room 6 – Chairman: C. Schram

- 15:30 An overview of high-order finite difference schemes for computational aeroacoustics (ID 303)
Wim De Roeck, Wim Desmet, Martine Baelmans, Paul Sas, Katholieke Universiteit Leuven, Belgium
- 15:55 Surface radiated noise of exhaust systems- Structural Transmission Loss test rig, part II (ID 76)
Jan-Friedrich Brand, Dirk Wiemeler, Tenneco Automotive, Heinrich Gillet GmbH, Germany
- 16:20 Reduction of fan noise by means of (circular) side-resonators; theory and experiment (ID 108)
*Ysbrand Wijnant, Marten Nijhof, University of Twente, Netherlands
Marco Beltman, Intel Corporation, United States of America
A. de Boer, University of Twente, Netherlands*
- 16:45 Calibration of the two microphone transfer function method to measure acoustical impedance in a wide frequency range (ID 488)
Rene Boonen, Paul Sas, Katholieke Universiteit Leuven, Belgium
- 17:10 Assessment of Different Parameters Used in the SNGR Method (ID 390)

Majid Mesbah, Johan Meyers, Martine Baelmans, Wim Desmet, Katholieke Universiteit Leuven, Belgium

- 17:35 On the prediction of near-field cavity flow noise using different CAA techniques (ID 301)
Wim De Roeck, Wim Desmet, Martine Baelmans, Paul Sas, Katholieke Universiteit Leuven, Belgium

Dynamic modelling and numerical methods – DMNM1

Room 7 – Chairman: B. Roozen

- 13:00 FEM analysis of dynamic piezoactuation using PZT fiber-based actuators compared to conventional PZT patches (ID 21)
Cu-Hai Nguyen, Swiss Federal Labs for Material Testing and Research (EMPA), Switzerland
Xavier Kornmann, ABB Corporate Research, Switzerland
- 13:25 FEM design of a piezoelectric active control structure. Application to an aircraft wing model (ID 124)
Valerie Pommier, ENSICA, France
Marc Budinger, Université Bordeaux I, France
Philip Lever, South Kensington campus, United Kingdom
Julien Richelot, Joel Bordeneuve, ENSICA, France
- 13:50 Finite element modelling techniques for the vibrational behaviour of galvanized assemblies (ID 142)
Pascal Lardeur, Joël Hettinger, Jean-Marc Duffal, Renault, France
Frantz Jourda, Catherine Lienard, Auto Chassis International, France
- 14:15 Advanced Mesh Based Design Optimization for Early- Stage Virtual Prototyping (ID 465)
Herman Van der Auweraer, T. Van Langenhove, M. Brughmans, Naji El Masri, Thierry Olbrechts, LMS International, Belgium
- 14:40 A "Hardware in the loop" demonstrator for chatter instability in machine tools (ID 293)
Abhijit Ganguli, Arnaud Deraemaeker, Université Libre de Bruxelles, Belgium
Mihaita Horondinca, Universitatea Technica Gh.Asachi, Romania
André Preumont, Université Libre de Bruxelles, Belgium

Rotating machinery – RM1

Room 7 – Chairman: J. Blough

- 15:30 Reduced order models of rotating mistuned bladed disk assemblies using component mode synthesis methods with interface modes (ID 127)
F. Duvauchelle, D.-M. Tran, Office National d'Etudes et de Recherches Aéropatiales, France
- 15:55 Blind source separation methods in the vibration response of detective rolling element bearings (ID 228)
Christos Yiakopoulus, Haralambos Dimou, Ioannis Antoniadis, National Technical University of Athens, Greece
- 16:20 Flow Induced Rotor Oscillations of a Centrifugal Sewage Water Pump (ID 26)
Friedrich-Karl Benra, Hans Josef Dohmen, University Duisburg-Essen, Germany
- 16:45 A Comparison of Configuration State Identification Techniques Based on Sensitivity to Measurement Error (ID 64)
Ningsheng Feng, Eric Hahn, Wenlong Hu, University of New South Wales, Australia

- 17:10 Vibratory Behaviour of Rotors Systems with Speed dependent Bearings Characteristics (ID 375)
Abbassia Derouiche, Université des Sciences et de la Technologie Houari Boumediene, Algeria
Nacer Hamzaoui, Institut National des Sciences Appliquées de Lyon, France
Abdelhamid Miloudi, Belaid Bouzouane, Université des Sciences et de la Technologie Houari Boumediene, Algeria

Poster session – POS1A

Room 8

- 13:00 A method of dynamic analysis of car drive systems (ID 315)
Jerzy Plosa, University of Bielsko-Biala, Poland
Kazimierz Romaniszyn, Automotive Research and Development Centre "BOSMAL", Poland
- 13:00 Modelling of Thermo-elastic Damping in a Silicon MEMS Ring Resonator (ID 191)
Seck Wong, Colin Fox, Stewart McWilliam, University of Nottingham, United Kingdom
Chris Fell, Rebecka Eley, BAE Systems, United Kingdom
- 13:00 Thermo-mechanic interaction at vibrating system with rubber-like materials (ID 109)
Ludek Pesek, Ladislav Pust, Frantisek Vanek, Academy of Science of the Czech Republic, Czech Republic
- 13:00 Vibration Suppression Using Vincent's Circle (ID 194)
Cristinel Mares, John Mottershead, Maryam Ghandchi Tehrani, Weizhuo Wang, University of Liverpool, United Kingdom
- 13:00 Experimental and numerical modal analysis of a lightweight steel-concrete composite slab supported by cellular beams (ID 238)
Daan Degrauwe, Guido De Roeck, Katholieke Universiteit Leuven, Belgium
- 13:00 Determination of Structural Vibration Properties for Floor Structures (ID 86)
Jinho Kim, Okjeoung Park, Hanjun Jeon, Korea Railroad Research Institute, Korea, Republic of
- 13:00 Modeling of building vibrations for optimization of thin layered rubber-metal bearings used for protection from seismic hazard. (ID 252)
Ulugbek Begaliev, Tynymbek Ormonbekov, Kyrgyz Scientific Research and Design Institute of Construction, Kyrgyzstan
German Maximov, Sergey Pozdnyakov, Alexey Derov, Moscow Engineering Physics Institute (State University), Russian Federation
- 13:00 Effect of the structure of the hydrophobized mesoporous silica gel on the colloidal damper hysteresis (ID 40)
Claudiu Valentin Suciu, Takuzo Iwatsubo, Kansai University, Japan
Masayoshi Ikenaga, Oiles Corporation, Japan
Kazuhiko Yagushi, Fuji Silysia Chemical Ltd., Japan
- 13:00 Prediction of Acoustic Pressure Radiated by Gear Transmission without Housing (ID 372)
Abbassia Derouiche, Université des Sciences et de la Technologie Houari Boumediene, Algeria
Nacer Hamzaoui, Institut National des Sciences Appliquées de Lyon, France
Abdelhamid Miloudi, Belaid Bouzouane, Université des Sciences et de la Technologie Houari Boumediene, Algeria
- 13:00 A Simple Method to Predict the Influence of a Vibrating Foundation Machine on its Vicinity (ID 39)
Alexandre Augusto Simões, UNIS, Brazil
Marcio Tadeu Almeida, UNIFEI, Brazil

