

## Wednesday September 13, 2000 - Morning session

- 9:30 Welcome  
*Sas P., Conference Chairman*
- 9:40 Opening  
*Langouche G., Vice-rector of K.U.Leuven*
- 10:00 Keynote  
Some recent developments in analyzing uncertainty in structural dynamics  
*Elishakoff I., Florida Atlantic University, USA*
- 10:45 Keynote  
Vibration and acoustic dimensioning of Ariane launchers  
*Louaas E., CNES Centre Spatial D'evry, France*

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## Wednesday September 13, 2000 - Afternoon sessions

### IDNL1 - Identification of non-linearities

- 13:00 Frequency response function measurements in the presence of nonlinear distortions. A general framework and practical advises  
*Schoukens J., Pintelon R., Rolain Y., VUB-ELEC, Belgium ; Dobrowiecki T., Technical University Budapest, Hungary*
- 13:25 Detection and localization of nonlinearities using a scanning laser vibrometer  
*Vanlanduit S., VUB-ELEC, Belgium ; Guillaume P., VUB-WERK, Belgium ; Schoukens J., Vanhoenacker K., VUB-ELEC, Belgium*
- 13:50 Measurement and modeling of linear systems in the presence of non-linear distortions  
*Pintelon R., Schoukens J., VUB-ELEC, Belgium*
- 14:15 The use of multisine excitations to characterize damage in structures  
*Vanhoenacker K., Schoukens J., VUB-ELEC, Belgium ; Guillaume P., VUB-WERK, Belgium ; Vanlanduit S., VUB-ELEC, Belgium*
- 14:40 Impact of nonlinear friction on frequency response function measurements  
*Lampaert V., Swevers J., Al-Bender F., K.U.Leuven, Belgium*
- 15:05 A new detection method for structural non-linearities  
*Roscher T., Allemang R.J., Phillips A.W., University of Cincinnati, USA*

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### RDOF1 - Rotational degrees of freedom

- 13:00 Electromagnetic vibration excitation of moments and forces with minimal mass loading  
*Bendel K., Brechlin E., Robert Bosch GmbH, Germany ; Storz A., Micro Compact Car*

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- GmbH, Germany*
- 13:25 FRF estimation on rotational DOFS by rigid block attachment approach  
*Yoshimura T., Hosoya N., Tokyo Metropolitan University, Japan*
- 13:50 Rotational degrees of freedom : an historical overview on techniques and methods  
*Bregant L., University of Trieste, Italy ; Sanderson M., Chalmers University of Technology, Sweden*
- 14:15 Rotational degrees of freedom data synthesis based on force excitation  
*Bregant L., Casagrande D., University of Trieste, Italy*
- 14:40 Moment mobility measurement using an impact force couple  
*Champoux Y., Beslin O., Gautier B., Macheto D., Paillard B., Université de Sherbrooke, Canada*
- 15:05 A MIMO technique for measuring mobility matrices  
*Ivarsson L.H., Chalmers University of Technology, Sweden*

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### **VAM1 - Vibro-acoustic modelling**

- 13:00 Analysis of a new type of acoustic wall stud  
*Davidsson P., Wernberg P.-A., Sandberg G., Lund University, Sweden*
- 13:25 Modelling of LV control system bay vibrations induced by acoustical loading  
*Likhoded A., Kildibekov I., TsNIIMash, Russia ; Kozlov A., TsSKB-Progress, Russia ; Panichkin N., Sidorov V., Vjilomov V., Vvedensky N., TsNIIMash, Russia*
- 13:50 Towards a feasible numerical approach for industrial flow noise applications  
*Van Ransbeeck P., El Hachemi Z., Cremers L., Guisset P., LMS International, Belgium*
- 14:15 Semi-analytical finite elements for vibration analysis in the fluid-structure interaction of axisymmetrical shells  
*Dushin A.Y., The Saint-Petersburg Marine Technical State University, Russia*
- 14:40 On axially symmetric modes in finite elastic cylinders  
*Kari L., KTH Stockholm, Sweden*
- 15:05 Influence of the environment on the aeroacoustic behavior of axial fans  
*Maaloum K., Kouidri S., Bakir F., Rey R., LEMFI, France*

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### **APNC1 - Active and passive noise control**

- 13:00 Noise source evaluation testing on MTS series 320 road simulator  
*Frenz E., Dumbacher S., Allemang R., University of Cincinnati, USA ; Mergeay M., MTS Systems Corporation, USA*
- 13:25 Automobile engine low frequency noise reduction by complex using of active noise control method

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- Vassiliev A., Togliatti Polytechnic Institute, Russia*
- 13:50 Stability improvement for feedback noise control in ducts using a time delay compensator  
*Boonen R., Sas P., K.U.Leuven, Belgium*
- 14:15 A genetic algorithm method for optimizing rib arrangements in dynamically excited panels  
*Carfagni M., Governi L., Pierini M., University of Firenze, Italy*
- 14:40 Active reduction of sound transmission through double panel partitions - A physical analysis of the observed phenomena  
*De Fonseca P., Sas P., Van Brussel H., Henrioulle K., K.U.Leuven, Belgium*
- 15:05 Running cyclical wave-bolt  
*Arabadzhi V., RAS, Russia*

