

KATHOLIEKE UNIVERSITEIT
LEUVEN



Katholieke Universiteit Leuven
Department of Mechanical Engineering
Celestijnenlaan 300B
B-3001 Heverlee (Belgium)

Proceedings of **ISMA2002**

International Conference on **Noise and Vibration Engineering**



September 16-18, 2002

Editors: P. Sas, B. van Hal

Katholieke Universiteit Leuven - Departement Werktuigkunde
Celestijnenlaan 300B, B-3001 Heverlee (Belgium)

Alle rechten voorbehouden. Niets uit deze uitgave mag worden vemenigvuldigd en/of openbaar gemaakt worden door middel van druk, fotocopie, microfilm, elektronisch of op welke andere wijze ook zonder voorafgaandelijke schriftelijke toestemming van de uitgever.

All rights reserved. No part of the publication may be reproduced in any form by print, photoprint, microfilm or any other means without written permission from the publisher.

D/2002/7569/1
ISBN 90-73802-79-2

Table of Contents

Keynotes

Session KEY

Large scale experiments for vibration control and vulnerability assessment of bridges at the ELSA laboratory [abstract](#)

Gérardin M., *ELSA, Italy*

Progress in automotive NVH field [abstract](#)

Réveillé J.-M., *Renault, France*

List of tutorial papers

COST Action F3 on structural dynamics: benchmarks for structural health monitoring [abstract](#)

Worden K., *University of Sheffield, UK*

Molina F.J., *European Commission, Italy*

Pascual R., Golinval J.-C., *Université de Liège, Belgium*

Maeck J., De Roeck G., *Katholieke Universiteit Leuven, Belgium*

in Session [DMI](#)

Past, present and future passive material damping technologies - a brief overview [abstract](#)

Tomlinson G., *University of Sheffield, UK*

in Session [D](#)

Guide for potential users of SEA [abstract](#)

Fahy F., *University of Southampton, ISVR, UK*

in Session [MHT/SEA](#)

Mid-frequency vibro-acoustic modelling: challenges and potential solutions [abstract](#)

Desmet W., *Katholieke Universiteit Leuven, Belgium*

in Session [MHT/SEA](#)

Generation of validated structural dynamic models - Results of a Benchmark study utilising the GARTEUR SM-AG19 testbed [abstract](#)

Link M., *University of Kassel, germany*

Friswell M., *University of Wales Swansea, UK*

in Session [MUC](#)

European COST Action F3 on structural dynamics. Working Group 3: Identification of Non-linear Systems. Activities and results [abstract](#)

Golinval J.-C., Kerschen G., Lenaerts V., *Université de Liège, Belgium*

Thouverez F., *Ecole Centrale de Lyon, France*

Argoul P., *ENPC, France*

in Session [NL](#)

Subspace system identification for mechanical engineering [abstract](#)

De Cock K., De Moor B., *Katholieke Universiteit Leuven, Belgium*

Peeters B., Vecchio A., Van der Auweraer H., *LMS International, Belgium*

in Session [PE](#)

State of the art in monitoring of rotating machinery [abstract](#)
Randall B., *University of New South Wales, Australia*
in Session [RMM](#)

Requirements and opportunities for structural testing in view of hybrid and virtual modelling [abstract](#)
Van der Auweraer H., *LMS International, Belgium*
in Session [SC](#)

Module target setting and substructuring for vehicle NVH development [abstract](#)
Van der Linden P., Wyckaert K., *LMS International, Belgium*
in Session [NVH](#)

Active noise control

Session ANC

Active noise control in agricultural machines [abstract](#)
Gulyas K., Pinte G., Desmet W., Sas P., *Katholieke Universiteit Leuven, Belgium*
Augusztinovicz F., *Budapest University of Technology and Economics, Hungary*

Finite element based computation of low-order parametric design models for \mathcal{H}_∞ -Control of sound transmission through a plate into a cavity [abstract](#)
Deuble F., Hofmann C., Kröplin B., *University of Stuttgart, Germany*

Design of an active exhaust attenuating valve for internal combustion engines [abstract](#)
Boonen R., Sas P., *Katholieke Universiteit Leuven, Belgium*

Smart panels for active structural acoustic control [abstract](#)
Gardonio P., Elliot S., *University of Southampton, ISVR, UK*

Active suspensions

Session AS

Linear control of car suspension using nonlinear actuator control [abstract](#)
Lauwerys C., Swevers J., Sas P., *Katholieke Universiteit Leuven, Belgium*

Vehicle suspension characterisation by using road simulation on a 4 poster test rig [abstract](#)
Vanhees G., Maes M., *Tenneco-Automotive, Monroe European Technical Center, Belgium*

Semi-active control using MR fluids [abstract](#)
Carlson D., *Lord Corporation, USA*

A soft-actuator active hexapod for the purpose of vibration isolation [abstract](#)
Abu Hanieh A., Horodincea M., Preumont A., *Université Libre de Bruxelles, Belgium*

Application of smart control suspension system based on soft computing to a passenger car [abstract](#)
Hagiwara T., *Yamaha Motor Co. Ltd, Japan*
Panfilov S., Ulyanov S., Takahashi K., *Yamaha Motor Europe N.V. R&D Office, Italy*
Diamante O., *STMicroelectronics Srl, Italy*

Active vibration control and smart structures

Session AVC

Tracking control of flexible rods [abstract](#)
Halevi Y., *Technion - Israel Institute of Technology, Israel*

Robust controller synthesis vs. integral force feedback with collocation for active damping of flexible structures	abstract
Ehmann C., Schönhoff U., Nordmann R., <i>Darmstadt University of Technology, Germany</i>	
Optimal controller design in smart structures	abstract
Abreu G., Ribeiro J., <i>Federal University of Uberlândia, Brazil</i>	
The development of a vibration absorbing isolator	abstract
Du Plooy N., Heyns P., <i>University of Pretoria, South Africa</i>	
Numerical and experimental evaluation of an active dynamic vibration absorber	abstract
Cunha Jr. S., Rade D., <i>Federal University of Uberlândia, Brazil</i>	
Failure effects on shunted piezo devices	abstract
Agneni A., Balis Crema L., Schirone L., <i>Università di Roma "La Sapienza", Italy</i>	
Vibration damping with piezoelectric actuator system	abstract
Palis F., Heller D., Sokolev S., <i>Otto-von-Guericke-Universität Magdeburg, Germany</i>	
Analytical and FEM-investigations with experimental validation of a PZT-actuated vibrating beam and its sound radiation	abstract
Nguyen C., Pietrzko S., <i>Swiss Federal Laboratories for Material Testing and Research (EMPA), Switzerland</i>	
Dynamics of rotating piezoelectric fiber composite beams	abstract
Brockmann T., Lammering R., <i>University of the Federal Armed Forces Hamburg, Germany</i>	
Spatial filtering with piezo film sensors	abstract
François A., De Man P., Piefort V., Preumont A., <i>Université Libre de Bruxelles, Belgium</i>	
A CFRP plate with piezo-electric actuators and sensors as self-diagnosing intelligent structure	abstract
Fritzen C.-P., Mengelkamp G., <i>University of Siegen, Germany</i> Guemes A., <i>Politechnical University of Madrid, Spain</i>	
Bounded output feedback systems for mechanical vibration control	abstract
Luyckx L., Loccufer M., Noldus E., <i>Universiteit Gent, Belgium</i>	
MIMO H_2 optimal feedback controller estimation for a vibrating plate using subspace model identification	abstract
Fraanje R., Verhaegen M., <i>University of Twente, The Netherlands</i> Doelman N., Berkhoff A., <i>TNO Institute of Applied Physics, The Netherlands</i>	
A design methodology of intelligent hybrid controllers applied to the active vibrations control of cantilever beam	abstract
Teixeira R., Ribeiro J., <i>Federal University of Uberlândia, Brazil</i>	
H_2 and H_∞ - norm control of intelligent structures using LMI techniques	abstract
Gonçalves P., Lopes Jr. V., Assunção E., <i>State University of São Paulo, Brazil</i>	

