

*PS01*

Monday, July 3, 2006

*Hofburg*

## Opening Plenary Session 1

Chairperson: B.GIBBS

09:15      **Welcome addresses and music**

10:00      Active and passive damping of structures  
Inman, D.J.\*; Tarazaga, P.; Salehian, A.

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*PS02*

Monday, July 3, 2006

*AudiMax*

## **Plenary Session 2**

Chairperson: J. VERHEIJ

13:10

The tuned liquid column damper as the cost-effective alternative of the mechanical damper within vibration prone civil engineering structures  
**Ziegler, F.\***

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RS03-1

Monday, July 3, 2006

AudiMax

## Active Noise and Vibration Control

Chairperson: N. TANAKA

14:10	Mutually converging adaptive feedback active noise control with on-line secondary path modeling <b>Chou, C.*; Li, H.; Chang, C.</b>	8
14:30	An approach to active noise control <b>El-Bardisi, M.*</b>	9
14:50	Synthesis of control algorithms for active vibration isolation system constructed on the basis of mechanism with parallel kinematics <b>Rybak, L.*; Chichvarin, A.; Shatochin, U.</b>	10
15:10	Development of CO-FXLMS algorithm for the performance improvement in the active noise control <b>Oh, J.; Lee, K.*; Lee, H.; Ahn, Y.; Lee, J.</b>	11
15:30 Withdrawn	Using fuzzy logic to control active suspension system of one-quarter-car model <b>Rakhsha, R.*; Ghazavi, S.</b>	12

<i>SS05-1</i>	Monday, July 3, 2006	<i>H2</i>
<b>Pattern Recognition in Acoustics and Vibration</b>		
Organiser: L. GELMAN		
14:10	Use of acoustic intensity spatial distribution & frequency spectra for machinery condition monitoring <b>Marscher, W.*</b>	14
14:30	A review of applications for advanced engine health monitoring in civil aircraft engines <b>King, S.*; Anuzis, P.; King, D.</b>	15
14:50	Time-frequency segmentation for engine speed monitoring <b>Millioz, F.*; Martin, N.</b>	16
15:10	Discrete wavelet-based thresholding study on acoustic emission signals to detect bearing defect on a rotating machine <b>Feng, Y.*; Schlindwein, F.</b>	17

RS14-1

Monday, July 3, 2006

H3

## Low-Frequency Noise and Vibration

Chairpersons: B. GYGI, S.A. MCINERNY

14:10	Energy minimisation criterion as a methodological guide to the dynamic analysis and optimisation of fully trimmed and equipped vehicles <b>Avenati-Bassi, F.*; Lorea, S.; Tinti, F.</b>	18
14:30	A study on the low vibration design of 4,100 teu container carrier superstructure using the structural intensity analysis <b>Kim, B.*; Park, H.; Choi, S.; Kim, B.; Cho, D.</b>	19
14:50	Natural vibration analysis for stiffened plate of ship tank side in contact with water using assumed mode method <b>Kim, B.*; Cho, D.</b>	20
15:10	A systems approach to powertrain dynamics <b>Guzzomi, A.*; Stone, B.</b>	21
15:30	The suppression of vibration in machining <b>Stone, B.*</b>	22

<i>RS01-1</i>	Monday, July 3, 2006 <b>Acoustic Signal Processing</b> Chairperson: L. FENG	<i>H4</i>
14:10	Impulse response pressure transducer <b>King, J.*</b>	23
14:30	Analysis of a hybrid control algorithm for disturbance rejection and its application on an active isolation system <b>Tsai, M.*; Huang, C.; Yeh, C.</b>	24
14:50	Design and analysis of a low-frequency active vibration isolator <b>Sun, Q.*; He, X.</b>	25
15:10	Mode localization in doubly coupled cantilever beams in cyclic configurations. <b>Al-Jawi, A.*; Mohamad, A.; Hawsawy, A.</b>	26
15:30 Withdrawn	Eigenfrequencies analysis of the Helmholtz problems <b>Yas'ko, M.*</b>	27

RS07-1

Monday, July 3, 2006

H5

## Computational Acoustics

Chairperson: A. MOORHOUSE

14:10 Withdrawn	Finite element modeling of piezoelectric materials using 3D element <b>Shaeri, N.*; Sadr Lahidjani, M.; Yousefi-Koma, A.</b>	28
14:10 NEW	Active vibration and noise control of thin-walled structures based on an overall finite element model <b>Gabbert, U.*; Lefevre, J.; Nestorovic, T.; Laugwitz, F.; Schmidt, G.</b>	29
14:30 NEW	Assessing sound insulation provided by a lateral confined single layer using a bem approach <b>Pereira, A.*; Tadeu, A.</b>	30
14:50 NEW	Method of fundamental solutions for the purpose of coupling boundary elements to a raytracing procedure <b>Langer, S.*; Hampel, S.</b>	31
15:10 NEW	Acoustical response of a room with computational techniques - improving direct diffuse rays as an extension of specular images method <b>Feo Rodríguez, W.*</b>	32

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## Underwater and Ship Acoustics