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### **DAMP1 - Damping**

- 13:00 Non-proportional damping and defective systems  
*Friswell M., Prells U., University of Wales Swansea, UK*
- 13:25 Modal analysis and damping measurements of an annular plate  
*Bilosová A., Ondrouch J., Technical University of Ostrava, Czech Republic*
- 13:50 Experimental dynamic behaviour of joints bonded by adhesive damping tapes  
*Petrone F., Università di Catania, Italy ; Garesci F., Politecnico di Milano, Italy*
- 14:15 Passive damping by resistive loaded piezoceramic devices  
*Agneni A., Balis Crema L., Sgubini S., Università degli Studi di Roma "La Sapienza", Italy*
- 14:40 Simulation of material damping based on constitutive stress relaxation models  
*Dovstam K., FFA, Sweden*
- 15:05 Improving the MSE method for damped structures  
*Landi F.P., Scarpa F., Rongong J.A., Tomlinson G.R., University of Sheffield, UK*

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### **DMNM1 - Dynamic modelling and numerical models**

- 13:00 On the possibility to minimize trajectory tracking errors of planar robots endowed with compliant joints  
*Incerti G., University of Brescia, Italy*
- 13:25 Identification method of ball-joints dynamic stiffness  
*Demeter I., Saneï N., Lardeur P., Renault S.A., France*
- 13:50 Spot weld modelling techniques and performances of finite element models for the vibrational behaviour of automotive structures

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- Lardeur P., Renault S.A., France ; Lacouture E., Gist Company, France ; Blain E., Renault S.A., France*
- 14:15 Envelope frequency response function calculation of uncertain structures  
*Moens D., Vandepitte D., K.U.Leuven, Belgium*

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## **IUNL1 - Identification and updating of non-linear structures**

- 15:55 Inversion of structural dynamics simulations : state-of-the-art and orientations of the research  
*Hemez F.M., Doebling S.W., Los Alamos National Laboratory, USA*
- 16:20 Applications of the conditioned reverse path method to structures with different types of non-linearities  
*Marchesiello S., Garibaldi L., Politecnico di Torino, Italy ; Wright J.R., Cooper J.E., University of Manchester, UK*
- 16:45 Modelling and updating of local stiffness and damping non-linearities using frequency response and mode indicator residuals  
*Meyer S., Weiland M., Link M., University of Kassel, Germany*
- 17:10 Identification technique for flexible beam structures  
*Reynier M., Université Paris X, France*
- 17:35 Detection, localisation and identification of nonlinearities in structural dynamics  
*Trendafilova I., K.U.Leuven, Belgium ; Lenaerts V., Kerschen G., Golinval J.-C., Université de Liège, Belgium ; Van Brussel H., Heylen W., K.U.Leuven, Belgium*
- 18:00 Identification of non-linear multi-degree of freedom systems using a force appropriation approach  
*Wright J.R., Platten M., Cooper J.E., Sarmast M., University of Manchester, UK*

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## **SUBC1 - Substructuring and coupling**

- 15:55 Error analysis for FRF-based substructuring  
*Brechlin E., LMS International, Belgium ; Bendel K., Robert Bosch GmbH, Germany ; Gaul L., University of Stuttgart, Germany*
- 16:20 Estimation and use of residual modes in modal coupling calculations: a case study  
*Hermans L., Mas P., Leurs W., Boucart N., LMS International, Belgium*
- 16:45 Model reduction for efficient FEM/BEM coupling  
*Kergourlay G., Balmès E., Clouteau D., Ecole Centrale Paris, France*
- 17:10 Reduction of finite element models of flexible structures for controller design and integrated modelling  
*Schönhoff U., Darmstadt University of Technology, Germany ; Eisenträger P., MAN*

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- Technologie AG, Germany ; Nordmann R., Darmstadt University of Technology, Germany*
- 17:35 Two methodological improvements for component mode synthesis  
*Brechlin E., LMS International, Belgium ; Gaul L., University of Stuttgart, Germany*
- 18:00 Dynamic substructuring in the medium-frequency range  
*Soize C., Mziou S., ONERA, France*

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### **LCO1 - Limit cycle oscillations**

- 15:55 Flutter prediction on a combat aircraft involving freeplay on control surfaces  
*Luber W.G., Daimler-Chrysler Aerospace AG, Germany*
- 16:20 Spatio-temporal adaptive synthesis of flight test accelerometer data : evaluation of a linear adaptive model  
*Johnson M.R., Principe J.C., Denegri C.M.Jr., University of Florida & Air Force SEEK EAGLE office, USA*
- 16:45 Modelling of non-linear aerodynamics during limit cycle oscillations  
*Sedaghat A., Vio G.A., Cooper J.E., Wright J.R., University of Manchester, UK*
- 17:10 On the computation of normal forms of ordinary differential equations using recursive formulas  
*Hsu L., Min L.-J., Favretto L., COPPE/UFRJ, Brazil*
- 17:35 Limit cycle oscillation model identification using the minimum model error method  
*Gopinathan A., Mortara S.A., Slater J.C., Wright State University, USA*