Poster session – POS1B

Room 9

- 13:00 Analytical study of coupling between subsystems of a vehicule NVH model (ID 161)
Eric Courteille, CF Gomma BT, France
Lionel Leotoing, INSA de Rennes, France
Frederic Mortier, CF Gomma BT, France
Eric Ragneau, INSA de Rennes, France
- 13:00 PCDS: A Technique For Assessing The True Vibration Severity Of Vibrating Cantilevered Mass Systems (ID 314)
James McGhee, JMDynamics Limited, United Kingdom
- 13:00 Granular synthesis for engine noise (ID 236)
Irina Zhekova, Philippe Guillemain, PSA Peugeot Citroën, France
- 13:00 The effect of frequency, temperature and internal quality parameters of potato tissue on visco-elastic vibration damping and complex modulus properties (ID 316)
T. Van Canneyt, Ministry of the Flemish community, Belgium
R. Verschoore, University of Ghent, Belgium
H. Ramon, Katholieke Universiteit Leuven, Belgium
B. Sonck, Ministry of the Flemish community, Belgium
- 13:00 A Laboratory Testing Machine to Measure Apple Firmness (ID 82)
Fernando Oliveira, IST/IDMEC, Portugal
António Ribeiro, Nuno Maia, Instituto Superior Técnico, Portugal
Cristina Oliveira, ISA, Portugal
- 13:00 Modelling, testing and modification on a high performances ski (ID 89)
Luigi Bregant, Marco Nicoli, University of Trieste, Italy
- 13:00 On the estimation of rotational frequency response functions (ID 97)
Diogo Montalvão, Instituto Politecnico de Setubal, Portugal
Antonio Ribeiro, Nuno Maia, Julio Silva, Instituto Superior Técnico, Portugal
- 13:00 Interval analysis for updating fem parameters using uncertain experimental data (ID 110)
Stefano Gabriele, University of Rome Roma Tre, Italy
Claudio Valente, University of Chieti-Pescara G. D'Annunzio, Italy
Fabio Brancaloni, University of Rome Roma Tre, Italy
- 13:00 FE analysis to evaluate the damping ratio of spot-welded frame (ID 143)
Shinichi Enoki, Robust Engineering Inc., Japan
Eiichi Aoyama, Toshiki Hirogaki, Doshisha University, Japan
Hiroaki Andoh, Masayoshi Nakajima, Shin Caterpillar Mitsubishi Ltd., Japan
Yusuke Takimoto, Tsutao Katayama, Doshisha University, Japan
- 13:00 Vibroacoustic experimental tests on an innovative combined hybrid vehicle under real on-road conditions (ID 138)
Marco Scionti, Università degli Studi di Catania, Italy
Antonio Vecchio, LMS International, Belgium
Francesco Petrone, Università degli Studi di Catania, Italy
- 13:00 Modal Approach For Dynamical Analysis of Sandwich Plates (ID 5)
B. Zghal, Lofty Hammami, T. Fakhfakh, M. Haddar, National school of engineers of Sfax, Tunisia

Modal testing and FRF estimation – MT1

Room 1 – Chairman: J. Schoukens

- 9:00 Development of Modal Testing System for Micro Devices (ID 13)
Nobuyuki Okubo, Shinya Kobayashi, Takeshi Toi, Chuo University, Japan
Hideaki Kakuma, Kazuyuki Suzuki, Akashi Co., Japan
- 9:25 Nonparametric frequency response function measurements (ID 19)
Johan Schoukens, Y. Rolain, R. Pintelon, Vrije Universiteit Brussel, Belgium
- 9:50 Dynamic analysis of complex interaction between power production turbomachinery and its supporting structure (ID 356)
Bruno Picasso, Sergio Palomba, University of Cagliari, Italy

Damping – D1

Room 1 – Chairman: N. Maia

- 10:40 A study on the partial coating of a shell with an add-on viscoelastic layer for optimal damping design (ID 416)
Ravish Masti, Katholieke Universiteit Leuven, Belgium
Michael Sainsbury, University of Hong Kong, Hong Kong
- 11:05 On dry-friction modelling in simple, kinematically excited, vibration isolation systems. (ID 286)
G. J. Stein, R. Zahoranský, P. Múčka, R. Chmúrny, Slovak Academy of Sciences, Slovakia (Slovak Republic)
Henning Meyer, ISRINGAUSEN GmbH und Co, Germany
- 11:30 The use of suitable modal bases for dynamic prediction of structures containing high damping materials (ID 255)
Nicolas Merlette, Sylvain Germès, François van Herpe, PSA Peugeot Citroën, France
Louis Jezequel, Ecole Centrale de Lyon, France
Denis Aubry, Ecole Centrale de Paris, France
- 11:55 Friction dampers: the positive side of friction (ID 11)
Ines Lopez, Eindhoven University of Technology (TUE), Netherlands
Jesus Maria Busturia, GAMESA Corporación Tecnológica, S.A., Spain
Henk Nijmeijer, Eindhoven University of Technology (TUE), Netherlands

Optical measurement techniques OPTIMESS – OPT1

Room 1 – Chairman: S. Vanlanduit

- 13:45 Scanning laser doppler vibrometer for vibrational analysis of micro-electro-mechanical-systems (MEMS) (ID 269)
P. Castellini, B. Marchetti, Universita Politecnica delle Marche, Italy
Benno Margesin, IRST, Istituto Trentino di Cultura, Italy
- 14:10 3D static and dynamic displacement measurements by a system of three linear CCD-units (ID 270)
G. De Roeck, L. Wens, S. Jacobs, Katholieke Universiteit Leuven, Belgium
- 14:35 Damage identification of brittle materials using scanning laser Doppler vibrometer (ID 271)
Annelies Dierickx, Hugo Sol, P. Guillaume, Vrije Universiteit Brussel, Belgium
- 15:00 Characterisation of the dynamic behaviour of an hand-arm vibration tests handle by Laser Doppler vibrometry (ID 272)

- M. Martarelli, N. Paone, C. Santolini, L. Scalise, Universita Politecnica delle Marche, Italy*
15:25 Dual channel heterodyne interferometer (ID 274)
H. Van Elburg, J. Dirckx, W. Decraemer, University of Antwerp, Belgium

Optical measurement techniques OPTIMESS – OPT2

Room 1 – Chairman: P. Guillaume

- 16:15 Measurement time reduction using a regressive discrete fourier-transform technique (ID 275)
J. Vanherzeele, P. Guillaume, S. Vanlanduit, Vrije Universiteit Brussel, Belgium
16:40 Optical methods for the reliability and failure analysis of RF MEMS (ID 276)
M. Van Spengen, I. De Wolf, IMEC, Belgium
17:05 State-of-the-art of full-field high resolution vibration measurement devices based on photorefractive dynamic holography (ID 294)
Marc Georges, Centre Spatial de Liège, Belgium
Gilles Pauliat, Centre National de la Recherche Scientifique, France
Cédric Thizy, Centre Spatial de Liège, Belgium
Sébastien Ryhon, Optrion S.A., Belgium
Philippe Lemaire, Centre Spatial de Liège, Belgium
Gérald Roosen, Centre National de la recherche Scientifique, France

Uncertainties in structural dynamics and acoustics – UNC1

Room 2 – Chairman: L. Hermans

- 9:00 Non-probabilistic approaches for non-deterministic dynamic FE analysis of imprecisely defined structures (ID 471)
David Moens, D. Vandepitte, Katholieke Universiteit Leuven, Belgium
9:50 Determining Uncertainty Bounds for Eigenvalues (ID 100)
Michael Friswell, University of Bristol, United Kingdom
John Penny, Aston University, United Kingdom
U. Prells, University of Wales Swansea, United Kingdom
10:15 Fuzzy Arithmetical Modeling and Simulation of Vibrating Structures with Uncertain Parameters (ID 145)
Michael Hanss, Universität Stuttgart, Germany
Kai Willner, Universität Erlangen-Nurnberg, Germany

Uncertainties in structural dynamics and acoustics – UNC2

Room 2 – Chairman: L. Gaul

- 11:05 Interval and Fuzzy Finite Element Analysis of mechanical structures with uncertain parameters (ID 421)
Hilde De Gerssem, David Moens, Wim Desmet, Dirk Vandepitte, Katholieke Universiteit Leuven, Belgium
11:30 An automated procedure for interval and fuzzy finite element analysis (ID 350)
Maarten De Munck, David Moens, Wim Desmet, Dirk Vandepitte, Katholieke Universiteit Leuven, Belgium
11:55 Uncertainties in structural dynamics for composite sandwich panels (ID 20)
Chaohui Chen, Université de Marne-la-Vallée, France