Chairpersons: N. KESSISSOGLOU, R. LACKNER

14:10	Broadband passive synthetic aperture towed array processing <b>Sullivan, E.*; Holmes, J.; Carey, W.</b>	33
14:30	Data error covariance matrix for vertical array data in an ocean waveguide <b>Huang, C.*</b>	34
14:50	Classification of underwater objects by means of an acoustic method <b>Kozaczka, E.*</b>	35
15:10	Underwater surface ship signature <b>Gloza, I.*</b>	36



RS18-1

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H7

## Modal Analysis

Chairpersons: A. BARTOLINI, H. TSURU

14:10	Identification of spatial dynamic properties of the boring bar by means of finite element model: comparison with experimental modal analysis and Euler-Bernoulli model <b>Smirnova, T.*; Åkesson, H.; Håkansson, L.; Claesson, I.; Lagö, T.</b>	37
14:30	Free vibration of response of multiphase magneto-electro-elastic plates by finite element method <b>Swarnamani, S.; Ganesan, N.; Annigeri, A.*</b>	38
14:50	Multivariable frequency-domain system identification algorithms for experimental and operational modal analysis <b>Guillaume, P.*; De Troyer, T.; De Sitter, G.; Devriendt, C.</b>	39
15:10	The frequency mapping of modal parameters identification by the rational fractional polynomial method <b>Chen, K.</b>	40
15:30	Optimization of a coupled fluid-structure system using a modal approach <b>Beset, S.*; Jezequel, L.</b>	41

SS35-1	Monday, July 3, 2006 <b>Silent Roads</b> Organisers: W. VAN KEULEN, L. GOUBERT	H8
14:10	The state of the art in the field of silent road surfaces in the Netherlands <b>Bochove, Van, G.*</b>	42
14:30	On the numerical effects of replacing silent roadtypes by non-silent roadtypes on roundabouts <b>Van Keulen, W.*; Schuddeboom, J.</b>	43
14:50	Monitoring 20 silent roads over 10 years in the municipality of Groningen <b>Sikma, K.; Hoekstra, E.; van Keulen, W.*</b>	44

<i>RS05-1</i>	Monday, July 3, 2006	<i>S9</i>
<b>Architectural Acoustics</b>		
Chairperson: M. CUDINA		
14:10	Acoustic situation at the St. Stephen's cathedral in Vienna <b>Fellner, M.*; Graf, F.; Graber, G.; Rohde, T.; Egger, J.</b>	45
14:30	Different solutions for the electro acoustic diffusion system in San Lorenzo cathedral's in Perugia <b>Buratti, C.; Cotana, F.; Vergoni, M.*</b>	46
14:50	The "maria regina della pace" church in Perugia: acoustic measurements and correction design <b>Buratti, C.; Mariani, R.*; Costarelli, I.</b>	47
15:10	Acoustic measurement and simulation of an important shrine in Sicily <b>Barbaro, S.*; Caracausi, R.</b>	48
15:30	Acoustic measurement and simulation of a sport centre in Italy <b>Barbaro, S.*; Caracausi, R.</b>	49

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S10

## Sound Quality and Applications

Organiser: S. WANG

14:10	Evaluation of loudness and sharpness of refrigerator noise <b>Jeon, J.*; You, J.; Lee, J.; Joo, J.</b>	50
14:30	Development of the target sound for the vaccum cleaner with respect to the consumer's perception <b>Lee, J.*; Joo, J.; Jeoung, J.; Lee, J.</b>	51
14:50	Analysis of the loud and sharp of the hvac system using the design of experiments <b>Oh, J.*; Park, S.; Kim, H.; Sim, H.; Lee, J.</b>	52
15:10	Objective speech quality measure by the empirical modes decomposition method <b>Abdelaziz, O.; Kamel, Y.*</b>	53

<i>SS15-1</i>	Monday, July 3, 2006 <b>Aeroacoustics</b> Organiser: S. KAJI	<i>S11</i>
14:10	From jet noise to rocket noise <b>McInerney, S.*</b>	54
14:30	Acoustic-to-mechanic efficiency of turbulent jets <b>Krasheninnikov, S.; Mironov, A.*</b>	55
14:50	Relating far field noise spectra of cold and hot jets <b>Musafir, R.*</b>	56
15:10	Frequency halving due to vortex pairing for the jet-slot oscillator <b>Billon, A.*; Glessner, M.; Valeau, V.; Sakout, A.</b>	57
15:30	Numerical inverse method predicting spinning modes radiated by a ducted fan from free-field simulated test data <b>Lewy, S.*; Gounet, H.</b>	58

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S12

## Noise & Vibration Control in Vehicles

Organiser: N. IVANOV

14:10	Investigation of construction machine cab noise generation <b>Ivanov, N.*; Copley, D.; Kurtsev, G.</b>	59
14:30	Prediction of car interior noise using frf-based substructuring and transfer path analysis <b>Jeong, W.*; Kang, Y.; Kim, S.</b>	60
14:50	Vehicle exterior noise simulation <b>Alt, N.; Eisele, G.; Pichot, F.; Wolff, K.*</b>	61
15:10	A study on the hydraulic noise reduction of excavator <b>Ko, K.*; Joo, W.; Kim, D.; Bae, J.</b>	62
15:30	Errors in standard spectral confidence interval estimates and other statistics, in relation to sound emitted from rotating machinery, with application to a tractor engine cooling fan <b>Wen, L.; Sherman, P.*</b>	63