Aeroacoustics and flow noise vibrations

Session AA

Lighthill approach applied to industrial problems	abstract
El Hachemi Z., Dequand S., Hallez R., Piccirillo M., Tournour M., <i>LMS international, Belgium</i> Montavon C., Jones I., <i>AEA Technology, CFX International, UK</i> Tremblay F., <i>TUM, Germany</i>	

- Aeroacoustic computation of an open cavity flow using a coupled LES/LEE approach** [abstract](#)
Wang Z.-K. , Tilford T., Djambazov G., Lai C.-H., Pericleous K., *University of Greenwich, UK*
- Blast wave at ignition of the rocket engines** [abstract](#)
Varnier J., *ONERA, France*
- Simplified models of flue instruments: effect of acoustics and mouth geometry** [abstract](#)
Dequand S., *LMS International, Belgium*
Willems J., Leroux M., Vullings R., Van Weert M., Thieulot C., Hirschberg A., *Eindhoven University of Technology, The Netherlands*
- Sound produced by vortex pairing in a forced subsonic axisymmetric jet using particle image velocimetry and vortex sound theory** [abstract](#)
Schram C., Romera G., Riethmuller M., *von Karman Institute for Fluid Dynamics, Belgium*
Hirschberg A., *Eindhoven University of Technology, The Netherlands*
- Analysing sound wave propagation in fluid-filled viscoelastic pipes using wavelet transform** [abstract](#)
Prek M., *University Ljubljana, Slovenia*
- Investigation of interactions between flexible labyrinth-seal structures and instationary pressure-field in compressible flow** [abstract](#)
Schuck G., Nordmann R., *Darmstadt University of Technology, Germany*
- Experimental investigation of aeolian tone generated from swept flat plate** [abstract](#)
Hayashi H., Sasaki S., Kodama Y., Fukano T., *Nagasaki University, Japan*
- The influence of safety grating in the noise of cross flow fan** [abstract](#)
Chou Y., Jeng M., Tsan F., *Industrial Technology Research Institute, Taiwan*
- Flow-induced vibration of a Y-shaped tube conveying fluid** [abstract](#)
Al-Maaaitah A., *Mutah University, Jordan*
Kardsheh K., *Jordan University for Science and Technology, Jordan*

Damage monitoring and identification

Session DMI

- Sensor validation for smart structures under general fault conditions** [abstract](#)
Abdelghani M., Friswell M., *University of Wales Swansea, UK*
- Modelling of acousto-ultrasonic wave interaction with defects in metallic structures** [abstract](#)
Staszewski W., Lee B., *University of Sheffield, UK*
- Subspace angles for fault detection** [abstract](#)
De Cock K., De Moor B., *Katholieke Universiteit Leuven, Belgium*
- COST Action F3 on structural dynamics: benchmarks for structural health monitoring**¹ [abstract](#)
Worden K., *University of Sheffield, UK*
Molina F.J., *European Commission, Italy*
Pascual R., Golinval J.-C., *Université de Liège, Belgium*
Maeck J., De Roeck G., *Katholieke Universiteit Leuven, Belgium*
- Nonlinear arx (NARX) based identification and fault detection in a 2 DOF system with cubic stiffness** [abstract](#)
Sakellariou J., Fassois S., *University of Patras, Greece*

¹Tutorial paper

Vibrations of steel-concrete composite beams with damaged connection [abstract](#)
Morassi A., *University of Udine, Italy*

Changes in modal parameters during fatigue tests of turbine blades [abstract](#)
Bilošová A., Ondrouch J., Biloš J., *Technical University of Ostrava, Czech Republic*

Damping Session D

Past, present and future passive material damping technologies - a brief overview ¹ [abstract](#)
Tomlinson G., *University of Sheffield, UK*

Model of rubber deformation [abstract](#)
Saad P., Thouverez F., Laîné JP., Jézéquel L., *Ecole Centrale de Lyon, France*

Damping degradation associated with discontinuous coatings and possible solutions [abstract](#)
House J., *QinetiQ, UK*

A new adaptive squeeze film damper : a feasibility study [abstract](#)
Rodrigues F., Thouverez F., Jézéquel L., *Ecole Centrale de Lyon, France*

Improving the MSE method through a weighted damping IRS technique [abstract](#)
Scarpa F., Landi F., Rongong J., Tomlinson G., *University of Sheffield, UK*

Shunting macro-fiber composite actuator for structural damping [abstract](#)
Adachi K., *Kobe University, Japan*
Park G., Inman D., *Virginia Polytechnic Institute and State University, USA*

Models of friction damping with variable normal load for time-domain analysis of vibrations [abstract](#)
Petrov E., Ewins D., *Imperial College of Science, Technology and Medicine, UK*

Vibration damping using granular viscoelastic materials [abstract](#)
Rongong J., Tomlinson G., *University of Sheffield, UK*

Optimal design of damping material distribution in dynamically excited panels [abstract](#)
Bandini M., Governi L., Pierini M., *Università di Firenze, Italy*

The use of a non-contact acoustic excitation array for the estimation of damping in aircraft panels [abstract](#)
Platten M., Wright J., Cooper J., *University of Manchester, UK*

Tools for viscoelastic damping treatment design. Application to an automotive floor panel. [abstract](#)
Balmès E., *SDTools and Ecole Centrale Paris, France*
Germès S., *PSA Peugeot Citroën, France*

Parametric identification of non-linear rheological models of an internal dissipation layer in mechanical systems [abstract](#)
Pešek L., Veselý J., *Institute of Thermomechanics AS CR, Czech Republic*

Measurement technique to determine modal parameters of friction induced resonance [abstract](#)
Nuij P., *Eindhoven University of Technology, The Netherlands*

Modelling of vibration damping in pneumatic tyres: appropriate interpretation of complex modes [abstract](#)
Geng Z., Popov A., *University of Nottingham, UK*
Cole D., *University of Cambridge, UK*

Nonlinearity study of particle dampers [abstract](#)
Liu W., Tomlinson G., Worden K., *University of Sheffield, UK*

Durability testing - vibration control

Session DT

Development of virtual vibration simulator under operating condition using scaled model [abstract](#)
Okubo N., Arikawa Y., Toi T., *Chuo University, Japan*

Multiple-input-multiple-output random vibration control : theory and practice [abstract](#)
Peeters B., Debille J., *LMS international, Belgium*