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### **DAFA1 - Results of Brite-Euram projects: DAFNOR, FACTS & SMARTACUS**

- 15:55 DAFNOR Distributed Active Foils for NOise Reduction - a project overview  
*Henriouille K., Sas P., K.U.Leuven, Belgium*
- 16:20 Noise radiation reduction of a car dash panel  
*Necati G.A., Ford-Werke AG, Germany ; Doppenberg E.J.J., TNO-TPD, The Netherlands ; Antila M., VTT Automation, Finland*
- 16:45 Experiments on the active reduction of sound transmission through light-weight constructions  
*Osipov A., Sas P., K.U.Leuven, Belgium ; Carme C., Nicolas M., TechnoFirst, France ; Rupp R., Pfleiderer A.G., Germany*
- 17:10 In-plane and out-of-plane coupling of matched PVDF sensor actuator pairs for active structural acoustic control  
*Gardonio P., Lee Y.S., Elliot S.J., ISVR, UK ; Debost S., Thomson Marconi Sonar,*

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- France*
- 17:35 Modeling of smart piezoelectric shell structures with finite elements  
*Piefort V., Preumont A., ULB, Belgium*
- 18:00 Acoustic noise modeling and identification using neural and fuzzy techniques  
*Conchinha J.M., Silva C.A., Sousa J.M., Ayala Botto J.M., Sá da Costa J.M.G., Technical University of Lisbon, Portugal*

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### **DDL11 - Damage detection, localisation and identification**

- 15:55 Identification and damage detection using FRF experimental data with applications to a wing structure  
*Mastroddi F., Università degli Studi di Roma "La Sapienza", Italy*
- 16:20 Impulse response function methods for damage localization  
*Huth O., Bucher C., Universität Weimar, Germany*
- 16:45 A simulation model for training neural networks to recognise bearing faults  
*Randall R.B., Gao Y., University of New South Wales*
- 17:10 Nonlinear modulation methods of structural damage detection based on dissipative nonlinear effects  
*Zaitsev V., Sas P., Wevers M., K.U.Leuven, Belgium*
- 17:35 Micro-concrete ageing ultrasonic identification  
*Cheng C., Science and Technology University, China ; Deschamps M., CNRS, France ; Panet M., EDF, France ; Poncelet O., Audoin B., CNRS, France*

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### **OPMA1 - Operating modal analysis**

- 15:55 Identification of non-minimum phase transfer functions from output-only measurements  
*Antoni J., Guillet F., Danière J., LASPI, France*
- 16:20 Validation of the balanced realisation method for extraction of modal parameters on civil structures  
*Dierckx B., Deweer J., Pauwels S., Leurs W., LMS International, Belgium*
- 16:45 Modal testing of mechanical structures subject to operational excitation forces  
*Møller N., Brüel & Kjør A/S, Denmark ; Brincker R., Aalborg University, Denmark ; Herlufsen H., Brüel & Kjør A/S, Denmark ; Andersen P., Structural Vibrations Solutions ApS, Denmark*
- 17:10 Application of operational modal analysis to diagnostics of a big fan  
*Lisowski W., Uhl T., University of Mining and Metallurgy Kracow, Poland*
- 17:35 Output-only modal analysis by frequency domain decomposition  
*Brincker R., Aalborg University, Denmark ; Zhang L., Nanjing University of Aeronautics*

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## **Thursday September 14, 2000 - Morning sessions**

### **RWNV1 - Railway noise and vibration**

- 9:00 Recording, estimating and managing the dynamic behaviour of railway structures  
*de Man A.P., Esveld C., Delft University of Technology, The Netherlands*
- 9:25 Noise and vibration attenuating measures for modern railway superstructures  
*Pichler D., VCE, Austria*
- 9:50 Analysing the structural dynamics of a train carriage  
*Storer D., Centro Ricerche FIAT, Italy ; Vanolo P., FIAT Ferroviaria, Italy*
- 10:15 Noise, vibration and durability problems in rail vehicle design  
*Uhl T., University of Mining and Metallurgy Krakow, Poland ; Chudzikiewicz A., Technical University of Warsaw, Poland*

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### **RDOF2 - Rotational degrees of freedom**

- 9:00 Measuring RDOFs using laser doppler vibrometer  
*Ziaei-Rad S., Martarelli M., Ewins D.J., Imperial College, UK*
- 9:25 Measurement of structural sensitivity with RDOFs and relative importance of TDOF and RDOF amplitudes  
*Ziaei-Rad S., Ewins D.J., Imperial College, UK*
- 9:50 Dynamic rotation estimates using low cost PZT's  
*Bello M., Università di Roma "La Sapienza", Italy ; La Gala F., INSEAN, Italy ; D'Ambrogio W., Università de L'Aquila, Italy ; Sestieri A., Università di Roma "La Sapienza", Italy*
- 10:15 An indirect method for the estimation of frequency response functions involving rotational d.o.f.s  
*Silva J.M.M., Maia N.M.M., Ribeiro A.M.R., Instituto Superior Técnico, Portugal*