SS14-1	Monday, July 3, 2006	S13
<b>Near-Field Acoustic Holography</b>		
Organiser: B. ROOZEN, E. WILLIAMS		
14:10	Quantitative and qualitative verification of pressure and velocity based planar near-field acoustic holography <b>Scholte, R.*; Roozen, B.; Lopez, I.</b>	64
14:30	Fast evaluation of the Rayleigh integral and applications to inverse acoustics <b>Wind, J.*</b>	65
14:50	Statistically optimised near field acoustic holography based on particle velocity measurements <b>Jacobsen, F.*; Jaud, V.</b>	66
15:10	Multi-patch near-field acoustical holography and spatial resolution enhancement <b>Lee, M.; Bolton, J.*</b>	67
15:30	Evaluation of the sound insulation of multilayer panels by means of near-field acoustic holography <b>Escuder Silla, E.*; Ramis Soriano, J.; Alba Fernández, J.</b>	68

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## Non-Linear Acoustics and Vibration

Chairpersons: K.-J. KIM, C.-K. SUNG

14:10	Control method of an underactuated space manipulator using high-frequency excitation <b>Hattori, M.*; Yabuno, H.; Aoshima, N.</b>	69
14:30	Residual vibrations of electrostatic micro-actuators with different electrode shapes <b>Hsu, M.*</b>	70
14:50	On the study of nonlinear suspensions <b>Marinescu, P.*; Matei, M.; Stan, G.</b>	71
15:10	Accuracy improvement in rotor balancing by using influence coefficient method based on Tikhonov regularization <b>Lin, T.*</b>	72
15:30	Research of nanoparticles in colloids suspension via acoustic method <b>Damdinov, B.*; Banakov, Y.; Dembelova, T.</b>	73



SS06-1	Monday, July 3, 2006 <b>Combustion Noise</b> Organisers: M. OCHMANN, M. HECKL, R. PISCOYA	S15
14:10 Withdrawn	Sound generation by flames and thermo acoustic instabilities in combustion: a review of fundamental aspects <b>Clavin, P.*</b>	74
14:10 NEW	Calculating the turbulent noise source of premixed swirl flames from time mean reactive rans variables <b>Hirsch, C.*; Winkler, A.; Wäsle, J.; Sattelmayer, T.</b>	75
14:30 NEW	On mechanisms of intense combustion noise emission <b>Schuller, T.*; Noiray, N.; Durox, D.; Candel, S.</b>	76

SS01-1	Monday, July 3, 2006 <b>Active Control of Sound</b> Organiser: M. PAWELCZYK	S16
14:10	Polynomial approach to design of feedback virtual-microphone active noise control system <b>Pawelczyk, M.*</b>	77
14:30	Active noise control at a moving location using virtual sensing <b>Petersen, C.*; Cazzolato, B.; Zander, A.; Hansen, C.</b>	78
14:50	Active noise control with moving error microphone: preliminary results <b>Czyz, K.*; Michalczyk, M.</b>	79
15:10	Virtual error approach for direct multichannel adaptive active sound control <b>Sano, A.*; Kamata, M.; Sasaki, E.; Nagata, T.</b>	80
15:30	Verification of the simultaneous equations method by an experimental system <b>Fujii, K.*; Yamaguchi, K.; Fujita, Y.; Muneyasu, M.</b>	81

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## Industrial Noise Sources and Control

Chairpersons: P. BOREJKO, I. DOMBI

14:10	Noise with the discharge of steam from the boiler <b>Tupov, V.*</b>	82
14:30	External noise control in the pulp and paper industry <b>Pettersson, H.*</b>	83
14:50	The trial of a combine method that can be used against the noise employees are exposed to at industrial enterprises at a mid-size work place <b>Barlý, Ö.*; Demirel, Ö.; Kaya, D.; Dane, B.; Paksoy, M.</b>	84
15:10	Importance of temporary noise sources evaluation <b>Hunyadi, Z.*</b>	85
15:30	Frequency sinks on transient periodic signals <b>Alvarenga, E.*</b>	86

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S18

## Outdoor Sound Propagation

Chairperson: D.-S. CHEN

14:10	A model for calculating specular and diffuse reflections in outdoor sound propagation <b>Salomons, E.*</b>	87
14:30	Outdoor noise propagation: integration terms of general equation for sound propagation model (spm) <b>Cioffi, A.*</b>	88
14:50	Experimental outdoor sound propagation <b>Ishac, N.*; Bullen, R.</b>	89
15:10	Outdoor propagation using the higher-order parabolic equation <b>Malbéqui, P.*</b>	91

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## Thermoacoustic Engine Acoustics

Organisers: T. SCHARTON, W. ROBERTS

14:10	A new acoustic model for valveless pulsejet operation <b>Roberts, W.*; Ordon, R.; Scharton, T.; Kuznetsov, A.</b>	92
14:30	The principles of operation of a pulsejet with valves <b>Travis, T.*; Ordon, R.; Kuznetsov, A.; Scharton, T.; Roberts, B.</b>	93
14:50	Numerical simulation of streaming in resonator based thermoacoustic devices <b>Galiullina, E.*; Botteldooren, D.</b>	94
15:10	Simulation of thermo-acoustic instabilities including mean flow effects in the time domain <b>Pieringer, J.*; Sattelmayer, T.</b>	95