Denis Duhamel, Ecole Nationale de Ponts et Chaussées, France

Christian Soize, Université de Marne-la-Vallée, France

Uncertainties in structural dynamics and acoustics – UNC3

Room 2 – Chairman: M. Friswell

- 13:45 A comparison of the fuzzy finite element method and a probabilistic approach (ID 398)
Daan Degrauwe, Geert Lombaert, Guido De Roeck, Katholieke Universiteit Leuven, Belgium
- 14:10 Evaluation of the natural frequencies of a beam with uncertain structural parameters (ID 257)
Etienne Arnoult, Abdelhamid Touache, Pascal Lardeur, University of Technology of Compiègne, France
- 14:35 The Short Transformation Method to Predict the FRF of Dynamic Structures subject to Uncertainty (ID 42)
Stijn Donders, LMS International, Belgium
Dirk Vandepitte, Katholieke Universiteit Leuven, Belgium
Joost Van de Peer, Noesis Solutions, Belgium
Wim Desmet, Katholieke Universiteit Leuven, Belgium

Vibro-acoustic modelling and prediction – VAM3

Room 2 – Chairman: H.-H. Pribsch

- 15:25 Time Wavenumber Formulation for Propagation of Acoustic Pressure Fields (ID 144)
Vincent Grulier, LAUM (UMR CNRS 6613) - CTTM, France
Jean-Hugh Thomas, Jean-Claude Pascal, LAUM (UMR CNRS 6613), France
Jean-Christophe Le Roux, CTTM, France
- 15:50 Vibration and Stability of Compressed Shells with Imperfections and Fluid-Structure Interaction (ID 221)
Francesco Pellicano, Giulia Catellani, Università di Modena e Reggio Emilia, Italy
Marco Amabili, Università di Parma, Italy
- 16:15 Reduced models for the finite element of the Biot's poroelasticity equations in low-frequency range: modal synthesis method (ID 287)
Pascal Penning, V. Kehr-Candille, ONERA, France
R. Ohayon, CNAM, France
- 16:40 A Meshless Formulation for Acoustical Radiation (ID 306)
Olga Kireeva, Tanguy Mertens, Phillippe Bouillard, Université Libre de Bruxelles, Belgium
- 17:05 Speed Gains of the Lumped Parameter Boundary Element Method for Vibroacoustics (ID 326)
Francois-Xavier DeBiesme, Eindhoven University of Technology, Netherlands
Jan Verheij, TNO TPD, Netherlands
- 17:30 On the efficiency of exterior acoustics simulations using improved infinite elements (ID 365)
Daniel Dreyer, AUDI AG, Germany
Steffen Petersen, Otto von Estorff, Hamburg University of Technology, Germany

Medium and high frequency techniques – MHF2

Room 3 – Chairman: H. Van der Auweraer

- 9:00 Vibro-Acoustic Computations in the Mid-Frequency Range: Efficiency, Evaluation, and Validation (ID 355)
Rafael Stryczek, Andreas Kropp, Stefan Wegner, BMW AG, Germany
Frank Ihlenburg, ISKO Engineers, Germany
- 9:25 Feasibility study of the wave based method for high-frequency steady-state acoustic analysis (ID 2)
Bert Pluymers, Wim Desmet, Dirk Vandepitte, Paul Sas, Katholieke Universiteit Leuven, Belgium
- 9:50 A finite difference analysis of elastic isotropic waves in 2D using a wave expansion technique (ID 105)
Gabriel Ruiz, Harman Becker Automotive Systems, United Kingdom
H.J. Rice, Trinity College Dublin, Ireland
- 10:15 Application of Wave Based Technique for a cavity considering forced excitation at boundaries and effects of absorption materials (ID 467)
Achim Hepberger, Karoly Jalics, H.H. Priebsch, F. Diwoky, ACC Acoustic Competence Center GmbH, Austria

Multi-body dynamics and control – MB1

Room 3 – Chairman: J. de Schutter

- 11:05 A convex optimization framework for dynamic balancing of planar linkages (ID 422)
Bram Demeulenaere, Jan Swevers, Joris De Schutter, Katholieke Universiteit Leuven, Belgium
- 11:30 Study of wheel-rail contact behaviour during a engine car rollover (ID 376)
Xavier Quost, F. Thouverez, P.E. Gautier, SNCF, France
- 11:55 Braking torque optimisation in time domain (ID 246)
Iwona Adamiec-Wojcik, Kornel Warwas, S. Wojchiech, University of Bielsko-Biala, Poland

Medium and high frequency techniques – MHF3

Room 3 – Chairman: W. Lauriks

- 13:45 Automatic SEA partitioning of complex structures using cluster analysis (ID 103)
Nicolas Totaro, Jean-Louis Guyader, Institut National des Sciences Appliquées de Lyon, France
- 14:10 Analysis of structure borne noise transmission using Energy Flow Method and automatic SEA partitioning technique (ID 116)
Pascal Bouvet, Vibratec, France
Nicolas Totaro, Institut National des Sciences Appliquées de Lyon, France
Victor Cogne, Vibratec, France
J.L. Guyader, Institut National des Sciences Appliquées de Lyon, France
Y. Denoual, S. Chaigne, Renault, France
- 14:35 Evaluation of wave transmission coefficients of plate junctions: comparison between coupling beam and strip plate modelling (ID 358)
Silje Korte, TU Berlin, Volkswagen AG, Germany
Wim Desmet, Katholieke Universiteit Leuven, Belgium
Michael Möser, TU Berlin, Germany
- 15:00 Sea car structural and acoustic modelling (ID 380)
Anna Galasso, Elasis S.C.p.A. (FIAT Group), Italy
Francesco D'Esposito, University of Naples Federico II, Italy
Giovanni Di Somma, Elasis S.C.p.A. (FIAT Group), Italy
Sergio De Rosa, Francesco Franco, University of Naples Federico II, Italy

- 15:25 On the integration of finite elements and statistical energy analysis to improve the calculation of coupling loss factors (ID 388)
Niccolò Baldanzini, Marco Pierini, Antonio Scippa, Università di Firenze, Italy

Operational modal analysis – OMA1

Room 3 – Chairman: J.-C. Golinval

- 16:15 On-line Identification of Operational Loads Using Exogenous Inputs (ID 381)
Steve Vanlanduit, Patrick Guillaume, Bart Cauberghe, Eli Parloo, Gert De Sitter, Peter Verboven, Vrije Universiteit Brussel, Belgium
- 16:40 On Modal Parameter Estimates from Ambient Vibration Tests (ID 155)
Alessandro Agneni, University of Rome La Sapienza, Italy
Rune Brinker, Aalborg University, Denmark
Giuliano Coppotelli, University of Rome La Sapienza, Italy
- 17:05 Mode shape normalisation for Operational Acoustic Modal Analysis: theory and applications (ID 382)
Gert De Sitter, Patrick Guillaume, Eli Parloo, Vrije Universiteit Brussel, Belgium
- 17:30 System Identification of Structure for Wind-induced Responses (ID 25)
Akihito Yoshida, Y. Tamura, Tokyo Polytechnic University, Japan
T. Tsuruga, Tokyo Electric Power Company, Japan
T. Itoh, Tokyo Electric Power Service, Japan

Vibro-acoustic modelling and prediction – VAM2

Room 4 – Chairman: L. Lecce

- 9:00 Noise radiated by the enclosure vibrations of a PC (ID 117)
Willem Beltman, Intel Corporation, United States of America
- 9:25 Recent progress in reduced-scale modelling of vehicle interior noise (ID 369)
Victor Krylov, Vasil Georgiev, Rebecca Gorman, Loughborough University, United Kingdom
- 9:50 On the influence of core laminations upon power transformer noise (ID 425)
Ravish S. Masti, Wim Desmet, Ward Heylen, Katholieke Universiteit Leuven, Belgium