Load cycle reduction for fatigue testing [abstract](#)
Vanlanduit S., Guillaume P., *Vrije Universiteit Brussel, Belgium*

Decoupling feedback control for improved multivariable vibration test rig tracking [abstract](#)
Vaes D., Souverijns W., Swevers J., Sas P., *Katholieke Universiteit Leuven, Belgium*
De Cuyper J., *LMS International, Belgium*

Uncertainty propagation through a simple nonlinear system [abstract](#)
Lord T., Worden K., *University of Sheffield, UK*

Dynamic behaviour of civil structures

Session DBC

Dynamic study of the Vasco de Gama bridge [abstract](#)
Peeters B., *LMS International, Belgium*
De Roeck G., *Katholieke Universiteit Leuven, Belgium*
Caetano E., Cunha A., *University of Porto, Portugal*

Experimental study of bridge structure dynamic characteristics using periodic excitation [abstract](#)
Bien J., Krzyżanowski J., Poprawski W., Skoczyński W., Szymkowski J., *Wroclaw University of Technology, Poland*

Forces generated when bouncing or jumping on a flexible structure [abstract](#)
Yao S., Wright J., *University of Manchester, UK*
Pavic A., Reynolds P., *University of Sheffield, UK*

Dynamic modelling and numerical models

Session DMN

Dynamic analysis of structures using Arnoldi vectors [abstract](#)
Rades M., *Universitatea Politehnica Bucuresti, Romania*

Deflating second order systems [abstract](#)
Garvey S., *University of Nottingham, UK*
Friswell M., Prells U., *University of Wales in Swansea, UK*

Modal energy identification of large FE structures [abstract](#)
Kaliński K., *Technical University, Gdansk, Poland*
Von Mach A., *vMACH Engineering GmbH, Germany*

Acceleration of iterative dynamic condensation for eigensolutions of structures [abstract](#)
Xia Y., Lin R., *Nanyang Technological University, Singapore*

Simplified modelling of rotor cracks	abstract
Penny J., <i>Aston University, UK</i>	
Friswell M., <i>University of Wales Swansea, UK</i>	
Integration of NVH testing: a case study on a spatial structure	abstract
Mergeay M., <i>m+p International, Belgium</i>	
Servaye J.-S., <i>Centre Spatial de Liege, Belgium</i>	
Dynamic allocation of master degrees of freedom in modelling rapid transients in complex structures	abstract
Williams E., Garvey S., <i>University of Nottingham, UK</i>	
McMillian A., <i>Rolls-Royce plc., UK</i>	
The effect of geometric imperfections on the vibrations of anisotropic cylindrical shells	abstract
Jansen E., <i>Delft University of Technology, The Netherlands</i>	
Structural identification using a combination of subspace analysis and block sum transformation	abstract
Märtens M., Kamarys D., Waller H., <i>Continental AG, Germany</i>	

Instrumentation

Session I

Development and applications of a Smart 6-DOF load cell	abstract
Declercq S., Brown D., Lazor D., <i>University of Cincinnati, USA</i>	
XVI - A Novel multipoint laser doppler vibrometer	abstract
Cupido E., Smith D., Morel S., <i>Image Automation Ltd, UK</i>	
A low cost wireless multi-channel measurement system for strain gauges	abstract
Bielen P., Lossie M., Vandepitte D., <i>Katholieke Universiteit Leuven, Belgium</i>	
Remote modal testing using VitalNet	abstract
Brown D., Phillips A., <i>University of Cincinnati, USA</i>	
Implementation of an integrated virtual instruments environment for acoustic measurements	abstract
Touhafi A., Braeckman G., Raadschelders M., <i>Erasmus Hogeschool Brussel, Belgium</i>	

Material characterisation based on dynamic measurements

Session GR

Validation of the resonanalyser method : an inverse method for material identification	abstract
Lauwagie T., Roebben G., Heylen W., <i>Katholieke Universiteit Leuven, Belgium</i>	
Sol H., Shi Y., <i>Vrije Universiteit Brussel, Belgium</i>	
Identification of distributed material properties using measured modal data	abstract
Sol H., Guillaume P., <i>Vrije Universiteit Brussel, Belgium</i>	
Lauwagie T., <i>Katholieke Universiteit Leuven, Belgium</i>	
Vibration analysis at (ultra-)high temperatures for materials characterization	abstract
Roebben G., Van Humbeeck J., Van der Biest O., <i>Katholieke Universiteit Leuven, Belgium</i>	

- Damage identification in beams using inverse methods** [abstract](#)
 Lauwagie T., *Katholieke Universiteit Leuven, Belgium*
 Sol H., *Vrije Universiteit Brussel, Belgium*
 Dascotte E., *Dynamic Design Solutions (DDS) NV, Belgium*

Medium and high frequency techniques

Session MHT/SEA

- Guide for potential users of SEA**¹ [abstract](#)
 Fahy F., *University of Southampton, ISVR, UK*
- Predictive SEA and anisotropic panels**² [abstract](#)
 Heron K., *QinetiQ, Future Systems Technology, UK*
- Towards an a priori estimate of statistical energy analysis reliability** [abstract](#)
 Culla A., Montanari A., Sestieri A., *Università di Roma "La Sapienza", Italy*
- The dependence of SEA parameters on modal overlap** [abstract](#)
 Mace B., *University of Southampton, ISVR, UK*
- Estimation of the damping loss factor of damped and trimmed panels for the statistical energy analysis (S.E.A) by means of the finite element method** [abstract](#)
 Arrieta F., *CEIT, Spain*
 Falk T., *Rieter Automotive Systems, Switzerland*
 Misaji K., Yamashita T., Tada H., *Honda R&D, Japan*
- SEA modelling of an high speed train window** [abstract](#)
 Baldanzini N., Pierini M., Scippa A., *Università di Firenze, Italy*
- A second-order vibroacoustic energy equation and its applications** [abstract](#)
 Sui F., Ichchou N., Jézéquel L., *Ecole Centrale de Lyon, France*
- A model for transmission loss calculations of floor and wall constructions of railway carbodies** [abstract](#)
 Backström D., Orrenius U., *Bombardier Transportation, Sweden*
- Development of a simulation tool for internal and external noise caused by rail bound vehicles** [abstract](#)
 Ratka A., Schneider N., *LogoMotive GmbH, Germany*
- The estimation of wavenumbers in two-dimensional structures** [abstract](#)
 Ferguson N., Mace B., *University of Southampton, ISVR, UK*
 Halkyard C., *University of Auckland, New Zealand*
 Heron K., *QinetiQ, Future Systems Technology, UK*
- Plate vibration by complex envelope vectorization** [abstract](#)
 Carcaterra A., Sestieri A., *Università di Roma "La Sapienza", Italy*
- High performance implementation and conceptual development of the wave based method for steady-state dynamic analysis of acoustic problems** [abstract](#)
 Van Hal B., Desmet W., Sas P., *Katholieke Universiteit Leuven, Belgium*
 Hepberger A., Priebisch H.-H., *Acoustic Competence Center GmbH, Austria*
- Sensitivity and variance analysis of statistical energy analysis solution** [abstract](#)
 Culla A., *University of Rome "La Sapienza", Italy*
 Iwaniec M., *University of Mining and Metallurgy of Krakow, Poland*