RS03-2

Monday, July 3, 2006

AudiMax

## Active Noise and Vibration Control

Chairperson: N. TANAKA

16:20 Withdrawn	A comparative study of analytical and numerical system identification of smart structures with piezoelements <b>Akbari, S.*; Yousefi-Koma, A.; Khanmirza, E.</b>	96
16:40 Withdrawn	Study of dynamic vibration absorption by piezoelectric patches, used in active vibration control <b>Gopalakrishnan Nair, J.*; Sujatha, C.</b>	97
16:20 NEW	Vibration of rotating silicon rings excited by electric field - an application to micro-rate sensors <b>Chang, C.*; Chou, C.</b>	98
16:40 NEW	Robust $h_{\infty}$ control of a novel vibration active-passive isolation system <b>Tsai, M.*; Sun, Y.</b>	99
17:00 NEW	Control of an ER engine mount for vibration suppression <b>Shaw, J.*; Pan, R.</b>	100

SS05-2

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H2

## Pattern Recognition in Acoustics and Vibration

Organiser: L. GELMAN

16:20	Novel signal processing techniques based on higher order spectra <b>Gelman, L.*; Anuzis, P.; Petrunin, I.; Thompson, C.</b>	101
17:00	Crack detection in structures using proper orthogonal decomposition and morphological processing <b>Antoniadis, I.*; Gryllias, K.; Koukoulis, I.; Yiakopoulos, C.; Provatidis, C.</b>	102
17:20	Phase and frequency spectrograms <b>Leonard, F.*</b>	103
17:40	Design of an intelligent expert system for failure diagnostics of rotating machinery <b>Vizintin, J.*</b>	104

<i>RS14-2</i>	Monday, July 3, 2006	<i>H3</i>
<b>Low-Frequency Noise and Vibration</b>		
Chairpersons: B. GYGI, S.A. MCINERNY		
16:20	Evaluation for the pump tower vibration of LNG carrier due to propeller excitations <b>Lee, J.*; Park, J.; Bae, J.</b>	105
16:40	Full scale shaking table test of a 3 story steel frame with friction dampers <b>Bae, C.*; Cho, C.; Yang, K.; Koo, J.</b>	106
17:00	Piezoelectrically induced vibrations of sandwich panels with interlayer slip <b>Heuer, R.*</b>	107
17:20	Dynamic analysis of a tracked vehicle with hydrogas suspension <b>Ravishankar, M.*; Sujatha, C.</b>	108
17:40	Proposals of criteria for assessment of low frequency noise annoyance in the work environment <b>Pawlaczyk-Luszczynska, M.*; Dudarewicz, A.; Sliwinska-Kowalska, M.</b>	109



<i>RS01-2</i>	Monday, July 3, 2006	<i>H4</i>
<b>Acoustic Signal Processing</b> Chairperson: L. FENG		
16:20	Application of demodulated resonance technique based on blind source separation to gear contact diagnosis <b>Ting-Tao, M.*; Yong-xiang, Z.</b>	110
16:40	Broadband acoustic absorption coefficient measurement in a simple circular waveguide using ofdm modulated acoustic signals <b>Petošič, A.*; Ivančević, B.; Jambrošič, K.</b>	111
17:00	Automatic understanding method of signals applied to identification of acoustic patterns <b>Wszolek, W.*; Tadeusiewicz, R.</b>	112
17:20	Application of the corona acoustic signal in the diagnosis of the uhv power lines technical condition <b>Wszolek, T.*</b>	113
17:40	Use of a coupled mechanical-acoustic computational model to identify failure mechanisms in paper production <b>Kao, D.; Pericleous, K.*; Graham, D.; Knight, B.</b>	114

RS07-2	Monday, July 3, 2006		H5
<b>Computational Acoustics</b>			
Chairperson: A. MOORHOUSE			
16:20	Adjusted complex position of extra sources in the image sources method <b>Guignard, T.*; Martin, V.</b>	115	
16:40	Vibration energy flow in assembled structures <b>Cieslik, J.*</b>	116	
17:00	Component mode synthesis for high frequency acoustics <b>Padmanabhan, C.*; Saisankaranarayana, K.</b>	117	
17:20	Computation of flow-induced sound by turbulent boundary layer using LES method <b>Zhang, H.*; Pan, Y.</b>	118	
17:40	Ilu preconditioners for solving three-dimensional Helmholtz equation <b>Gopaldaswamy, B.*; Rice, H.</b>	119	

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H6

## Underwater and Ship Acoustics

Chairpersons: N. KESSISSOGLU, R. LACKNER

16:20	An experimental study on the characteristics of the noise field generated by a fishing boat in a very shallow-water environment <b>Liu, J.*</b>	120
16:40	Striation processing of spectrogram data <b>Brooks, L.*; Kidner, M.; Zander, A.; Hansen, C.; Zhang, Y.</b>	121
17:00	A high-speed high-frequency acoustic modem (hs-hfam) for ports and shallow water operations <b>Beaujean, P.*; Blue, P.; Kriel, D.</b>	122
17:20	Remote sensing of the sea surface Gerstner's wave parameters by the inverted echo sounder <b>Fuks, I.*</b>	123
17:40	Sound scattering from the edge of a submerged coated wedge <b>Uberall, H.*; Hughes, R.; Niemiec, J.</b>	124