Vehicle noise and vibration – NVH2

Room 4 – Chairman: F. Penne

- 10:40 Impace of side shafts on the interior noise of cars (ID 289)
J. Biermann, RWTH, Germany
- 11:05 Structure borne sound intensity for plates and car bodies derived from Laserscanning measurements (ID 156)
J. Bienert, M. Flick, Ford Motor Company, Germany
- 11:30 An experimental study on the brake squeal noise (ID 215)
Oliviero Giannini, Francesco Massi, University of Rome La Sapienza, Italy
- 11:55 Auralization of structural design modifications and mount stiffness uncertainty in a virtual car sound environment (ID 43)
Karl Janssens, Stijn Donders, Peter Mas, Patrick Van de Ponsele, LMS International, Belgium
Joost Van de Peer, Noesis Solutions, Belgium

Vehicle noise and vibration – NVH3

Room 4 – Chairman: J. Biermann

- 13:45 An integrated approach for predictive vibration, ride and acoustics engineering (ID 17)
Gabriele Ferrarotti, MSC.Software Corporation, Italy
Alain Genard, Free Field Technologies, Belgium
- 14:10 Engine mounting system: optimisation of transversally installed engines in vehicles (ID 48)
Hansjoerg Maier, Freudenberg DS KG - TEZ, Germany
Albert Albers, Universität Karlsruhe (TH), Germany
- 14:35 Optimization of the mount system of a vehicle's front subframe (ID 168)
Gabriele Fichera, Marco Scionti, Francesco Petrone, Università degli Studi di Catania, Italy
- 15:00 Suppression of squeak and rattle vehicle interior noises : synthesis of vibrations generated by the road profile (ID 204)
Jean-Christophe Chabod, Laurent Vivet, RMS, France

Modal updating and correlation – MU2

Room 4 – Chairman: J.E. Mottershead

- 15:50 Techniques for Real Normalization of Complex Modal Vectors for Updating and Correlation with FEM models (ID 333)
Siddharth Sinha, R.J. Allemang, University of Cincinnati, United States of America
- 16:15 Stochastic model updating of a spot welded structure (ID 195)
Cristinel Mares, John Mottershead, University of Liverpool, United Kingdom
Michael Friswell, University of Bristol, United Kingdom
- 16:40 Test-Analysis Correlation Using Schur Vectors (ID 114)
Mircea Rades, Universitatea Politehnica Bucuresti, Romania
- 17:05 Energy residuals localization and efficiency comparison. (ID 52)
Morvan Ouisse, Jean-Louis Guyader, Institut National des Sciences Appliquées de Lyon, France
- 17:30 Identification and Updating of Large FE-Models with an Example from Automotive Industry (ID 282)
Andreas Von Mach, vMACH Engineering GmbH, Germany

Damage monitoring and identification – DMI2

Room 5 – Chairman: M. Rades

- 9:00 The Detection of Damage in Joints of Mechanical Structures (ID 193)
Branislav Titurus, Michael I. Friswell, University of Bristol, United Kingdom
- 9:25 Analysis of the fixation quality of cementless hip prostheses using a vibrational technique (ID 254)
Siegfried Jaecques, Cesar Pastrav, A. Zahariuc, Georges Van der Perre, Katholieke Universiteit Leuven, Belgium
- 9:50 Eliminating environmental effects from Lamb wave-based structural health monitoring (ID 311)
Graeme Manson, B.C. Lee, W.J. Staszewski, University of Sheffield, United Kingdom

Material characterisation based on dynamic measurements – MAT1

Room 5 – Chairman: W. Heylen

- 10:40 The uncertainty budget of Mixed-Numerical-Experimental- Techniques for the identification of elastic material properties from resonant frequencies. (ID 410)
Tom Lauwagie, Ward Heylen, Katholieke Universiteit Leuven, Belgium
Gert Roebben, Institute for Reference Materials and Measurements, Belgium
Hugo Sol, Vrije Universiteit Brussel, Belgium
Omer Van der Biest, Katholieke Universiteit Leuven, Belgium
- 11:05 Identification of Random Material Properties using a Mixed Deterministic-Probabilistic Method (ID 453)
E. Dascotte, Dynamic Design Solutions N.V., Belgium
- 11:30 Identification by a mixed numerical / experimental method of the transverse orthotropic shear moduli (ID 436)
Yinming Shi, Hugo Sol, Vrije Universiteit Brussel, Belgium
- 11:55 On a test-bed for the estimation of Hook's material parameters of plastics and porous materials for FE modeling purposes (ID 328)
Gunther Bismans, Eike Brechlin, LMS International, Belgium
Peter J. G. van der Linden, Qsources bvba, Belgium

Honorary session Prof. Bruno Piombo – HBP1

Room 5 – Chairman: P.Sas

- 13:45 40 years of modal analysis at K.U.Leuven (ID 475)
Paul Sas, Katholieke Universiteit Leuven, Belgium
- 14:10 Modal analysis of continuous systems with fractional derivative damping distributions (ID 473)
S. Sorrentino, Luigi Garibaldi, Politecnico di Torino, Italy
- 14:35 Development in Damping Technologies (ID 474)
Geoff Tomlinson, University of Sheffield, United Kingdom
- 15:00 Modal models of cracked composite beams (ID 476)
K. Wang, Dan Inman, Virginia Polytechnic Institute and State University, United States of America

Honorary session Prof. Bruno Piombo – HBP2

Room 5 – Chairman: P. Sas

- 15:50 Improving NVH performances through optimisation techniques (ID 480)
Paolo Citti, Monica Carfagni, Università degli Studi di Firenze, Italy
- 16:15 The New Paradigm of Testing in Today's Product Development Process (ID 431)
Herman Van der Auweraer, Jan Leuridan, LMS International, Belgium
- 16:40 Observations concerning modern modal parameter estimation (ID 479)
Dave Brown, Randy Allemang, University of Cincinnati, United States of America

Active vibration control and smart structures – AVC2

Room 6 – Chairman: D. Inman

- 9:00 Measuring vibrational modes of non-uniform beams with PVDF sensors using a strain-energy based orthogonality condition (ID 49)
David K. Anthony, Pedro Cobo Parra, Consejo Superior de Investigaciones Cientificas, Spain
- 9:25 Hybrid control approach for vibration isolation of narrow-band and impulsive disturbances (ID 78)

Sergiy Sokolov, Frank Palis, Otto-von-Guericke-Universität Magdeburg, Germany

9:50 Magneto sensitive material in noise and vibration engineering (ID 261)

Leif Kari, Royal Institute of Technology, Sweden

10:15 Gain-scheduling control of machine tools with varying structural flexibilities (ID 487)

Wim Symens, FMTC, Belgium

Hendrik Van Brussel, Jan Swevers, Katholieke Universiteit Leuven, Belgium

Bart Paijmans, FMTC, Belgium

Modal testing and FRF estimation – MT2

Room 6 – Chairman: L. Bregant

11:05 Test planning techniques for improved vibration measurements and model correlation (ID 90)

Luigi Bregant, Paolo Bertolo, University of Trieste, Italy

11:30 Leakage-free identification of FRF's with the discrete Time Fourier transform (ID 205)

Jérôme Antoni, Centre de Recherche de Royallieu, France

11:55 The dynamic stiffness of an air spring (ID 415)

Peter Pelz, Vibracoustic GmbH & Co. KG, Germany

Johannes Buttenbender, Ingenieurbüro Buttenbender und Heinz, Germany

Validation of aeroengine models to predict the dynamic response caused by fan blade off and subsequent windmill events - Results from CERES – CER1

Room 6 – Chairman: M. Link

13:45 Test Strategy for Component Modal Test for Model Validation (ID 454)

S. Perinpanayagam, D.J. Ewins, Imperial College London, United Kingdom

14:10 Visibility and localization of modelling errors using a constitutive equation error. (ID 455)

S. Michot, S. Cogan, University of Franche Comté, France

14:35 Computational Model Updating of Axis Symmetric Systems (ID 222)

Carsten Schedlinski, ICS, Germany

Bernard Staples, Rolls-Royce plc, United Kingdom

15:00 Identification of Non-Linear Joint Parameters by using Frequency Response Residuals (ID 457)