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## **VNVM1 - Vehicle noise and vibration: methods**

- 9:00 Enabling vibro-acoustic optimization in a superelement environment: a case study  
*Hermans L., Brughmans M., LMS International, Belgium*
- 9:25 An analytical-experimental method for analysing the low-frequency interior acoustics of a passenger car  
*Debeaux E., Claessens M., Audi AG, Germany ; Hu X., EDAG, Germany*
- 9:50 Methods for improving the objective description of subjective car vibration quality assessments  
*Bellmann M.A., Weber R., Baumann I., C.v. Ossietsky Universität Oldenburg, Germany ; Hillebrand P., Volkswagen AG, Germany ; Mellert V., C.v. Ossietsky Universität Oldenburg, Germany*
- 10:15 Vibration and dynamic instability of moving load systems  
*Ouyang H., Mottershead J., Li W., University of Liverpool, UK*

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## **VCAP1 - Active and passive vibration control**

- 9:00 Control of rotor systems with parametric excitation using gain-scheduled H-infinity control  
*Bienert J., Ford Werke, Germany*
- 9:25 H infinity feedback control for signal tracking on a 4 poster test rig in the automotive industry  
*De Cuyper J., LMS International, Belgium ; Swevers J., K.U.Leuven, Belgium ; Verhaegen M., University of Twente, The Netherlands ; Sas P., K.U.Leuven, Belgium*
- 9:50 Active viscous damping system for control of MDOF structures  
*Ribakov Y., Gluck J., Technion, Israel*

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## **DMON1 - Damage monitoring**

- 9:00 Effect of crack locations on the vibration characteristics of MDOF rotor systems  
*Kim J., Ewins D.J., Imperial College London, UK*
- 9:25 Application of joint time frequency analysis for early crack detection on one-stage gear drive  
*Lakota M., Flasker J., University of Maribor, Slovenia*
- 9:50 Study and application of vibration diagnosis techniques for diesel engines  
*Yang J., Wang X., Wuhan Transportation University, P.R. China*
- 10:15 Application of model-based health monitoring to a seismically loaded structure  
*Fritzen C.-P., Bohle K., Stepping A., University of Siegen, Germany*

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### **RMDP1 - Rotating machinery: data processing**

- 9:00 Correlation analysis of time-varying signals by the wavelet obtained from measurement  
*Ishimitsu S., Oshima National College of Maritime Technology, Japan ; Kitagawa H., Hagino N., Horihata S., Toyohashi University of Technology, Japan*
- 9:25 Cyclostationary approach for the early diagnosis and physical analysis of industrial signals  
*Bouillaut L., Sidahmed M., Université de Technologie de Compiègne, France*
- 9:50 FFT vs. Vold-Kalman based order analysis of a gearshift event  
*Gade S., Herlufsen H., Konstantin-Hansen H., Brüel & Kjær, Denmark ; Vold H., Vold Solutions Inc. , USA*
- 10:15 Hopf bifurcation analysis of a rotor/seal system  
*Ding Q., Tianjin University, PR China ; Cooper J.E., The University of Manchester, UK*

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### **VAA1 - Vibro-acoustic analysis**

- 11:05 Effects, interpretation and practical application of truncated SVD in the numerical solution of inverse radiation problems  
*Márki F., Augusztinovicz F., Budapest University of Technology and Economics, Hungary*
- 11:30 Experimental modal analysis of a cavity using a calibrated acoustic actuator  
*Rossetto G.D., Arruda J.R.F., Huallpa B.N., Universidade Estadual de Campinas, Brazil*
- 11:55 A complete analysis of dynamic behaviour of hermetic compressor cavity to improve the muffler design  
*Della Libera M., Faraon A., Solari A., Electrolux Compressors, Italy*

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### **SUBC2 - Substructuring and coupling**

- 11:05 Evaluation of the FRF based substructuring and modal synthesis technique applied to vehicle FE data  
*Cuppens K., Sas P., K.U.Leuven, Belgium ; Hermans L., LMS International, Belgium*
- 11:30 Model reduction for structures with damping and gyroscopic effects

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- Friswell M., University of Wales Swansea, UK ; Penny J.E.T., Aston University, UK ; Garvey S.D., Nottingham University, UK*
- 11:55 Reduction methods in structural coupling  
*Urgueira A.P.V., Faculdade de Ciências e Tecnologia, Portugal ; Maia N.M.M., Instituto Superior Técnico, Portugal ; Almeida R.A.B., Faculdade de Ciências e Tecnologia, Portugal*

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## **VNVM2 - Vehicle noise and vibration: methods**