<i>RS18-2</i>	Monday, July 3, 2006	<i>H7</i>
<b>Modal Analysis</b>		
Chairperson: A. BARTOLINI, H. TSURU		
16:20	Computation of real normal modes from complex eigenvectors <b>Fuellekrug, U.*</b>	125
16:40	Non-linear dynamic analysis of a steel overhead electrical trussed tower crossing Guamá river <b>Amador, S.*; Souza, R.</b>	126
17:00	Analysis of automotive ride comfort considering vehicle body flexibility <b>Kim, J.*; Park, S.; Lee, J.; Kang, S.; Kang, J.</b>	127
17:20	Estimation of vehicle inertial properties based on on-road measurements <b>Rozyn, M.*; Dissanayake, G.; Zhang, N.</b>	128
17:40	Research on the improvement of riding comfort for motorcycles <b>Xu, Z.*; Zhang, Z.; He, Y.; Zhou, K.; Luo, C.</b>	129

SS35-2	Monday, July 3, 2006 <b>Silent Roads</b> Organisers: W. VAN KEULEN, L. GOUBERT	H8
16:20	Three years of experience with the Belgian test section of two layer porous asphalt <b>Goubert, L.*</b>	130
16:40	Optimization of a special purpose trailer for the close proximity method according ISO/CD 11819-2 <b>Duskov, M.*</b>	131
17:00	Silent block pavements as an alternative for SMA in urban situations <b>Siekmans, A.*; van der Veen, W.</b>	132

<i>RS05-2</i>	Monday, July 3, 2006	<i>S9</i>
<b>Architectural Acoustics</b>		
Chairperson: M. CUDINA		
16:20	Air-opened auditorium and background noise <b>Dolejsi, J.*; Mikule, A.</b>	133
16:40	The challenge of heavy rehabilitation projects: case studies <b>Asselineau, M.*</b>	134
17:00	Acoustical solutions in modern architecture <b>Kurjak, M.*; Domitrovic, H.</b>	135
17:20	Simplified method to estimate reverberation time in dwellings <b>Meza, L.*; Recuero, M.</b>	136
17:40	Clarity of the spoken in the university classrooms <b>Santarpia, L.*; Gelfü, A.</b>	137

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S10

## Psycho Acoustics and Hearing

Organiser: K. NISHIMURA

16:20	Binaural psychoacoustic model applicable to sound quality estimation <b>Bures, Z.*; Rund, F.</b>	138
16:40	The layered binaural processing of high frequency interaural phase differences, interaural intensity differences, and short time analysis <b>Van Keulen, W.*</b>	139
17:00	Modelling the frequency selectivity in modulation rate domain using the non-negative impulse response modulation filters concept <b>Kutzner, D.*</b>	140
17:20	An experimental study on effect of vibration caused in stereophonic equipments to sound quality and summing localization <b>Nishimura, K.*; Ina, R.</b>	141

SS15-2	Monday, July 3, 2006 <b>Aeroacoustics</b> Organiser: S. KAJI	S11
16:20	New acoustic facility for testing universal propulsion simulators <b>Khaletsky, Y.*; Mileshin, V.; Povarkov, V.; Shipov, R.</b>	142
16:40	Optimal shock-wave structures and new ideas about supersonic gas jet noise generation <b>Uskov, V.*; Chernyshov, M.; Erofeev, V.; Genkin, P.</b>	143
17:00	Numerical simulation of acoustic wave radiation characteristic through the scarfed aero-intake <b>Park, Y.*; Kim, S.; Bin, J.; Lee, S.</b>	144
17:20	Measurement of sound in airflow <b>Kingan, M.; Pearse, J.*</b>	145
17:40	Quasi-acoustical approach to blast shock wave interaction with contact discontinuities and protection surfaces <b>Uskov, V.; Chernyshov, M.*</b>	146



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S12

## Noise & Vibration Control in Vehicles

Organiser: N. IVANOV

16:20	Human response to shocks <b>Birlik, G.*; Sezgin, O.</b>	147
16:40	The influence of wheel and rail profiles condition on lateral dynamics of railway vehicle with increased load capacity <b>Opala, M.*; Chudzikiewicz, A.; Drozdziel, J.; Sowiński, B.</b>	148
17:00	Effects of frequency, grip force, and gender on the perception of steering wheel longitudinal vibration <b>Eksioglu, M.*; Kizilaslan, K.; Amman, S.</b>	149
17:20	Hunting control of railway vehicles using active primary suspensions <b>Fotoohi, A.*; Yousefi-Koma, A.</b>	150

SS14-2	Monday, July 3, 2006 <b>Near-Field Acoustic Holography</b> Organiser: B. ROOZEN, E. WILLIAMS	S13
16:20	Holographic reconstruction of the vibro-acoustic field of an engine using the inverse BEM and equivalent sources <b>Ih, J.; Jeon, I.; Kim, S.*</b>	151
16:40	Reconstruction of the acoustic field using partial surface measurements <b>Valdivia, N.*; Williams, E.</b>	152
17:00	Modal analysis of a wooden test bed designed to sound source identification by inverse FEM <b>Kletschkowski, T.*; Sachau, D.; Drenckhan, J.; Gleine, W.</b>	153
17:20	A volumetric acoustic intensity probe based on spherical nearfield acoustical holography <b>Williams, E.*</b>	154
17:40	Application of acoustic holography to the sound field with uniform flow <b>Jeon, J.*; Kim, Y.</b>	155