M. Böswald, M. Link, Universität Kassel, Germany

Validation of aeroengine models to predict the dynamic response caused by fan blade off and subsequent windmill events - Results from CERES – CER2

Room 6 – Chairman: M. Link

15:50 Non-Linearities in an Aero-Engine Structure: From Test to Design (ID 458)

S. Perinpanayagam, D. Robb, D.J. Ewins, Imperial College London, United Kingdom

J. Moreno Barragan, MTU Aero Engines GmbH, Germany

16:15 A study of amplitude jump effects in rotating systems with rubs subjected to synchronous excitation (ID 459)

R.J. Williams, Rolls-Royce plc, United Kingdom

- 16:40 Modeling the elastic-plastic behavior of a rotor support structure under a large unbalance: numerical simulations (ID 460)
Laurent Stainier, Bui Quoc Viet, Jean-Philippe Ponthot, Université de Liège, Belgium
- 17:05 Experimental Validation of elastic-plastic behaviour of a rotor support structure under a large unbalance load (ID 461)
David A. Robb, Imperial College London, United Kingdom

Transfer path analysis – TPA1

Room 7 – Chairman: P. Van de Ponsele

- 9:00 Force Identification of Mechanical Systems through LifeCycle Technique (ID 14)
Jhojan E. Rojas, Felipe, A.C. Viana, Domingos A. Rade, Valder Steffen Jr, Universidade Federal de Uberlândia, Brazil
- 9:25 A priori verification of local FE model based force identification (ID 146)
Mathieu Corus, Etienne Balmes, Ecole Centrale Paris, France
- 9:50 Quantification of dynamic forces applied by engine fuel injector by inverse methods (ID 169)
Pascal Bouvet, G. Lemaire, Vibratex, France
David Thompson, ISVR, United Kingdom
Philippe Gauch, PSA Peugeot Citroën, France
- 10:15 Comparing inverse force identification and the mount-stiffness force identification methods for noise contribution analysis. (ID 329)
Peter J. G. van der Linden, LMS International, Belgium
Harald Floetke, Opel Adam AG, Germany

Substructuring and coupling – SC1

Room 7 – Chairman: W. d'Ambrogio

- 11:05 Application of an Automated Multi-Level Substructuring method for the eigenvalues problem of a large degrees of freedom F.E. model. (ID 50)
Francesco Marulo, Luigi Martini, Felice Perna, University of Naples Federico II, Italy
- 11:30 Subsystem State-Space Model Identification and its Sensitivity to Test Variability (ID 69)
Per Kalling, Thomas Abrahamsson, T. McKelvey, Chalmers University of Technology, Sweden
- 11:55 Transmissibility in Structural Coupling (ID 96)
Mihail Fontul, Antonio Ribeiro, Nuno Maia, Julio Silva, Instituto Superior Técnico, Portugal

Substructuring and coupling – SC2

Room 7 – Chairman: W. d'Ambrogio

- 13:45 Decoupling of a substructure from modal data of the complete structure (ID 129)
Walter D'Ambrogio, Università de L'Aquila, Italy
Annalisa Fregolent, University of Rome La Sapienza, Italy
- 14:10 Comparison of component mode synthesis and FRF-based substructuring in large scale models (ID 185)
Dimitrios Giagopoulos, Christos Papalukopoulos, Sotirios Natsiavas, Aristotle University, Greece
- 14:35 GFBS METHOD : an original method for numerical computation of complex structure using FRF's substructuring (ID 354)
Eric Landel, M. Bergeron, G. de Franqueville, Renault, France

- 15:00 Component mode synthesis methods using interface mode modelling mistuned blade disks (ID 418)
Louis Ratier, EDF, France

Poster session – POS2A

Room 8

- 9:00 The use of vector control unit in minimizing vibrations of an electromechanical system (ID 242)
Pawel Bachorz, Arkadiusz Mezyk, Eugeniusz Switonski, Silesian University of Technology, Poland
- 9:00 A fuzzy control of a magnetorheological squeeze-film damper (ID 256)
C. Carmignani, P. Forte, E. Rustighi, Università di Pisa, Italy
- 9:00 Topology Optimization by the Nodal Point Interpolation in Consideration of Vibration Problems (ID 396)
Daisuke Nezu, Takuya Yoshimura, Tokyo Metropolitan University, Japan
Keizo Ishii, Quint Corporation, Japan
- 9:00 Observer-based state-feedback versus H_∞ output feedback control solved by LMI approach for applications in smart structures (ID 399)
Samuel Silva, Vicente Lopes Júnior, Edvaldo Assunção, Universidade Estadual Paulista - UNESP, Brazil
- 9:00 H_∞ Robust Design Applied to Vibration Control in Flexible Structures Containing Incorporated Piezoelectric Materials (ID 406)
Gustavo Luiz Chagas Manhães de Abreu, José Francisco Ribeiro, Valder Steffen Jr., Universidade Federal de Uberlândia, Brazil
- 9:00 Labyrinth Seal Design Modifications To Improve Its Damping Properties (ID 412)
Giuseppe Vannini, General Electric Oil & Gas Nuovo Pignone, Italy
Paola Forte, Università di Pisa, Italy
- 9:00 Torsional Vibrations of Composite Bars of Variable Thickness by BEM (ID 6)
Evangelos Sapountzakis, National Technical University of Athens, Greece
- 9:00 Application of On-line Algebraic Identification in Active Vibration Control (ID 370)
Francisco Beltran-Carbajal, Gerardo Silva-Navarro, Hebertt Sira-Ramirez, CINVESTAV-IPN, Mexico

Poster session – POS3A

Room 8

- 13:45 Null-Subspace Analysis for Structural Damage Monitoring in Fatigue Testing of Luminares (ID 107)
Aimin Yan, Jean-Claude Golinval, F. Marin, Université de Liège, Belgium
- 13:45 Investigation on riding comfort and stability analysis on vibration input for motorcycles (ID 123)
Takayuki Koizumi, Nobutaka Tsujiuchi, Amane Tanaka, Doshisha University, Japan
- 13:45 First Experiences in Predicting the Vibroacoustic Levels of a Surface Rail Transport (ID 135)
Sergio De Rosa, Francesco Franco, University of Naples Federico II, Italy
Antonio Lagreca, AnsaldoBreda S.p.A., Italy
Marco Leone, University of Naples Federico II, Italy
- 13:45 Overview of modal model based damage detection methods (ID 180)

- Tadeusz Uhl, Krzysztof Mendrok, AGH - University of Science and Technology, Poland*
13:45 A camshaft non-linear model for the desmodromic valve train simulation (ID 183)
Alessandro Rivola, Andrea Carlini, DIEM - University of Bologna, Italy
- 13:45 Damage Identification in Composite Plates by Dynamic Displacement Measurements (ID 199)
Giuliano Coppotelli, Roberto Di Conza, Franco Mastroddi, University of Rome La Sapienza, Italy
Rodrigo Pascual, Universidad de Chile, Chile
M.A. Caponero, Ente Nazionale Energie Alternative, Italy
- 13:45 Reflection of flexural waves from cracks in beams (ID 206)
Simon Shone, Brian Mace, Tim Waters, University of Southampton, United Kingdom
- 13:45 The structural response of a three plate assembly by scaled Finite Element Method (ID 336)
Luigi Martini, Sergio De Rosa, Francesco Franco, University of Naples Federico II, Italy
- 13:45 Micro-scale dynamics of a linear motion guide having rolling elements (ID 67)
Yong Yi, Yoon Young Kim, Seoul National University, Korea, Republic of
Jeong hoon Yoo, Yonsei University, Korea, Republic of
Sung Jin Lee, Samsung Electronics, Korea, Republic of
Jae Suk Choi, Yonsei University, Korea, Republic of
Suk Won Lee, Dong-Jin Lee, Samsung Electronics, Korea, Republic of
- 13:45 Mechanical vibrations of cam mechanisms driven by asynchronous motors: a mathematical model for dynamic analysis (ID 68)
Giovanni Incerti, University of Brescia, Italy