- 11:05 Solving vehicle noise problems by analysis of the transmitted sound energy  
*Haverkamp M., Ford Werke AG, Germany*
- 11:30 Body in white panel noise assessment through spatial and modal contribution analysis  
*Van der Linden P.J.G., Gérard F., Michiels K., Van der Auweraer H., LMS International, Belgium ; Storer D., Centro Ricerche Fiat, Italy*
- 11:55 Associating the vibrations of car body panels to the internal acoustic response  
*Vanolo M., Storer D., Centro Ricerche FIAT, Italy ; Van der Auweraer H., LMS International, Belgium*

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## **VCAP2 - Active and passive vibration control**

- 11:05 Semi-active suspension with fuzzy controller optimized by genetic algorithm  
*Sireteanu T., Institute of Solid Mechanics, Romania ; Stammers C.W., University of Bath, UK ; Giuclea M., National Institute of Microtechnology, Romania ; Ursu I., National Institute for Aerospace research, Romania*
- 11:30 Air spring as the actuator of active electro-pneumatic suspension system  
*Stein G.J., Tököly B., Slovak Academy of Sciences, Slovak Republic*
- 11:55 A nonlinear vibration absorber based on nonlinear control methods  
*Vazquez B., Silva G., Alvarez Ja., Centro de Investigacion y de Estudios Avanzados del I.P.N., Mexico*

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## **DDLI2 - Damage detection, localisation and identification**

- 11:05 Time series analyses for locating damage sources in vibration systems  
*Hoon Sohn, Farrar C.R., Los Alamos National Laboratory, USA*
- 11:30 Structural damage identification via grey relational analysis of SVD-processed FRFs  
*Zang C., Imregun M., Imperial College London, UK*
- 11:55 Accurate modelling and damage detection in high safety and cost structures (AMADEUS)  
*Alexiou K., CASA Space Division, Spain*

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## **Thursday September 14, 2000 - Afternoon sessions**

### **NOLI1 - Non-linearities**

- 13:45 A parameter identification procedure for systems with weak non-linear damping forces  
*Meskill C., Trinity College, Ireland*
- 14:10 Is a modal superposition possible for mechanical systems with impacts?  
*Lamarque C.H., Janin O., Ecole Nationale des Travaux Publics de L'Etat, France*
- 14:35 Polynomial, non-polynomial, and orthogonal polynomial generating functions for nonlinear system identification  
*Adams D.E., Purdue University, USA ; Allemang R.J., University of Cincinnati, USA*
- 15:00 Non-linear dynamic analysis of beams and frames in the time domain by the hierarchical finite element method  
*Ribeiro P., Universidade do Porto, Portugal*
- 15:25 Cross-wavelet analysis of MDOF nonlinear systems  
*Staszewski W.J., Sheffield University, UK*

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### **RMAP1 - Rotating machinery: applications**

- 13:45 Experimental evaluation of linear and non-linear pedestal identification  
*Feng N.S., Hahn E.J., The University of New South Wales, Australia*
- 14:10 Prediction of points and tendencies of the pressure waveform from crankshaft speed measurements  
*Johnsson R., Ågren A., Luleå University of Technology, Sweden ; Klopotek M., SCANIA CV AB, RTVA, Sweden*
- 14:35 A direct approach for the investigation of the mistuning effects on the bladed discs dynamic behaviour  
*Scarselli G., Lecce L., Esposito C., University of Naples "Federico II", Italy ; Cirillo V.,*

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- FIAT Avio, Italy*
- 15:00 Monitoring of turning tool wear using vibration measurements and neural network classification  
*Scheffer C., Heyns P.S., University of Pretoria, South Africa*

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### **VNVA1 - Vehicle noise and vibration: applications**

- 13:45 Local damping effects in acoustic analysis of large FE engine structures  
*Fischer P., Engelbrechtsmüller M., Steyr-Daimler-Puch AG, Austria*
- 14:10 Prediction of structural and kinematic coupled vibration on internal combustion engine  
*Kawamoto A., Inagaki M., Aoyama T., Mori N., Toyota Central R&D Labs., Japan ;  
Ikeura O., Uno T., Yamamoto K., Toyota Motor Corporation, Japan*
- 14:35 Optimization of an AWD electromechanical biasing clutch system for vibration reduction  
*Fair C., Isley D., BorgWarner, USA*

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### **MHFR1 - Medium and high frequency techniques**

- 13:45 Interpreting complex modes as a wave propagation phenomenon  
*Ahmida K.M., Arruda J.R.F., Universidade Estadual de Campinas, Brazil*
- 14:10 A wavelength criterion for the validity of the Energy Finite Element Method for plates  
*Moens I., Vandepitte D., Sas P., K.U.Leuven, Belgium*
- 14:35 Numerical and experimental activities with the seanet three plates assembly  
*De Rosa S., Monaco E., Franco F., Marulo F., University of Naples "Federico II", Italy*
- 15:00 Application of the efficient wave based prediction technique for the steady-state dynamic analysis of flat plates  
*van Hal B., Desmet W., Vandepitte D., Sas P., K.U.Leuven, Belgium*
- 15:25 Estimation of frequency response statistics in structures with uncertain parameters  
*Mace B.R., The University of Southampton, UK*