²Invited paper

Mid-frequency vibro-acoustic modelling: challenges and potential solutions ¹	abstract
<i>Desmet W., Katholieke Universiteit Leuven, Belgium</i>	
A power mode approach for estimating power transmission between a stiff source and a flexible receiver	abstract
<i>Ji L., Mace B., Pinnington R., University of Southampton, ISVR, UK</i>	
A coupled partition of unity - element-free galerkin method for 2D vibro-acoustics	abstract
<i>De Bel E., Bouillard Ph., Université Libre de Bruxelles, Belgium</i>	
Application of the wave based method for the steady-state acoustic response prediction of a car cavity in the mid-frequency range	abstract
<i>Hepberger A., Priebisch H.-H., Acoustic Competence Center GmbH, Austria</i>	
<i>Desmet W., Van Hal B., Pluymers B., Sas P., Katholieke Universiteit Leuven, Belgium</i>	
3D acoustic analysis using an iterative multilevel meshless method	abstract
<i>Lacroix V., Bouillard Ph., Université Libre de Bruxelles, Belgium</i>	
Application of the wave based prediction technique for the analysis of the coupled vibro-acoustic behaviour of a 3D cavity	abstract
<i>Pluymers B., Desmet W., Vandepitte D., Sas P., Katholieke Universiteit Leuven, Belgium</i>	
<hr/>	
Modal testing and FRF estimation	
Session MTF	
Vibrations and acoustic noise reduction in A.C. electrical drives. Use of analytical and experimental modal techniques.	abstract
<i>Hubert A., T.U. Braunschweig, Germany</i>	
<i>Friedrich G., Université de Technologie de Compiègne, France</i>	
The effects of armature rotation on data quality in base driven shaker testing	abstract
<i>De Oliveira L., Varoto P., University of São Paulo, Brazil</i>	
Optimal parameters for experimental dynamic testing	abstract
<i>Bregant L., Pestelli C., Università di Trieste, Italy</i>	
Modal test accuracy: a collective approach to minimizing input/output transduction errors and reducing setup time	abstract
<i>Gatzwiller K., Herlufsen H., Brüel & Kjaer Sound and Vibration Measurement A/S, Denmark</i>	
HHT and a new method for removing white noise	abstract
<i>Qin S., Tang B., Wei R., Zhong Y., Chongqing University, China</i>	
Analytical and experimental modal analysis of a silicon microstructure	abstract
<i>Arruda J., Pavannello R., Universidade Estadual de Campinas, Brazil</i>	
<i>Ferreira L., Laboratório Nacional de Luz Síncrotron - LNLS, Brazil</i>	
Excitation design for FRF measurements in the presence of nonlinear distortions	abstract
<i>Schoukens J., Pintelon R., Vrije Universiteit Brussel, Belgium</i>	
<i>Swevers J., Katholieke Universiteit Leuven, Belgium</i>	
<i>Van der Auweraer H., Lms International, Belgium</i>	
H_α - A new and consistent frequency response function estimator	abstract
<i>Antoni J., Sidahmed M., Université de Technologie de Compiègne, France</i>	

- A modal based approach to assess dynamic behaviour of structural alternatives in machinery** [abstract](#)
Vecchio A., *LMS International, Belgium*
Scionti M., *Catania University, Italy*

Model updating and correlation

Session MUC

- A novel updating technique for large finite element models** [abstract](#)
Bregant L., Di Prampero A., *Università di Trieste, Italy*
- Global optimization in FEM updating by Coupled Local Minimizers** [abstract](#)
Teughels A., De Roeck G., Suykens J., *Katholieke Universiteit Leuven, Belgium*
- Effects of time truncation in updating methods based on FRF data** [abstract](#)
Agneni A., Coppotelli G., *Università di Roma "La Sapienza", Italy*
- Generation of validated structural dynamic models - Results of a Benchmark study utilising the GARTEUR SM-AG19 testbed¹** [abstract](#)
Link M., *University of Kassel, germany*
Friswell M., *University of Wales Swansea, UK*
- A connecting stiffness optimization procedure to update finite element models of assembled structures** [abstract](#)
Zanarini A., *University of Bologna, Italy*
De Coninck F., Sas P., *Katholieke Universiteit Leuven, Belgium*
- Analysis of the effects of damping in the models validation** [abstract](#)
Doi R., Pereira J., *Unesp, Brazil*
- A robust FRF-based technique for model updating** [abstract](#)
Pascual R., *Universidad de Chile, Chile*
Golinval J.-C., *Université de Liège, Belgium*
Razeto M., Schalchli R., *Universidad de Concepción, Chile*
- Model updating and validation of the GARTEUR benchmark using resonance and antiresonance errors** [abstract](#)
D'Ambrogio W., *Università de L'Aquila, Italy*
Fregolent A., *Università di Roma "La Sapienza", Italy*
- Experimental insight on an updating method with application on non-conventional wing structure** [abstract](#)
Balis Crema L., Coppotelli G., Paiella D., *Università di Roma "La Sapienza", Italy*
- Reference basis model updating with connectivity constraints** [abstract](#)
Halevi Y., Bucher I., *Technion - Israel Institute of Technology, Israel*
- Correlation of close modes using S2MAC** [abstract](#)
D'Ambrogio W., *Università de L'Aquila, Italy*
Fregolent A., *Università di Roma "La Sapienza", Italy*
- Detection and recovery of erroneous experimental information used for a dynamic model updating** [abstract](#)
Barthe D., *EADS Launch Vehicles, France*
Deraemaeker A., Ladevèze P., Le Loch S., *Université de Paris VI/CNRS, France*

Numerical-experimental correlation of a stiffened fuselage panel	abstract
Franco F., Marulo F., <i>Università degli Studi di Napoli "Federico II", Italy</i>	
Natale C., Aurilio G., <i>Seconda Università degli Studi di Napoli</i>	

Multi-body dynamics and control

Session MB

Accurate realization of follower motions in high-speed cam-follower mechanisms	abstract
Demeulenaere B., De Schutter J., <i>Katholieke Universiteit Leuven, Belgium</i>	
Integrated vehicle corner modelling for ride and handling development	abstract
Dixon A., Franco-Jorge M., Webb J., <i>MIRA Ltd, UK</i>	
Multibody simulation of actively controlled carbody flexibility	abstract
Heckmann A., Vaculín O., <i>DLR German Aerospace Center, Germany</i>	
Tri-level acceleration profiles for dynamic optimization of high-speed cam mechanisms	abstract
Incerti G., <i>University of Brescia, Italy</i>	