Poster session – POS2B

Room 9

- 9:00 Structural Modification Procedure with Mode Shape Expansion for Rib Stiffener Locations (ID 93)
Fumiyasu Kuratani, Tetsuo Shimada, Wakayama University, Japan
Tadao Yamano, Takenori Ogawa, Hyogo University of Teacher Education, Japan
Saiji Washio, Cybernet Systems Co.,Ltd., Japan
- 9:00 Updating of FE Models for Forced Response Analysis of Mistuned Bladed Discs in Wide Frequency Ranges (ID 139)
Gan Chen, Evgeny Petrov, David Ewins, Imperial College London, United Kingdom
- 9:00 Finite Element Model Updating by Using "Output-Only" Experimental Data (ID 154)
Luigi Balis Crema, Giuliano Coppotelli, Marcello Rimondi, University of Rome La Sapienza, Italy
- 9:00 FE / Test correlation and validation of a BIW modal analysis (ID 198)
Beatriz Cesteros Morante, Antonio Hidalgo Otamendi, Miguel Angel Morcillo Lopez, Cidaut, Spain
Alberto Ortega Martinez, Carlos Selgas Caceres, Grupo Antolin, Spain
- 9:00 Finite element model updating taking into account the uncertainty on the modal parameters estimates (ID 359)
Gunther Steenackers, Patrick Guillaume, Vrije Universiteit Brussel, Belgium
- 9:00 Sensitivity Analysis for Structural Optimization Using Eigenvalue and Eigenvector of Component Stiffness Matrix (ID 259)
Kohei Furuya, Takuya Yoshimura, Tokyo Metropolitan University, Japan
Akira Suto, Koji Saito, Honda R&D Co., Ltd., Japan
- 9:00 Connectivity Constrained Reference Basis Model Updating (ID 28)

Yoram Halevi, P.A. Tarazaga, D.J. Inman, Virginia Polytechnic Institute and State University, United States of America

9:00 Finite Element Model Updating in a Vehicle Chassis Frame (ID 391)

Hamed Khodaparast Hadad, A. Ramezani, SAIPA Automotive Industries Research & Innovation Center, Iran (Islamic Republic of)

A.R. Ohadi, University of Science and Technology, Iran (Islamic Republic of)

M.H. Kargarnovin, Sharif University of Technology, Iran (Islamic Republic of)

Poster session – POS3B

Room 9

13:45 Recovery of the ARMA model parameters from the vibration response of a finite length elastic cylinder using neural networks (ID 189)

Erick Ogam, Armand Wirgin, CNRS, France

13:45 Bearing defect diagnosis in rotating machines based on Blind Source Separation (ID 352)

Noureddine Bouguerriou, Michel Haritopoulos, Cécile Capdessus, Lévi Allam, IUT de Chartres, France

13:45 Active detection of faults in rotating structures (ID 35)

Izhak Bucher, Ofer Shomer, Technion, Israel

13:45 A new balancing procedure for flexible rotors based on modified QR and SVD techniques with least square optimization (ID 47)

Giuma Hanish, P.S. Leung, P.K. Datta, Northumbria University, United Kingdom

13:45 Modelling the relationship between human perception and Sound Quality parameters using LS-SVMs (ID 486)

Tom Coen, Noël Jans, Katholieke Universiteit Leuven, Belgium

Patrick Van de Ponsele, LMS International, Belgium

Ivan Goethals, Josse De Baerdemaeker, Bart De Moor, Katholieke Universiteit Leuven, Belgium

13:45 Experimental modal analysis using camera displacement measurements (ID 483)

Bart Peeters, LMS International, Belgium

Luc Wens, Krypton, Belgium

13:45 A vibration model for the parallel misalignment of rotating shafts connected by a flexible coupling (ID 482)

Irvin Redmond, Khaleel Al-Hussain, Saudi Arabian Oil Company, Saudi Arabia

13:45 Fault Detection and Identification for Wind Turbine Systems: A Closed-Loop Analysis (ID 41)

Stijn Donders, LMS International, Belgium

Vincent Verdult, Michel Verhaegen, DCSC, TU Delft, Netherlands

Non-linearities: identification and modelling – NL2

Room 1 – Chairman: K. Worden

- 9:00 Handling of Non-Linear Structural Characteristics in Ground Vibration Testing (ID 464)
Gerrit Gloth, D. Goege, German Aerospace Center DLR, Germany
- 9:25 Quantification of Aircraft Non-Linearities from Flight Flutter Test Data (ID 262)
Guilherme Bennini, Jonathan Cooper, Jan Wright, University of Manchester, United Kingdom
- 9:50 Identification of Backlash in Mechanical Systems (ID 214)
Tegoeh Tjahjowidodo, Farid Al-Bender, Hendrik Van Brussel, Katholieke Universiteit Leuven, Belgium

Material characterisation based on dynamic measurements – MAT2

Room 1 – Chairman: W. Heylen

- 10:40 Validation of a vibration based identification procedure for layered materials. (ID 344)
Tom Lauwagie, Ward Heylen, Katholieke Universiteit Leuven, Belgium
Hugo Sol, Vrije Universiteit Brussel, Belgium
Omer Van der Biest, Katholieke Universiteit Leuven, Belgium
- 11:05 Identification of stiffness and damping material properties from forced vibrating plates (ID 37)
Alain Giraudeau, B. Guo, F. Pierron, Ecole Nationale Supérieure d'Arts et Métiers, France
- 11:30 Honeycomb Elastic Properties: A Review of some Existing Theories and a New Dynamic Approach (ID 75)
Christoph Schwingshackl, P.R. Cunningham, G.S. Aglietti, University of Southampton, United Kingdom

Engines, gearbox and driveline dynamics – ENG1

Room 1 – Chairman: R. Boonen

- 13:45 Cylinder pressure reconstruction from vibration and speed measurements on IC engines (ID 184)
Roger Johnsson, Anders Ågren, Lulea University of Technology, Sweden
- 14:10 Dynamics of gear meshing: stiffness evaluation and vibration (ID 162)
Giorgio Bonori, Angelo Oreste Andrisano, Francesco Pellicano, Università di Modena e Reggio Emilia, Italy
- 14:35 Chain Noise Excitation in Combustion Engines - Numerical Simulation and Verification of Different Chain Types (ID 279)
T. Schaffner, Christian Doppler Laboratory for Engine and Vehicle Acoustics, Austria
M. Sopouch, Techn. University Graz, Austria
H.H. Pribsch, AVL List GmbH, Austria
- 15:00 Modelling meshing phenomena in gear pumps (ID 404)
Giorgio Dalpiaz, University of Ferrara, Italy
Alfonso Fernández del Rincón, University of Cantabria, Spain
Emiliano Mucchi, University of Ferrara, Italy

Variability – VAR1

Room 2 – Chairman: D. Moens

- 9:00 Random uncertainties modelling for vibroacoustic frequency response functions of cars (ID 164)

Jean-François Durand, Laurent Gagliardini, PSA Peugeot Citroën, France
Christian Soize, Université de Marne-la-Vallée, France

- 9:25 Response Statistics of Stochastic Built-up Structures (ID 192)

Esther Hills, Brian Mace, Neil Ferguson, University of Southampton, United Kingdom

- 9:50 Uncertainty identification and robust design (ID 395)

Jose Fonseca, Univeristy of Wales Swansea, United Kingdom
Michael Friswell, University of Bristol, United Kingdom
Arthur Lees, University of Wales Swansea, United Kingdom
John Mottershead, University of Liverpool, United Kingdom

Variability – VAR2

Room 2 – Chairman: D. Moens

- 10:40 A Gaussian and non-Gaussian stochastic linear model of a submerged cable forced by random load (ID 234)

Antonio Culla, University of Rome La Sapienza, Italy

- 11:05 Identification of response surface models using genetic programming (ID 321)

T.L. Lew, A.B. Spencer, F. Scarpa, K. Worden, University of Sheffield, United Kingdom
A. Rutherford, F. Hemez, Los Alamos National Laboratory, United States of America

- 11:30 Application of the stochastic finite element method for Gaussian and non-Gaussian systems (ID 409)