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## **SDMC1 - Structural dynamic analysis: methods and cases**

- 13:45 Pyroshock tests on a solar array holddown and release system  
*Doejaaren F., Wijker J., Fokker Space B.V., The Netherlands*
- 14:10 A novel technique for measuring the reflection coefficient of sound absorbing materials  
*de Bree H.-E., TU Twente TT, The Netherlands ; van der Eerden F.J.M., TU Twente TMK, The Netherlands ; van Honschoten J.W., TU Twente TT, The Netherlands*
- 14:35 Modal testing of rotating wind turbine rotor using torque input  
*Johansen S., Delta Acoustics & Vibration, Denmark*
- 15:00 Experimental characterization of the dominant noise radiating mechanism of a rotating prop shaft  
*Lacin S., LMS North America, USA ; Blough J.R., Van Karsen C., Michigan Technological University, USA*

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## **VAA2 - Vibro-acoustic analysis**

- 16:15 Vibration and internal noise prediction of an aircraft fuselage in the low- and medium-frequency ranges  
*David J.-M., Guillaumie L., ONERA, France*
- 16:40 Development of a tool for vibro-acoustic design of timing belts by integration of laser Doppler vibrometry and boundary element techniques  
*Di Sante R., Tomasini E.P., Università degli Studi di Ancona, Italy ; Rossi G.L., Università degli Studi di Perugia, Italy*
- 17:05 Hybrid strain analysis applied to a partly viscoelastic vibrating structure  
*Sehlstedt N., The Aeronautical Research Institute of Sweden, Sweden*
- 17:30 Acoustic field in the stiffened shell from the dipole source  
*Baranov S.N., Russian Aviation Co, Russia ; Efimtsov B.M., Zverev A.Y., Chernyh V.V., TsAGI, Russia*

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## **INST1 - Instrumentation**

- 16:15 3D-PulsESPI technique for measurement of dynamic structure response  
*Krupka R., Walz T., Ettemeyer A., Wang Z., Dr. Ettemeyer GmbH & Co., Germany*
- 16:40 Pulsed laser ESPI technology as a quantitative modal testing technique  
*Mayer T., Schubert B., Steinbichler H., Steinbichler Optotechnik GmbH, Germany*
- 17:05 Reducing modal testing time using a new tool 'Modal Test Consultant'  
*Gade S., Møller N.B., Brüel & Kjær, Denmark*
- 17:30 Multi-arrayed sonic digitizer system for improved coordinate measurements  
*Bono R.W., Lally M.J., The Modal Shop Inc., USA ; Hult J., Nilsson O., Larsson A.,*

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### **TPSI1 - Transfer path analysis and source identification**

- 16:15 The identification of diesel engine noise sources  
*Li W., Gu F., Ball A.D., Leung A.Y.T., The University of Manchester, UK*
- 16:40 PULSE(tm) modal test consultant using MATLAB(tm) a dedicated tool for noise path analysis  
*Glibert P., Møller N.B., Ryu Y.S., Brüel & Kjør, Denmark*
- 17:05 Comparison of the use of two methods for characterising structure-borne sound sources  
*Janssens M.H.A., Termeer M.K., de Jong C.A.F., TU Delft, The Netherlands*
- 17:30 Engine noise characterization using an inverse boundary element method  
*Défosse H., Damagnez F., Hamdi M.A., Straco, France ; Frikha S., Ollivier F., University of Pierre et Marie Curie, France ; Varet T., Beauvilain T., I.D.V.U., France*

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### **VCAP3 - Active and passive vibration control**

- 16:15 Optimal design of smart structures using bonded piezoelectrics for vibration control  
*Lopes V.Jr., UNESP, Brazil ; Steffen Valder Jr., Federal University of Uberlândia, Brazil ; Inman D.J., Virginia Polytechnic Institute and State University, USA*
- 16:40 Strategies for distributed piezoelectric actuator/sensor placement by noise effect minimisation and modal controllability/observability  
*De Boe P., Simon D., Golinval J.-C., Université de Liège, Belgium*
- 17:05 Trajectory tracking for a flexible manipulator by observer based feedback control  
*Nielsen H.S., Technical University of Denmark, Denmark ; Panzieri S., Università di Roma Tre, Italy*
- 17:30 Auto-tuning of a tuneable structural insert  
*Harland N.R., University of Auckland, New Zealand ; Mace B.R., University of Southampton, UK ; Jones R.W., Lulea University of Technology, Sweden*

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## **DDLI3 - Damage detection, localisation and identification**

- 16:15 Damage detection for helicopter rotor blades in operative conditions  
*Corbelli A., Mastroddi F., Università degli Studi di Roma "La Sapienza", Italy ;  
Gennaretti M., Università Roma Tre, Italy*
- 16:40 On the applicability of sensitivity-based damage localization techniques  
*Parloo E., Guillaume P., Van Overmeire M., VUB, Belgium*
- 17:05 Damage localisation in a plate structure using novelty indices  
*Manson G., Remillat C., Worden K., University of Sheffield*