RS22-2	Monday, July 3, 2006	S14
<b>Non-Linear Acoustics and Vibration</b>		
Chairpersons: K.-J. KIM, C.-K. SUNG		
16:20	A new measure for the nonlinear behavior of piece-wisely linear structural dynamic models <b>Soroushian, A.*; Farjoodi, J.; Mehrazin, H.</b>	156
16:40	Analysis of judder vibration origin in automotive disk brake <b>Cho, H.*; Cho, C.; Kim, M.; Maeng, J.; Kim, C.</b>	157
17:00	Can grinding be chaotic? <b>Stanescu, N.*; Pandrea, M.; Fressengeas, C.</b>	158
17:20	Chaotic motion of a heated bimetallic thin circular plate <b>Yonggang, W.*; Shiliang, D.</b>	159
17:40	Using dither signals for recovering periodic motion of chaotic automotive wiper system <b>Chang, S.*; Chen, S.</b>	160

SS06-2	Monday, July 3, 2006	S15
<b>Combustion Noise</b>		
Organisers: M. OCHMANN, M. HECKL, R. PISCOYA		
16:20	Jet diffusion flame properties in acoustic standing wave <b>Zhang, Y.*; Farhat, S.</b>	161
16:40	Peak frequency scaling of premixed combustion noise <b>Winkler, A.*; Wäsle, J.; Hirsch, C.; Sattelmayer, T.</b>	162
17:00	Application of equivalent sources to the determination of the sound radiation from flames <b>Piscoya, R.*; Brick, H.; Ochmann, M.; Költzsch, P.</b>	163
17:20	DNS/CAA hybrid approach to simulate radiated noise from a turbulent premixed flame <b>Shalaby, H.*; Thévenin, D.; Bui, P.; Schröder, W.; Meinke, M.</b>	164
17:40	Simulation of exhaust system noise using 1D-CFD calculation in a engine model <b>Miranda, L.*</b>	165

SS01-2	Monday, July 3, 2006 <b>Active Control of Sound</b> Organiser: M. PAWELCZYK	S16
16:20	Sensitivity to secondary path modeling errors of the bandwidth limited modified FX-LMS algorithm <b>Lopes, P.*; Piedade, M.</b>	166
16:40	Higher-order spectra for on-line identification of anc plants <b>Glówka, T.*; Figwer, J.</b>	167
17:00	Stochastic partial updates of adaptive filters in active noise control <b>Ramos, P.*; Martin, R.; Lopez, A.; Salinas, A.; Masgrau, E.</b>	168
17:20	Analysis of the films adaptive algorithm <b>Vuksanovic, B.*; Nikolic, D.</b>	169
17:40	Reducing acoustic feedback for active noise control in duct <b>Liu, Y.*; Hung, C.</b>	170

RS17-1	Monday, July 3, 2006		S17
<b>Mid and High Frequency Methods</b>			
Chairperson: S. LEWY			
16:20	A new multiscale computational approach for structural and acoustic mid-frequency vibrations <b>Riou, H.*; Ladeveze, P.</b>	171	
16:40	Investigation of a coupled finite element - wave based technique for 2D steady-state acoustic analysis comparing a direct and an indirect approach <b>Silar, P.*; Hepberger, A.; Pluymers, B.; Desmet, W.; Bartosch, T.</b>	172	
17:00	The G matrix: a tool to measure modal density and approximate vibration responses at medium frequency <b>Guyader, J.*</b>	173	
17:20	Turning of a metal matrix composite with ultrasonic vibrations <b>Zhong, Z.*; Ke, P.; Chia, B.</b>	174	
17:40 NEW	Prediction of the ensemble mean and variance of the response of uncertain structures using the hybrid FE-SEA method <b>Langley, R.; Cotoni, V.*</b>	957	

<i>RS24-2</i>	Monday, July 3, 2006 <b>Outdoor Sound Propagation</b> Chairperson: D.-S. CHEN	<i>S18</i>
16:20	A Markovian approach to the prediction of noise propagation <b>Oldham, D.*; Haron, Z.</b>	176
16:40	An investigation of the use of top edge treatments to enhance the performance of a noise barrier using the boundary element method <b>Oldham, D.*; Egan, C.; Chilekwa, V.</b>	177
17:00	Sound speed profile structure and variability measured over flat terrain <b>Waddington, D.*; von Hünenbein, S.; Bradley, S.</b>	178
17:20	Urban noise <b>Patania, F.*</b>	179

RS19-1

Monday, July 3, 2006

S19

## Musical Acoustics

Chairperson: G. WIDHOLM

16:20	Piano string vibrations and the role of the duplex scale <b>Stulov, A.*</b>	180
16:40	Attack transients in accordion <b>Elejalde-García, M.*; Macho-Stadler, E.; Llanos-Vázquez, R.</b>	181
17:00	Development of an automatic system to classify the saxophone sound <b>Wang, J.*; Chang, L.; Li, M.</b>	182
17:20	Spectral analysis of clarinet's throat tone played with alternate fingering <b>Taguti, T.*; Okamoto, M.</b>	183