Mattias Schevenels, Geert Lombaert, Geert Degrande, Katholieke Universiteit Leuven, Belgium

- 11:55 Distribution of natural frequencies of linear stochastic systems (ID 367)

Jamie Severn, Stewart McWilliam, Colin Fox, University of Nottingham, United Kingdom

Joints – JOI1

Room 2 – Chairman: J. Arruda

- 13:45 Experimental Study and Analytical Modelling of a Bolted Joint Subjected to Harmonic Excitation (ID 104)

Matthew Oldfield, Huajiang Ouyang, John Mottershead, University of Liverpool, United Kingdom

- 14:10 Constrained Generic Substructure Transformations (ID 190)

Michael Terrell, Michael Friswell, Nick Lieven, University of Bristol, United Kingdom

- 14:35 An improved model for dissipation in welding spot joints (ID 250)

Zouhir Abbadi, PSA Peugeot Citroën, France
Denis Aubry, Ecole Centrale de Paris, France
Sylvain Germès, PSA Peugeot Citroën, France
Louis Jezequel, Ecole Centrale de Lyon, France
François van Herpe, PSA Peugeot Citroën, France

- 15:00 Dynamic modeling of car door weather seals: A first outline (ID 389)

Andrea Stenti, David Moens, Wim Desmet, Katholieke Universiteit Leuven, Belgium

- 15:25 Identification of nonlinear interface models (ID 429)

Hamid Ahmadian, H. Jalali, Iran University of Science & Technology, Iran (Islamic Republic of)

Parameter estimation – PE1

Room 3 – Chairman: J. Schoukens

- 9:00 The Unified Matrix Polynomial Approach to Understanding Modal Parameter Estimation: An Update (ID 363)
Randall Allemang, Allyn Phillips, University of Cincinnati, United States of America
- 9:50 Non-stationary random vibration modelling and analysis via Functional Series TARMAX models (ID 291)
A.G. Poulimenos, Spilios Fassois, University of Patras, Greece
- 10:15 Application of a Multivariable Input-Output Subspace Identification Technique in Structural Analysis (ID 353)
Paulo Kurka, UNICAMP, Brazil
Heraldo Cambraia, Universidade Federal do Paraná, Brazil

Parameter estimation – PE2

Room 3 – Chairman: J. Schoukens

- 11:05 A Low Order Implementation of the Polyreference Least Squares Complex Frequency (LSCF) Algorithm (ID 361)
Allyn Phillips, Randall Allemang, University of Cincinnati, United States of America
- 11:30 Evaluation of Rigid Body Properties from Frequency Response Data (ID 98)
Raquel Almeida, Antonio Urgueira, New University of Lisbon, Portugal
Nuno Maia, Instituto Superior Técnico, Portugal

Wind turbine dynamics – WT1

Room 3 – Chairman: D. Vandepitte

- 13:45 Flexible multibody model of a three-stage planetary gearbox in a wind turbine (ID 325)
Joris Peeters, Dirk Vandepitte, Paul Sas, Katholieke Universiteit Leuven, Belgium
- 14:10 Multibody-system-simulation of drive trains in wind turbines (ID 290)
Berthold Schlecht, Tobias Schulze, Thomas Hähnel, Technische Universität Dresden, Germany
- 14:35 Condition monitoring for lowering maintenance costs of offshore wind turbines (ID 402)
Luc Rademakers, T.W. Verbruggen, Henk Braam, ECN, Netherlands
- 15:00 Interaction between electrical grid phenomena and the wind turbine's behaviour (ID 341)
Joris Soens, Johan Driesen, Ronnie Belmans, Katholieke Universiteit Leuven, Belgium

Vehicle noise and vibration – NVH4

Room 4 – Chairman: N. Okubo

- 9:00 Experimental road-noise analysis and acoustic cavity characterization of a series-hybrid electric passenger bus (ID 133)
Marco Scionti, Università degli Studi di Catania, Italy
Antonio Vecchio, LMS International, Belgium
Gabriele Fichera, Francesco Petrone, Università degli Studi di Catania, Italy
- 9:25 On the prediction of the dynamic stiffness of hydrobushings (ID 347)
Nere Gil-Negrete, Jordi Viñolas, CEIT, Spain
Alejandro Rivas, TECNUN, Spain
- 9:50 Multi-Tachometer Order Tracking and Operating Shape Extraction (ID 419)
Jason Blough, Michigan Technological University, United States of America

- 10:15 Simulation of Engine Vibration during Idling for Optimization of Mounting (ID 122)
Takayuki Koizumi, Doshisha University, Japan
Toshiyuki Shibayama, TASK Inc., Japan
Taichi Yoshida, Nobutaka Tsujiuchi, Doshisha University, Japan

Active noise control – ANC1

Room 4 – Chairman: R. Boonen

- 11:05 Active structural acoustic control of impact noise (ID 423)
Gregory Pinte, R. Boonen, W. Desmet, P. Sas, Katholieke Universiteit Leuven, Belgium
- 11:30 Placement of piezoelectric laminate actuator for active structural acoustic control (ID 280)
M. Brasseur, LTAS - Vibrations et Identification des Structures, Belgium
P. De Boe, CAT - Wind Tunnel, Belgium
J.-C. Golinval, LTAS - Vibrations et Identification des Structures, Belgium
P. Tamaz, Sound and Image Techniques, Belgium
P. Caule, Université de Liège, Belgium
J.-J. Embrechts, Sound and Image Techniques, Belgium
J. Nemerlin, Université de Liège, Belgium

Signal processing and instrumentation – SP1

Room 4 – Chairman: D. Brown

- 13:45 Efficient Computation of Spectral Moments for Determination of Random Response Statistics (ID 84)
Karl Sweitzer, Kodak, United States of America
Neil Bishop, Random Loading Design, Ltd, United Kingdom
Victor Genberg, Sigmadyne, United States of America
- 14:10 The use of Volume Velocity Source in Transfer Measurements (ID 241)
Svend Gade, Nis Møller, Jørgen Hald, L. Alkestrup, Brüel & Kjær Sound & Vibration A/S, Denmark
- 14:35 A practical device to determine in-situ the reflection coefficient of acoustic materials in-situ based on a microflown and microphone sensor (ID 177)
R. Lanoye, Katholieke Universiteit Leuven, Belgium
H.-E. Bree, Microflown Technologies, Netherlands
W. Lauriks, G. Vermeir, Katholieke Universiteit Leuven, Belgium
- 15:00 Modeling Limit Cycle Oscillation using Adaptive Signal Processing: A Hybrid Physical Model (ID 115)
Michael Johnson, USAF, United States of America
Jose Principe, University of Florida, United States of America

Active suspensions – AS1

Room 5 – Chairman: J. Swevers

- 9:00 Skyhook control and performance evaluation of an active suspension system on a quarter car test rig. (ID 179)
Bert Vandersmissen, P. Kennes, M. Maes, K. Reybrouck, Tenneco Automotive, Belgium
- 9:25 Model free control design for a semi-active suspension of a passenger car (ID 357)

Christophe Lauwerys, Jan Swevers, Paul Sas, Katholieke Universiteit Leuven, Belgium

9:50 Active Suspension Systems for Road Vehicles - A Review (ID 414)

A.M.A. Soliman, Minia University, Egypt

Human vibrations – HUM1

Room 5 – Chairman: J. Anthonis

10:40 Analysis and modeling of ride comfort on biaxial vibration in a standing posture (ID 172)

Takayuki Koizumi, Nobutaka Tsujiuchi, Noriaki Majima, Masahiro Okamura, Doshisha University, Japan

11:05 Modelling and design of a pneumatic suspension for seats and cabins of mobile agricultural machines (ID 232)

Koen Deprez, Ivo Hostens, Herman Ramon, Katholieke Universiteit Leuven, Belgium

Transfer path analysis – TPA2

Room 5 – Chairman: K. Wyckaert

13:45 In-vehicle measurement of the multidirectional dynamic stiffness of engine mounts (ID 327)