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## **Thursday September 14, 2000 - Poster presentations**

- 15:25- Application of experimental modal analysis and sound intensity in determining diesel-  
16:15 engine noise emission  
*Petrovic P., Jankovic S., Industrija Motora Rakovica d.d. Beograde, Yugoslavia ;  
Ognjanovic M., University of Belgrade, Yugoslavia*
- On dynamics and control of a rotor system with bearing clearance  
*Shukla A., Thompson D.F., University of Cincinnati, USA*
- Rotor vibration reduction using polymeric supports  
*Dutt J.K., Toi T., Chiba N., Chuo University, Japan*

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## **Friday September 15, 2000 - Morning sessions**

### **SDMC2 - Structural dynamic analysis: methods and cases**

- 9:00 3-Dimensional animation of a real disc brake generating noise  
*Talbot C., Al.Banawi K., Fieldhouse J.D., The University of Huddersfield, UK*
- 9:25 The technique of holographic interferometry used to investigate a noisy commercial disc  
brake  
*Beveridge C., Fieldhouse J.D., Talbot C., The University of Huddersfield, UK*
- 9:50 Improvement on picture image disturbance of CRT display due to external vibration  
*Okubo N., Tokumoto K., Toi T., Chuo University, Japan ; Saita K., Sony Corporation,  
Japan*
- 10:15 Multivariate ARMA identification and model comparison of a wing tank assemblage  
*Kurka P.R.G., Universidade Estadual de Campinas, Brazil*

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## **OSCA1 - Results of Brite-Euram project: OSCAR**

- 9:00 General presentation of OSCAR : Optimisation of structural connections for noise and vibration reduction BE96-3495  
*Rehfeld M., Saint Gobain Vitrage CDI, France*
- 9:25 Characterisation methods and ranking of mechanical joints  
*Feng L., Nilsson A., KTH, Sweden*
- 9:50 Measurement of vibroacoustical properties of mechanical joints  
*Pavic G., INSA/LVA, France*
- 10:15 Reducing vibration levels using 'smart joint' concepts  
*Rongong J.A., University of Sheffield, U.K.*

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## **SPID1 - System and parameter identification**

- 9:00 Optimal excitation for identification of a cam set-up  
*Demeulenaere B., Lampaert V., Swevers J., De Schutter J., K.U.Leuven, Belgium*
- 9:25 Condensation of frequency response test data by the QR decomposition  
*Rades M., Universitatea Politehnica Bucuresti, Romania*
- 9:50 Identification of rigid body properties of 3-D frame structure by MCK identification method  
*Okuma M., Tokyo Institute of Technology, Japan ; Heylen W., Sas P., K.U.Leuven, Belgium*
- 10:15 Adaptive Kalman filter for noise identification  
*Oussalah M., De Schutter J., K.U.Leuven, Belgium*

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## **VCAP4 - Active and passive vibration control**

- 9:00 Active vibration control based on finite element models: How to gain a valid model  
*Zehn M.W., Enzmann M., Otto-von-Guericke-Universität Magdeburg, Germany*
- 9:25 Active vibration control using positive position feedback: guidelines and experimental results  
*Lay A., Kröplin B., University of Stuttgart, Germany*
- 9:50 Adaptive active control of flexural vibrations using wave amplitude as a cost function  
*Mace B.R., The University of Southampton, UK ; Halkyard C.R., The University of Auckland, New Zealand*
- 10:15 Noise analysis and noise reduction of small DC motors  
*Pfliegel P., Augusztinovicz F., Gránat J., Budapest University of Technology and Economics, Hungary*

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## **MUC1 - Model updating and correlation**

- 9:00 Numerical and experimental characterization of a military fighter engine keel beam  
*Sollo A., Pezzolla A., Alenia Aerospace, Italy ; Lecce L., University of Naples Federico II, Italy*
- 9:25 Problems of investigation of structural dynamics properties of helicopter airframe  
*Lisowski W., Uhl T., University of Mining and Metallurgy Kracow, Poland ; Malecki J., PZL Swidnik, Poland ; Hermans L., Van der Auweraer H., LMS International, Belgium*
- 9:50 Industrial model updating of civil four-engine aircraft in NASTRAN environment - An overview  
*Schaak H., Aérospatiale-Matra Airbus, France*
- 10:15 A systematic approach for physical realization of updated models  
*Ahmadian H., Iran University of Science and Technology, Iran ; Mottershead J.E., University of Liverpool, UK ; Friswell M.I., University of Wales, UK*

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## **VAM2 - Vibro-acoustic modelling**

- 11:05 A finite difference analysis of plate vibration using a wave expansion technique  
*Rice H.J., Ruiz G., Trinity College, Ireland*
- 11:30 Element-free Galerkin method applied to acoustics : multi-processor assembly algorithm  
*Lacroix V., Suleau S., Bouillard Ph., VUB, Belgium*
- 11:55 An efficient formulation for the analysis of acoustic and elastic waves propagation in porous-elastic materials  
*Hamdi M.A., Mebarek L., Omrani A., Straco, France ; Atalla N., GAUS, Canada*