Non-linearities: identification and modelling

Session NL

Numerical and experimental analysis of non linear forced vibration of imperfect plates	abstract
Pérignon F., Bellizzi S., Cochelin B., <i>Ecole Supérieure de Mécanique de Marseille, France</i>	
ACUSCOMP and ACUSYS - A powerful hybrid linear/non linear simulation suite to analyse pressure pulsations in piping	abstract
Brighenti A., Pavan A., <i>S.A.T.E. Systems and Advanced Technology Engineering, Italy</i>	
Applications of frequency domain identification methods to nonlinear systems	abstract
Garibaldi L., Marchesiello S., <i>Politecnico di Torino, Italy</i>	
Hammerstein-Wiener system estimator initialization	abstract
Crama Ph., Schoukens J., <i>Vrije Universiteit Brussel, Belgium</i>	
European COST Action F3 on structural dynamics. Working Group 3: Identification of Non-linear Systems. Activities and results ¹	abstract
Golinval J.-C., Kerschen G., Lenaerts V., <i>Université de Liège, Belgium</i>	
Thouverez F., <i>Ecole Centrale de Lyon, France</i>	
Argoul P., <i>ENPC, France</i>	
Detection and quantification of structural non-linearities	abstract
Wong J., Cooper J., Wright J., <i>University of Manchester, UK</i>	
Identification of multi-degree of freedom non-linear simulated and experimental systems	abstract
Platten M., Wright J., Cooper J., Sarmast M., <i>University of Manchester, UK</i>	
Investigations on the non-linear behaviour of a cylindrical bolted casing joint using high level base excitation tests	abstract
Boeswald M., Link M., Meyer S., Weiland M., <i>University of Kassel, Germany</i>	
Identification of MDOF nonlinear systems using associated linear equations (ALEs) part 1: Obtaining the ALEs from a MDOF continuous nonlinear system	abstract
Vazquez Feijoo J., Worden K., Stanway R., <i>University of Sheffield, UK</i>	

- Analysis the vibration of an asymmetric system under an electromagnetic field** [abstract](#)
Bucher I., Feldman M., Gabay R., *Technion - Israel Institute of Technology, Israel*
- Harmonic analysis of a mass subject to hysteretic friction: experimental validation** [abstract](#)
Symens W., Al-Bender F., Swevers J., Van Brussel H., *Katholieke Universiteit Leuven, Belgium*
- Summary and comparison overview of techniques for the detection of non-linear distortions** [abstract](#)
Vanhoenacker K., Schoukens J., *Vrije Universiteit Brussel, Belgium*
Swevers J., Vaes D., *Katholieke Universiteit Leuven, Belgium*

Operational modal analysis

Session OMA

- Estimating modal parameters using acoustic excitation** [abstract](#)
Møller N., Gade S., Herlufsen H., *Brüel & Kjaer Sound and Vibration A/S, Denmark*
- Modal parameter estimation from output-only measurements in presence of transient phenomena** [abstract](#)
Cauberghe B., Guillaume P., Verboven P., Parloo E., *Vrije Universiteit Brussel, Belgium*
- Application of classical and output-only modal analysis to a laser cutting machine** [abstract](#)
Schedlinski C., *ICS, Germany*
Lüscher M., *Luescher Engineering, Switzerland*
- Modelling of sprayer-boom motion by means of output-only maximum likelihood identification techniques** [abstract](#)
Parloo E., Guillaume P., *Vrije Universiteit Brussel, Belgium*
Anthonis J., Heylen W., Swevers J., *Katholieke Universiteit Leuven, Belgium*
- Real-time modal analysis and its application for flutter testing** [abstract](#)
Uhl T., *University of Mining and Metallurgy, Poland*
- Updating modal properties from response-only measurements on a rail vehicle** [abstract](#)
Ford R., Randall B., Wardrop T., *University of New South Wales, Australia*

Parameter estimation

Session PE

- Model reduction and energy analysis as a tool to detect spurious modes** [abstract](#)
Goethals I., De Moor B., *Katholieke Universiteit Leuven, Belgium*
- Numerically robust frequency domain identification of multivariable systems** [abstract](#)
Pintelon R., Rolain Y., *Vrije Universiteit Brussel, Belgium*
Bultheel A., Van Barel M., *Katholieke Universiteit Leuven, Belgium*
- On board fault detection and identification in railway vehicle suspensions via a functional modal based method** [abstract](#)
Sakellariou J., Petsounis K., Fassois S., *University of Patras, Greece*
- Subspace system identification for mechanical engineering¹** [abstract](#)
De Cock K., De Moor B., *Katholieke Universiteit Leuven, Belgium*
Peeters B., Vecchio A., Van der Auweraer H., *LMS International, Belgium*
- Maximum likelihood identification of vibro-acoustic modes using output-only measurements** [abstract](#)
De Sitter G., Guillaume P., Parloo E., *Vrije Universiteit Brussel, Belgium*

On the exploitation of chaos to build reduced-order models [abstract](#)
 Kerschén G., Golinval J.-C., *Université de Liège, Belgium*
 Feeny B., *Michigan State University, USA*

Applicability of selected indicators and algorithms for decision-making in an autonomous modal parameter estimation procedure [abstract](#)
 Lisowski W., Kurowski P., *University of Mining and Metallurgy, Poland*

Identification and prediction of F-shape structure dynamics by spatial matrix identification method [abstract](#)
 Tomatsu T., Okuma M., *Tokyo University of Technology, Japan*
 Modak S., *S.G.S. Institute of Technology and Science, India*
 Kundra T., *Indian Institute of Technology, India*

Rotating machinery: dynamics

Session RMD

A model for the elastodynamic analysis of external gear pumps [abstract](#)
 Fernández A., *Universidad de Cantabria, Spain*
 Dalpiaz G., *University of Ferrara, Italy*

Comparison of analysis techniques for the dynamic behaviour of an integrated drivetrain in a wind turbine [abstract](#)
 Peeters J., Vandepitte D., Sas P., *Katholieke Universiteit Leuven, Belgium*
 Lammens S., *Hansen Transmissions, Belgium*

Vibration behaviour modelling for a low-speed gearbox [abstract](#)
 Fernández A., Viadero F., García P., Sancibrian R., *Universidad de Cantabria, Spain*
 Pascual J., *Global Steel Wire, Spain*

Modelling the elastodynamic behaviour of a desmodromic valve [abstract](#)
 Rivola A., Carlini A., *University of Bologna*
 Dalpiaz G., *University of Ferrara, Italy*

Comparison of simulation methods for parametrically excited systems with rotating elastic substructures [abstract](#)
 Prothmann Th., Sachau D., Witfeld H., *Universität der Bundeswehr Hamburg, Germany*

Development of a multiple modes simulator of rotating bladed assemblies for blade tip-timing data analysis [abstract](#)
 Gallego-Garrido J., Dimitriadis G., Wright J., *University of Manchester, UK*

Experimental estimation of simple dynamic models of rotating equipments [abstract](#)
 Goncalves D., Sanjuan J., Díaz S., *Universidad Simón Bolívar, Venezuela*

Rotating machinery: monitoring and diagnostics

Session RMM

State of the art in monitoring of rotating machinery ¹ [abstract](#)
 Randall B., *University of New South Wales, Australia*

New measuring system of gear noise at non-integer components of meshing frequency using gear checker [abstract](#)

Uenishi Y., Anada Y., *Diamondmatic Co.,Ltd., Japan*
 Hirogaki T., *University of Shiga Prefecture, Japan*
 Aoyama E., *Doghisha University, Japan*
 Nakata Y., *Omron Co., Japan*

Gear vibration modeling and fault characterization [abstract](#)

Raad A., Antoni J., Sidahmed M., *Université de Technologie de Compiègne, France*
 Randall B., *University of New South Wales, Australia*

Parametric instability of belts: theory and experiments [abstract](#)