Peter J. G. van der Linden, Renaud De Voghel, LMS International, Belgium

Torsten Schomburg, DaimlerChrysler AG, Germany

14:10 Source/Path Contribution Analysis of Automotive Airborne Sources (ID 240)

Mehdi Batel, Jørgen Hald, Brüel & Kjær Sound & Vibration A/S, Denmark

14:35 Application of indirect measurement techniques to an operating Diesel engine (ID 81)

Quentin Leclere, Bernard Laulagnet, Charles Pezerat, INSA, France

Laurent Polac, Renault, France

15:00 Comparison of Laser Measurements and Inverse Boundary Element Method (ID 80)

Niels-Jørgen Jacobsen, Jakob Mørkholt, Andreas Schuhmacher, Brüel & Kjær Sound & Vibration A/S, Denmark

Durability testing – DT1

Room 6 – Chairman: C. Liefoghe

9:00 Prediction of mechanical fatigue caused by multiple random excitations (ID 55)

Martijn Bonte, University of Twente, Netherlands

Rene Liebrechts, DAF Trucks N.V., Netherlands

Andre de Boer, University of Twente, Netherlands

9:25 Increasing the Accuracy of MDOF Road Reproduction Experiments: Calibration, Tuning and a Modified TWR Approach (ID 424)

Filip De Coninck, Wim Desmet, Paul Sas, Katholieke Universiteit Leuven, Belgium

9:50 Identification, accurate time-stamping and interpretation of damaging events in a life cycle with an inverse method (ID 91)

Nicolas Paillé, Laurent Vivet, RMS, France

Dynamic behavior of civil structures – DCS1

Room 6 – Chairman: G. Degrande

10:40 Modelling and measuring dynamic crowd loading on a long span footbridge (ID 298)

James Brownjohn, University of Plymouth, United Kingdom

Aleksandar Pavic, University of Sheffield, United Kingdom

Piotr Omenzetter, University of Auckland, New Zealand

11:05 Wind induced vibrations of thin-walled cylindrical structures (ID 360)

David Dooms, Geert Degrande, Guido De Roeck, Edwin Reynders, Katholieke Universiteit Leuven, Belgium

11:30 The effects of crowd occupation on the dynamic performance of a grandstand (ID 225)

Zainah Ibrahim, Paul Reynolds, Aleksandar Pavic, University of Sheffield, United Kingdom

11:55 Vertical dynamic loading produced by people moving to a beat (ID 284)

J.G. Parkhouse, D.J. Ewins, University of Surrey, United Kingdom

Poster session – POS4A

Room 8

9:00 Non-Linear In-Plane Vibrations of Coriolis Based Gyroscope (ID 210)

Guillaume Serandour, Colin Fox, Stewart McWilliam, University of Nottingham, United Kingdom

9:00 Time domain analysis of the nonlinear transient response of simple structures to shock excitation (ID 218)

Mirko Schaedlich, Neil Ferguson, University of Southampton, United Kingdom

9:00 On the solution of the aeroelastic galloping problem (ID 247)

Gareth Vio, G. Dimitriadis, J.E. Cooper, University of Manchester, United Kingdom

9:00 Numerical and experimental analysis on the dynamic behavior of guitar soundboards: cut away influence (ID 92)

Jorge Segura Alcaraz, Ernesto Julia Sanchis, Salvador Ivorra Chorro, Universidad Politécnic de Valencia, Spain

9:00 Vibration Control Using an Impact Damper System with Rotating Impactor (ID 175)

Taichi Sato, Shunsuke Nakamura, Kei Terui, Tokyo Denki University, Japan

Kihachiro Tanaka, Saitama University, Japan

9:00 Numerical implementation of admittance operators and application to the scattering by rigid or elastic bodies (ID 385)

André Berthon, Admittance, France

9:00 Assessment of Vibration Dampers Efficiency Based on Vibration and Acoustic Measurements (ID 51)

Alena Bilosová, Jan Ondrouch, Jiří Kanák, VSB -Technical University of Ostrava, Czech Republic

9:00 Vibratory characteristics of ground surface due to moving train in a tunnel (ID 53)

Zdzislaw Hryniewicz, Technical University of Koszalin, Poland

9:00 Vibro-acoustic Behaviour of a System Composed of a Fluid Cavity Enclosed by Two Sandwich Plates (ID 23)

Sofiene Fenina, Moez Abdennadher, Lotfi Hammami, Mohamed Haddar, National school of engineers of Sfax, Tunisia

9:00 Temporal approach for acoustical radiation of an impacted plate. (ID 377)

Abdelhamid Miloudi, Mahmoud Neder, Université des Sciences et de la Technologie Houari Boumediene, Algeria

Nacer Hamzaoui, Jean Louis Guyader, Institut National des Sciences Appliquées de Lyon, France

9:00 Parametric study on determining factors for traffic induced vibrations in buildings (ID 349)

Stijn Francois, Lincy Pyl, H.R. Masoumi, G. Degrande, Katholieke Universiteit Leuven, Belgium

| room 1 | room 2 | room 3 | room 4 | room 5 | room 6 | room 7 | room 8 | room 9 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| AVC1 | VAA1 | MHF1 | NVH1 | NL1 | MU1 | DMNM1 | POS1A | POS1B |
| VCON1 | FLI1 | TRAF1 | VAM1 | DMI1 | AA1 | RM1 | | |

| room 1 | room 2 | room 3 | room 4 | room 5 | room 6 | room 7 | room 8 | room 9 |
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| MT1 | UNC1 | MHF2 | VAM2 | DMI2 | AVC2 | TPA1 | POS2A | POS2B |
| D1 | UNC2 | MB1 | NVH2 | MAT1 | MT2 | SC1 | | |

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|------|------|------|------|------|------|-----|-------|-------|
| OPT1 | UNC3 | MHF3 | NVH3 | HBP1 | CER1 | SC2 | POS3A | POS3B |
| OPT2 | VAM3 | OMA1 | MU2 | HBP2 | CER2 | | | |

| room 1 | room 2 | room 3 | room 4 | room 5 | room 6 | room 7 | room 8 | room 9 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| NL2 | VAR1 | PE1 | NVH4 | AS1 | DT1 | | POS4A | |
| MAT2 | VAR2 | PE2 | ANC1 | HUM1 | DCS1 | | | |

| | | | | |
|------|------|-----|-----|------|
| ENG1 | JOI1 | WT1 | SP1 | TPA2 |
|------|------|-----|-----|------|

| | |
|-------------|---|
| ANC | Active noise control |
| AS | Active suspensions |
| AVC | Active vibration control and smart structures |
| AA | Aeroacoustics and flow noise |
| DMI | Damage monitoring and identification |
| D | Damping |
| DT | Durability testing |
| DCS | Dynamic behavior of civil structures |
| DMNM | Dynamic modelling and numerical methods |
| ENG | Engines, gearbox and driveline dynamics |
| FLI | Flite Eureka project |
| HUM | Human vibrations |
| JOI | Joints |
| MAT | Material characterisation based on dynamic measurements |
| MHF | Medium and high frequency techniques |
| MT | Modal testing and FRF estimation |
| MU | Modal updating and correlation |
| MB | Multi-body dynamics and control |
| NL | Non-linearities: identification and modelling |
| OMA | Operational modal analysis |
| OPT | Optical measurement techniques OPTIMESS |
| PE | Parameter estimation |
| RM | Rotating machinery |
| SP | Signal processing and instrumentation |
| SC | Substructuring and coupling |
| TRAF | Traffic induced vibrations |
| TPA | Transfer path analysis |
| UNC | Uncertainties in structural dynamics and acoustics |
| CER | Validation of aeroengine models to predict the dynamic response caused by fan blade off and subsequent windmill events - Results from CERES |
| VAR | Variability |
| NVH | Vehicle noise and vibration |
| VCON | Vibration control and isolation |
| VAA | Vibro-acoustic analysis |
| VAM | Vibro-acoustic modelling and prediction |
| WT | Wind turbine dynamics |