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## **OSCA2 - Results of Brite-Euram project: OSCAR**

- 11:05 Modeling and identification of joints' parameters : application to bolted plates  
*Deraemaeker A., Ladevèze P., LMT-Cachan, France ; Collard E., Leconte P., Thomson CSF Optronique, France*
- 11:30 Simple joint models  
*Jarvis B.P., EATEC, UK*

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11:55 Applications within the OSCAR project  
*Carniel X., CETIM, France*

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### **RMDP2 - Rotating machinery: data processing**

- 11:05 Diagnostic modules based on chaos theory for condition monitoring of rotating machinery  
*Aonzo E., Lucifredi A., Silvestri P., University of Genova, Italy*
- 11:30 Frequency domain maximum likelihood identification of sinusoids applied to rotating machinery  
*Guillaume P., Badredin K., Van Overmeire M., VUB, Belgium*
- 11:55 Time signal characterization for diagnosis of rotating machinery  
*Koizumi T., Tsujiuchi N., Inaba K., Doshisha University, Japan ; Matsumura Y., University of Shiga Prefecture, Japan*

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### **DAMP2 - Damping**

- 11:05 Damping of structural vibrations by vortex shedding  
*Basten T.G.H., Tijdeman H., University of Twente, The Netherlands*
- 11:30 Using passive techniques for vibration damping in mechanical systems  
*Steffen V.Jr., Rade D.A., Federal University of Uberlandia, Brazil ; Inman D.J., Virginia Polytechnic Institute and State University, USA*
- 11:55 Damping performance of constrained layer damping coatings based on gradient polymer materials  
*Remillat C., Tomlinson G.R., University of Sheffield, UK*

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### **MUC2 - Model updating and correlation**

- 11:05 Using genetical optimisation to update experimental structures including damping  
*Algrain H., Dehombreux P., Verlinden O., Conti C., Faculté Polytechnique de Mons, Belgium*
- 11:30 Selection and updating of parameters for the GARTEUR SM-AG19 testbed

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*Mares C., Mottershead J.E., The University of Liverpool, UK ; Friswell M.I., University of Wales, UK*

- 11:55 Determination of spatially distributed probability density functions for parameter estimation in model updating procedures  
*Zehn M.W., Saitov A., Otto-von-Guericke-Universität Magdeburg, Germany*

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## **Friday September 15, 2000 - Afternoon sessions**

### **SDMC3 - Structural dynamic analysis: methods and cases**

- 13:45 On the problem of obtaining consistent estimates from multi-patch modal tests  
*Van der Auweraer H., Leurs W., Mas P., Hermans L., LMS International, Belgium*
- 14:10 Non-contact modal analysis by laser excitation: estimation of the "equivalent" input force  
*Castellini P., Revel G.M., Scalise L., Università degli Studi di Ancona, Italy*
- 14:35 Structural dynamics of weaving machines : combined use of experimental modal analysis and FE simulation as an optimisation tool  
*Deger Y., Sulzer Innotec Ltd., Switzerland*

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### **INST2 - Instrumentation**

- 13:45 New developments in multi-channel test systems  
*Bono R.W., Dillon M.J., The Modal Shop Inc., USA ; Brown D.L., University of Cincinnati-SDRL, USA*
- 14:10 Reducing total test and analysis time by the use of smart transducers  
*Vancauter R., Dierckx B., Dewilde J.-M., LMS International, Belgium*
- 14:35 Binary sequence excitation by pressurized air  
*Daerden F., Guillaume P., V.U.B., Belgium*

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### **SPID2 - System and parameter identification**

- 13:45 Critical comparison and assessment of SISO time-domain parametric methods for the

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- identification of vibrating systems  
*Petsounis K.A., Fassois S.D., University of Patras, Greece*
- 14:10 A subspace fitting method for structure modal identification in time domain  
*Clara Serra R., Raffy M., Gontier C., Ecole d'Ingénieur du Val de Loire, France*
- 14:35 Modal identification in presence of noise using an optimisation approach  
*Thonon C., Golinval J.-C., Université de Liège, Belgium*

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### **DCIS1 - Dynamic behaviour of civil structures**

- 13:45 The validation of a numerical prediction model for free field traffic induced vibrations by in situ experiments  
*Lombaert G., Degrande G., K.U.Leuven, Belgium*
- 14:10 The dynamic behaviour of a historical bell tower - in-situ tests and numerical investigations  
*Zabel V., Bucher C., Riedel J., Bauhaus-University Weimar, Germany*
- 14:35 Modeling a native American ruin: determination of an upper-bound earthquake at Los Alamos National Laboratory  
*Cundy A.L., Farrar C.R., Los Alamos National Laboratory, USA*
- 15:00 Dynamic identification of masonry buildings by forced vibration tests  
*Antonacci E., Università dell' Aquila, Italy ; De Sortis A., Servizio Sismico Nazionale, Italy ; Vestroni F., Università di Roma "La Sapienza", Italy*