<i>PS03</i>	Tuesday, July 4, 2006 <b>Plenary Session 3</b> Chairperson: M. CROCKER	<i>AudiMax</i>
08:30	Sound barriers and environmental impact studies <b>Arenas, J.*</b>	3

RS03-3

Tuesday, July 4, 2006

H1

## Active Noise and Vibration Control

Chairpersons: G. BIRLIK, P. BRATU

10:00	Low frequency performance enhancement of pneumatic isolator by time delay control <b>Oh, K.*; Shin, Y.; Lee, J.; Kim, K.</b>	185
10:20	Analysis of the vibration isolation characteristics in case of elastic systems having polygonal shape <b>Bratu, P.*; Nastac, S.</b>	186
10:40	Dynamic analysis of a tracked vehicle with hydrogas suspension <b>Sujatha, C.*; Ravi Shankar, M.</b>	187
11:00	Dynamic characteristics of platform with SMA spring suspension <b>Lee, C.*; Jwo, H.</b>	188
11:20	Fuzzy finite-element modeling of magnetorheological dampers for smart suspension system of road vehicles <b>Yasrebi, N.*</b>	189
11:40	Multi objective optimization of vehicle suspension parameters <b>Sujatha, C.*; A.S.S. Siva Ram, A.</b>	190

RS09-1

Tuesday, July 4, 2006

H2

## Duct Acoustics

Chairpersons: P. BOREJKO, I. DOMBI

10:00	Evaluation of silencers <b>Kucera, M.*; Novy, R.</b>	191
10:20	Pressure waves in a layered elastic tube with viscoelastic liquid <b>Levitsky, S.*; Bergman, R.; Haddad, J.</b>	192
10:40	A reliable root finder for systems of coupled equations: application to eigenvalues in duct acoustics <b>Carrilho, J.*</b>	193
11:00	Study on destabilization of thermal acoustic oscillation <b>Niwa, S.; Sato, Y.; Kanki, H.*</b>	194
11:20	Sidlab: new 1D sound propagation simulation software for complex duct networks <b>Elnady, T.; Åbom, M.*</b>	195

RS14-3

Tuesday, July 4, 2006

H3

## Low-Frequency Noise and Vibration

Chairpersons: B. GYGI, S.A. MCINERNY

10:00	A comparison study between speed control dip and speed control hump in terms of their effect on human health and comfort <b>Khorshid, E.*; Almesri, M.</b>	196
10:20	Determination of damping layer thickness for maximum modal loss factor of sandwich plate in low frequency range <b>Nam, D.*; Kim, K.</b>	197
10:40	Design of low frequency sound shield based on rigid body resonance <b>Zhao, H.*; Liu, Y.; Wen, X.; Wen, J.; Yu, D.</b>	198
11:00	A low frequency fiber optic vibration sensor <b>Yung-Li, L.*; Mao-Hsiung, C.; Wu-Wen, L.</b>	199
11:20	Infra-sound calibration of measurement microphones <b>Frederiksen, E.*</b>	200
11:40	An efficient model for calculating vibration from a railway tunnel buried in a half-space <b>Hussein, M.*; Gupta, S.; Hunt, H.; Degrande, G.; Talbot, J.</b>	201

<i>RS01-3</i>	Tuesday, July 4, 2006 <b>Acoustic Signal Processing</b> Chairpersons: R. FAIRBROTHER, H. WADA		<i>H4</i>
10:00	Welded steel metallurgical and mechanical characteristics determination using ultrasonic analysis <b>Faiza, B.*; Sonia, D.; Rafik, H.; Ali, B.</b>	202	
10:20	A correalation analysis between sound and magnetism for wavy environment around VDT with attachment of tecnoao <b>Fujita, Y.*; Ohta, M.</b>	203	
10:40	The use of mems cochlear microphone 'fishbone' for arbitrary complex filtering and Hilbert transform <b>Ando, S.*; Ono, N.; Ikeuchi, N.</b>	204	
11:00	Source audio coding in digital radio mondiale <b>Horvat, M.*; Domitrovic, H.; Kurjak, M.</b>	205	
11:20	An electronical frequency modulation for the increase of velocity measurement in a heterodyne laser interferometer <b>Choi, H.*; La, J.; Park, K.</b>	206	
11:40	Annoyance of sound generated by a piano in superimposed rooms <b>Barbaro, S.*; Caracausi, R.</b>	207	

RS07-3

Tuesday, July 4, 2006

H5

## Computational Acoustics

Chairperson: G. MICCOLI

10:00	An alternative method for solving the frequency equation and plotting the dispersion curves <b>Enjilela, E.*; Honarvar, F.; Sinclair, A.</b>	208
10:20	A partition of unity formulation for the convected wave equation in axisymmetric unbounded domains <b>Mertens, T.*; Bouillard, P.; Astley, J.; Gamallo, P.</b>	209
10:40	Modelling wave propagation in thin plates for the localization of tactile interactions <b>Rovetta, D.; Ribay, G.*; Sarti, A.; De Sanctis, G.; Catheline, S.</b>	210
11:00	A semi-analytical solution for viscothermal wave propagation in narrow gaps with arbitrary boundary conditions <b>Wijnant, Y.*; van Blijderveen, M.; de Boer, A.</b>	211
11:20	Sound propagation over arbitrary surfaces with varying impedance <b>Spivack, M.*; Rath-Spivack, O.</b>	212
11:40	Theoretical and experimental research on the control of vibration of overhead line conductors <b>Migdalovici, M.*; Onisoru, J.; Videa, E.; Albrecht, A.</b>	213