Pellicano F, Catellani G., *Università di Modena e Reggio Emilia, Italy*
 Vestroni F., Fregolent A., *Università di Roma "La Sapienza", Italy*

Centrifugal compressor health diagnostics based on internal noise spectrum [abstract](#)

Petela G., *NOVA Research & Technology Corporation, Canada*
 Betz M., Stocklin V., *Germany*
 Motriuk R., *TCPL Alberta Gas Transmission Division, Canada*

A fuzzy-statistical approach of defect diagnosis using vibrations [abstract](#)

Stefanoiu D., Ionescu F., *FH - University of Applied Sciences - Konstanz, Germany*

Low cost procedure for the measurement of torsional vibrations in rotating machines [abstract](#)

Gomez de Leon F., *Universidad de Murcia, Spain*
 Merono Perez P., Aguirre Martinez J., *Universidad Politecnica de Cartagena, Spain*

Rotating machinery failure detection using different vibration analysis techniques [abstract](#)

Del Castillo L., Artés M., García-Prada J., *Universidad Nacional de Educación a Distancia, Spain*

Monitoring of rotational behavior on spiral bevel gear in gear housing using transfer function [abstract](#)

Aoyama E., Katayama T., Tange H., *Doshisha University, Japan*
 Hirogaki T., *University of Shiga Prefecture, Japan*
 Uenishi Y., *Diamondmatic Co.,Ltd., Japan*
 Yamada T., *Ishida Corporation, Japan*
 Nakata Y., *Omron Corporation, Japan*

Estimation of cyclic cumulants by moving average. Application to the diagnosis of rotating machinery. [abstract](#)

Capdessus C., Sekko E., *IUT de Chartres, France*

Condition monitoring and diagnostics based on chaos theory [abstract](#)

Lucifredi A., Magonetto A., Silvestri P., *Università di Genova, Italy*

Time frequency and time scale transforms, a comparison of different tools in the vibratory analysis of the induction motors [abstract](#)

Caironi C., Durantay L., *Alstom Moteurs, France*
 Kromer V., Gueury M., *ERIN, UHP, France*

Signal processing
Session SP

Not using the $2 * f_{max}$ as the sampling criteria for efficient analog to digital conversion [abstract](#)

Lagö T., *Jonkoping University, Sweden*

Use of artificial neural networks for automatic data plausibility check and test data quality improvement	abstract
Lanslots J., Vecchio A., <i>LMS International, Belgium</i>	
Matching signals from experiments at slightly different speeds	abstract
Combet F., Jaussaud P., Martin N., <i>Laboratoire des Images et des Signaux, France</i> Randall B., <i>University of New South Wales, Australia</i>	
Noise robust spark ignition engine knock detection with redundant wavelet transform	abstract
Duval L., Corde G., Bui Tran V., Leduc P., <i>Institut Français du Pétrole, France</i>	
Time frequency analysis and event detection in noise signals	abstract
Sarris J., Dalianis S., Cambourakis G., <i>National Technical University of Athens, Greece</i> Hammond J., <i>University of Southampton, ISVR, UK</i>	

Structural dynamic analysis: case studies

Session SD

On the dynamics and modelling of a micro electro-mechanical structure (MEMS)	abstract
Bucher I., Elka A., <i>Technion - Israel Institute of Technology, Israel</i> Balmès E., <i>Ecole Centrale Paris, France</i>	
A structural health monitoring approach for flight flutter testing	abstract
Verboven P., Cauberghe B., Guillaume P., <i>Vrije Universiteit Brussel, Belgium</i>	
Neural networks based identification of model order in modal analysis	abstract
Uhl T., Góral G., <i>University of Mining and Metallurgy, Poland</i>	
Free vibration of dual-span curved beams coupled through elastic constraints	abstract
Riedel C., <i>Lawrence Technological University, USA</i> Kang B., <i>Indiana University - Purdue University, USA</i>	
Dynamic behaviour analysis and optimisation of a rotary table transfer machine	abstract
Zanarini A., Catania G., Maggiore A., Meneghetti U., <i>University of Bologna, Italy</i>	
Vibration reduction of a pantograph-support system using an impact damper (influence of curve track)	abstract
Sato T., Takase M., Kaiho N., <i>Tokyo Denki University, Japan</i> Makino T., <i>Hitachi Ltd., Japan</i> Tanaka K., <i>Saitama University, Japan</i>	
Modal parameters extraction from in-flight measured data for aircraft flutter clearance	abstract
Vecchio A., Peeters B., Van der Auweraer H., <i>LMS International, Belgium</i> Scionti M., <i>Catania University, Italy</i>	

Substructuring and coupling

Session SC

Requirements and opportunities for structural testing in view of hybrid and virtual modelling ¹	abstract
Van der Auweraer H., <i>LMS International, Belgium</i>	
Assessment of structural coupling techniques using experimental data	abstract
D'Ambrogio W., <i>Università de L'Aquila, Italy</i> Sestieri A., <i>Università di Roma "La Sapienza", Italy</i>	

- Realisation of real-time pseudo-dynamic sub-structure testing** [abstract](#)
 Bayer V., *Bauhaus University Weimar, Germany*
 Dorka U., *University of Kassel, Germany*
 Füllekrug U., Gschwilm J., *DLR German Aerospace Center, Germany*
- An investigation of impedance modeling utilizing different measurement techniques** [abstract](#)
 Lazor D., Brown D., *University of Cincinnati, USA*
- Distributed structural modification using local interface model** [abstract](#)
 D'Amato E., Durante F., D'Ambrogio W., *Università de L'Aquila, Italy*
- Identification of bolted-joint interface models** [abstract](#)
 Ahmadian H., Ebrahimi M., *Iran University of Science and Technology, Iran*
 Mottershead J., *University of Liverpool, UK*
 Friswell M., *University of Wales, UK*
- A practical study of the identification of joint parameters** [abstract](#)
 Yang T., Fan S.-H., *Yuan Ze University, Taiwan*
 Lin C.-S., *Chung-Shan Institute of Science and Technology, Taiwan*
- Substructure coupling using equivalent generalized quantities : A finite element method approach** [abstract](#)
 Floody S., *Universidad Pérez Rosales, Chili*

Transfer path analysis and source identification

Session TPA

- A vibro-acoustical investigation for car rolling noise characterization and optimization** [abstract](#)
 Avenati-Bassi F., Cifelli P., Prando F., Tinti F., *Rieter Automotive Systems, Italy*
- Transmission of noise and vibration in canopied diesel-driven power generating sets** [abstract](#)
 Gallego-Meana J., Craighead I., *University of Strathclyde, UK*
 Casey J., *Aggreko UK Ltd Manufacturing , UK*
- Identification of external forces exciting finite thin cylindrical baffled shell** [abstract](#)
 Djamaa M., Pezerat C., Guyader J.-L., *INSA de Lyon, France*
 Ouelaa N., *Université du 8 mai 45, Algeria*
- Statistical - inverse boundary element method** [abstract](#)
 Márki F., Augusztinovicz F., *Budapest University of Technology and Economics, Hungary*
- Experimental sensitivity analysis for near-field acoustic holography** [abstract](#)
 Di Giuseppe A., Martarelli M., Revel G., Tomasini E., *Università degli Studi di Ancona, Italy*
- On efficient reciprocal measurement of vehicle body airborne isolation and vibro-acoustic transfer behavior** [abstract](#)
 Van der Linden P., Proost G., Nijs G., *LMS International, Belgium*
- Source identification form noisy response measurements using an iterative weighted pseudo-inverse approach** [abstract](#)
 Guillaume P., De Sitter G., Parloo E., *Vrije Universiteit Brussel, Belgium*
- Acoustic holography experiments using a wavelet preprocessing method** [abstract](#)
 Thomas J.-H., Pascal J.-C., *Laboratoire d'Acoustique de l'Université du Maine, France*

Uncertainties in structural dynamics and acoustics

Session UNC

- Modal approaches for the time-harmonic analysis of random structures with the stochastic finite element method** [abstract](#)
 Van den Nieuwenhof B., Coyette J.-P., *Université Catholique de Louvain, Belgium*
- Propagation of variances of FRFs through FRF-based coupling calculations** [abstract](#)
 Iankov R., Moens D., Sas P., *Katholieke Universiteit Leuven, Belgium*
 Hermans L., *LMS International, Belgium*
- Review of parameter uncertainty propagation methods in structural dynamic analysis** [abstract](#)
 Fonseca J., Friswell M., *University of Wales Swansea, UK*
 Mares C., Mottershead J., *University of Liverpool, UK*
- Stochastic finite elements for the time-harmonic analysis of structures with random shape : application to plates with flatness defaults** [abstract](#)
 Van den Nieuwenhof B., Coyette J.-P., *Université Catholique de Louvain, Belgium*
- Reduction techniques for the discretisation of random fields involved in stochastic finite element models** [abstract](#)
 Van den Nieuwenhof B., Coyette J.-P., *Université Catholique de Louvain, Belgium*
- Vibration hypersensitivity causes detection in finite elements models** [abstract](#)
 Ouisse M., Guyader J.-L., *LVA-INSA Lyon, France*
- Dispersion of critical rotational speeds of gearbox: effects of bearings stiffnesses** [abstract](#)
 Mayeux F., Rigaud E., Perret-Liaudet J., *Ecole Centrale de Lyon, France*

Vehicle noise and vibration (NVH)

Session NVH

- Shock absorber's knocking noise** [abstract](#)
 Alberdi M., Carnicero R., Biera J., *APA-KYB, Spain*
- Identification of rubber bushings** [abstract](#)
 Roscher T., Liebig S., *Dresden University of Technology, Germany*
 Venhovens P., *BMW Group Munich, Germany*
- A new experimental modal parameter estimation method for cylindrical structures by standing wave decomposition and application to tire modeling** [abstract](#)
 Matsuoka H., Okuma M., *Tokyo University of Technology, Japan*
- Module target setting and substructuring for vehicle NVH development ¹** [abstract](#)
 Van der Linden P., Wyckaert K., *LMS International, Belgium*
- Determination of the acoustical impedance of an internal combustion engine exhaust** [abstract](#)
 Boonen R., Sas P., *Katholieke Universiteit Leuven, Belgium*
- The integration of experimental models in a real-time virtual car sound engineering environment** [abstract](#)
 Janssens K., Adams M., Van de Ponsele P., *LMS International, Belgium*
- Vehicle vibration robustness engineering at the proving ground ²** [abstract](#)
 Mannaerts J., *Ford Motor Company, Lommel Proving Ground, Belgium*

- The NVH development of the BMW 7 series** ² [abstract](#)
 Penne F., *BMW Group, Germany*
- Simplified analytical models for prediction of vehicle interior noise** [abstract](#)
 Krylov V., *Loughborough University, UK*
- Experimental investigations of the vibro-acoustic behaviour of trim components in a car cabin** [abstract](#)
 Brechlin E., Bosmans I., Keymeulen N., Dekkers R., *LMS International, Belgium*
- Can objective parameters of cowlshake and secondary ride predict subjective discomfort?** [abstract](#)
 Fankhauser C., Kastreuz B., *Steyr-Daimler-Puch Fahrzeugtechnik, Austria*
 Kolrep H., *Kolrep-Rometsch, Human-Factors Consultants, Germany*
- An innovative mounting system for the Transaxle electrical powertrain driving the Volkswagen E-Golf** [abstract](#)
 Van Keymeulen, Hermann W., Wang X., *Woco AVS GmbH, Germany*
 Kube R., Meschke J., Lück P., *Volkswagen AG, Germany*
- Optimisation of damping layers in car bodies** [abstract](#)
 Bienert J., *Ford Motor Company, Germany*
- Time-varying vibration analysis based engine condition monitoring and diagnosis** [abstract](#)
 Geng Z., Hull J., *Nottingham Trent University, UK*
 Chen J., *Shanghai Jiao Tong University, China*
- Numerical simulation and verification of mechanical noise generation in combustion engines** [abstract](#)
 Priebisch H.-H., Herbst H., Offner G., Sopouch M., *Acoustic Competence Center GmbH, Austria*
- Achievement of NVH-objectives-New challenge for OEMs, module & system suppliers** [abstract](#)
 Ahmad R., Himmler G., *MSC.Software GmbH, Germany*
- Influence of PVB mechanical properties on the vibrational damping of a windscreen** [abstract](#)
 D'Haene P., Lu J., *Solutia Inc., Belgium*

Vibro-acoustic analysis

Session VAA

- The development of a calibrated acoustic actuator based on the two-microphone technique** [abstract](#)
 Rossetto G., *LMS International, Belgium*
 Arruda J., Huallpa B., *Universidade Estadual de Campinas, Brazil*
- Noise and vibration control of the South Railway Bridge of Budapest** [abstract](#)
 Augusztinovicz F., Márki F., *Budapest University of Technology and Economics, Hungary*
 Carels P., Willems J., *CDM, Belgium*
 Dombi I., *Building Research Est., Hungary*
 Bite M., *Institute for Transport Science, Hungary*
- Numerical and experimental on the dynamic behavior of the violin plates** [abstract](#)
 Staforelli C., Razeto M., *Universidad de Concepción, Chile*
 Pascual R., *Universidad de Chile, Chile*
- Acoustic characterisation and noise limitation strategies for a modern electrical train** [abstract](#)
 Viscardi M., Iadevaia M., Lecce L., *Università degli Studi di Napoli "Federico II", Italy*

Vibro-acoustic analysis of the Brazilian vehicle satellite launcher (VLS) Fairing [abstract](#)
 Pirk R., Desmet W., Pluymers B., Sas P., *Katholieke Universiteit Leuven, Belgium*
 Goes L., *Centro Tecnico de Aeronautica (CTA) - Instituto Tecnológico de Aeronautica (ITA), Brazil*

Vibroacoustic modal testing of a vehicle cabin [abstract](#)
 Mamede W., Varoto P., De Oliveira L., *University of Sao Paulo, Brazil*

Vibro-acoustic modelling and prediction

Session VAM

The effect of absorptive treatment in the road corridor using CATT modelling techniques [abstract](#)
 Field C., *Arup Acoustics Sydney, Australia*

Optimized mapped wave envelope elements for exterior acoustics [abstract](#)
 Dreyer D., Von Estorff O., *Technical University Hamburg-Harburg, Germany*

On predicting the response of acoustically-excited doubly curved sandwich panels [abstract](#)
 Cunningham P., Langley R., White R., *University of Southampton, UK*

Algebraic model of a wall acoustic impedance constructed using experimental data [abstract](#)
 Faverjon B., *ONERA, France*
 Soize C., *University of Marne-la-Vallée, France*

Modelling and simulating tractor cabin acoustics under external excitations by using FEM/BEM [abstract](#)
 Ikonen V., Pohjolainen S., *Tampere University of Technology, Finland*

Optimal design of trim materials [abstract](#)
 Baldanzini N., *Università di Firenze, Italy*
 Mantovani M., *Rieter Automotive, Switzerland*
 Misaji K., Tada H., Yamashita T., *Honda R&D Tochigi Center, Japan*

Meshing procedures for vibro-acoustic models [abstract](#)
 El-Masri E., Tournour M., McCulloch C., *LMS International, Belgium*

Experimental acoustic radiation from an elastic plate covered with a poroelastic layer [abstract](#)
 Litwinczik V., Lenzi A., *Universidade Federal de Santa Catarina, Brazil*
 Lauriks W., Geentjens G., Vermeir G., *Katholieke Universiteit Leuven, Belgium*

An experimental validation of vibro-acoustic prediction by the use of simplified methods [abstract](#)
 Trompette N., *INRS, France*
 Guerich M., *Pôle Universitaire Léonard de Vinci, France*

Getting useful FEM and BEM vibro-acoustic solutions faster, using new solution methodologies [abstract](#)
 Tournour M., Rossion J.-P., Bricteux L., McCulloch C., *LMS International, Belgium*

Acoustic infinite elements with improved robustness [abstract](#)
 Cipolla J., *HKS, Inc., USA*

On the use of generalized complex modes for three dimensional poroelastic problem [abstract](#)
 Dazel O., Sgard F., Lamarque C.-H., *Ecole Nationale des Travaux Publics de l'Etat, France*

The constitutive relation error as a tool to determine the acoustic admittance coefficient [abstract](#)
 Decouvreux V., Bouillard Ph., *Université Libre de Bruxelles, Belgium*
 Deraemaeker A., Ladevèze P., *Université de Paris VI/CNRS, France*

- Quadratic finite element model for predicting the vibro-acoustic behaviour of heterogeneous porous materials** [abstract](#)
 Castel F., Sgard F., *Ecole Nationale des Travaux Publics de l'Etat, France*
 Atalla N., *Université de Sherbrooke, Canada*
- Analysis of soil vibrations by means of the boundary element method** [abstract](#)
 Fiala P., Granát J., Augusztinovicz F., *Budapest University of Technology and Economics, Hungary*
- On the accuracy of vibro-acoustic solutions using the ATV method** [abstract](#)
 Tournour M., Dessart S., McCulloch C., *LMS International, Belgium*
- An experimental/numerical method for noise radiation prediction** [abstract](#)
 Carniel X., Bollade L., *CETIM/DAVIT, France*
- Analytical solution of circular cylindrical shell vibrations** [abstract](#)
 Alzahabi B., *Kettering University, USA*

Poster session

Session POS

- The effects of stingers on measured FRFs** [abstract](#)
 Ashory M., Hajjghorbani R., *Semnan Universtiy, Iran*
- Prediction of structure-borne noise in cabin of aircraft caused by power plant vibration** [abstract](#)
 Baklanov V., *PSC Tupolev, Russia*
 Kochetov Y., Morozkov A., *Moscow Aviation University, Russia*
- A method of the multi-transducer optimizing arrangement for damage detection of machine parts** [abstract](#)
 Xiong S., Xiong X., Han Z., *Taiyuan University of Technology, China*
- FRF measurement of rotational DOFs by T-block approach (Improvement of accuracy for random noise and application to a Car Body)** [abstract](#)
 Hosoya N., *Saitama University, Japan*
 Yoshimura T., *Tokyo Metropolitan University, Japan*
- Finite element model updating of rotating structures using adaptive simulated annealing** [abstract](#)
 Ziaei-Rad S., *Isfahan University of Technology, Iran*
 Ewins D., *Imperial College, UK*
- The order tracking based on instantaneous frequency estimation in rotating machinery** [abstract](#)
 Qin S., Tang B., Guo Y., Zhang C., *Chongqing University, China*
- Evaluation method of damping ratio for spot-welded frame** [abstract](#)
 Katayama T., Aoyama E., Nakajima M., *Doshisha University, Japan*
 Hirogaki T., *University of Shiga Prefecture, Japan*
 Andoh H., *Shin Caterpillar Mitsubishi Ltd., Japan*
 Enoki S., *ASAHI TEC Corporation, Japan*
- Vibration damping analysis of the laminated composite sandwich cantilever beam inserted with viscoelastic layer** [abstract](#)
 Yim J., Cho S., Seo Y., *Kwangju-Chonnam Regional Small & Medium Business Office, Korea*
- Determination and evaluation of machine tool dynamic characteristics obtained during stable cutting process** [abstract](#)
 Skoczyński W., Krzyżanowski J., Szymkowski J., *Wroclaw University of Technology, Poland*

A study on the evaluation of ride comfort due to human dynamic characteristics on biaxial vibration	abstract
Okamura M., Koizumi T., Tsujiuchi N., <i>Doshisha University, Japan</i> Kohama A., <i>Nichiyu Corporation, Japan</i>	
Air intake system design : vibro-acoustic modelling and prediction for commercial vehicles	abstract
Nunes R., Botteon A., <i>T-Systems do Brasil Ltda, Brazil</i> Donizeti S., Miranda G., <i>DaimlerChrysler do Brasil Ltda, Brazil</i>	
Use of an acoustical imaging system for the study of the acoustic transmission of sealing system in a moving car	abstract
Haddad K., Benoit V., <i>ACB Engineering, France</i>	
Using statistical energy analysis for shock pulse predictions	abstract
Iadevaia M., Van Hal B., Sas P., <i>Katholieke Universiteit Leuven, Belgium</i> Riobbo J.L., <i>EADS-CASA Espacio, Spain</i>	
Analysis of the dynamic actions when bells are swinging on the belltower of Bon Repos i Mirambell church (Valencia, Spain)	abstract
Ivorra S., Cervera J., <i>Polytechnic University of Valencia, Spain</i>	
Optimal design of dynamic characteristics of electromechanical drive systems	abstract
Mezyk A., Świtoński E., <i>Silesian University of Technology, Poland</i>	
Vibration analysis of assembled explosion vessel	abstract
Hongfa H., <i>Northwest Institute of Nuclear Technology, China</i>	
Vibration isolation of reciprocating air-compressor using flexure bearings	abstract
Rens J., Clark R., Howe D., <i>University of Sheffield, UK</i>	
Noise generated by burners and boilers	abstract
Novy R., Dedourek M., <i>CTU, Czech Republik</i>	
The emission of CD and DVD-ROM drives	abstract
Biegansky N., Beltman W., <i>Intel Corporation, USA</i>	
A tool for the acoustic design of computer systems	abstract
Beltman W., <i>Intel Corporation, USA</i>	