RS30-3

Tuesday, July 4, 2006

H6

## Underwater and Ship Acoustics

Chairpersons: N. KESSISSOGLOU, R. LACKNER

10:00	Attenuation of sounds propagating through a bubble screen <b>Huang, C.*; Tien, T.</b>	214
10:20	Prediction of the noise level generated by the turbulent boundary layer on board a fast ship <b>Ciappi, E.*; Magionesi, F.</b>	215
10:40	Reduction of the radiated noise from a submarine under excitation from the propeller-shafting system using a resonance changer <b>Kessissoglou, N.*; Dylejko, P.</b>	217
11:00	Sound generation by a free surface piercing cylinder <b>Avital, E.*; Yu, G.; Williams, J.</b>	218
11:20	Dynamic coupled structural-acoustic-piezoelectric finite element analysis of a layered 1-3 composite, half-wavelength resonator underwater transducer array <b>Koch, R.*</b>	219

RS18-3

Tuesday, July 4, 2006

H7

## Modal Analysis

Chairpersons: B. MACE, K. SETO

10:00	Vibration reduction of the three-cylindered engine driven tractor <b>Lee, J.*; Kim, W.; Park, W.</b>	220
10:20	Improvement of powertrain characteristics using hybrid CAE technology <b>Lai, K.*; Yang, C.</b>	221
10:40	Dynamic characterization of flexible matrix composite driveshaft <b>Shin, E.*</b>	222
11:00	Experimental modal analysis of radial tires under different boundary conditions <b>Kindt, P.*; De Coninck, F.; Sas, P.; Desmet, W.</b>	223
11:20	Modal test of the 2nd stage of Korea space launch vehicle <b>Seo, S.*; Jeong, H.; Youn, S.; Park, S.; Jang, Y.</b>	224
11:40	Local peak frequencies and their damping factors for vibro-acoustic transmission in a Japanese-style house <b>Shibayama, H.*; Tang, Y.</b>	225



<i>RS16-1</i>	Tuesday, July 4, 2006	<i>H8</i>
<b>Measurement Techniques</b> Chairpersons: E. CARLETTI, J. TALBOT		
10:00	Blind deconvolution of acoustical sources in dynamic, noisy, propagation channels <b>Roan, M.*</b>	226
10:20	Modal identification from experiments of inhomogeneous structures using an extended Karhunen-Loeve decomposition <b>Iemma, U.*; Sciuto, S.; Diez, M.</b>	227
10:40	Differential biphase shift keying (dbpsk) using airborne sound for data communication <b>Mizutani, K.*; Odanaka, I.; Mizutani, K.; Wakatsuki, N.</b>	228
11:00	Regularisation methods applied to deconvolution problems in real-time nearfield acoustic holography <b>Paillasseur, S.*; Pascal, J.; Thomas, J.</b>	229
11:20	Consideration about effectiveness on magnified cross-correlation analysis in frequency domain by detection of underground piping <b>Ha, E.*; Kawamura, Y.; Mizutani, K.</b>	230
11:40 NEW	Study of relaxation modulus of soft elastic membrane <b>Aoyagi, R.*</b>	585

RS05-3

Tuesday, July 4, 2006

S9

## Architectural Acoustics

Chairperson: W. DEUTSCH

10:00	Study of the acoustic and psychoacoustic parameters in the audition rooms, dependence with the distance <b>Cerdá, S.; Giménez, A.; Romero, J.; Cibrian, R.; Miralles, J.; Segura, J.; Navasquillo, J.; Lacatis, R.</b>	231
10:20	Correlations between acoustics and psychoacoustics room parameters <b>Cerdá, S.; Giménez, A.; Romero, J.; Cibrian, R.; Miralles, J.; Segura, J.; Navasquillo, J.; Lacatis, R.</b>	232
10:40	Reproducibility in interlaboratory impact sound insulation measurements <b>Carvalho, A.*</b>	233
11:00	Acoustical quality of indoor spaces: analysis of the influence of design and building materials <b>Barbaro, S.*; Caracausi, R.</b>	234
11:20	Integrated analysis of thermo acoustic panels <b>Bauzer Medeiros, E.*; Rodrigues, E.</b>	235
11:40	Sound transmission through lightweight gypsum board panels <b>Singh, M.*; Sharma, O.; Mohanan, V.</b>	236

RS27-1

Tuesday, July 4, 2006

S10

## Sound Quality and NVH

Chairperson: R. KIRBY

10:00	Low noise design of diesel engine induced by piston slap <b>Suganuma, N.*; Yoshizumi, K.; Honda, I.; Ohta, K.</b>	237
10:20	Profile modification of hypoid gear to reduce a gear whine noise of the axle system in a passenger van <b>Lee, S.*; Kim, S.; Yu, D.</b>	238
10:40	Optimization of automotive liners for reduction of noise and vibration transmission through car body <b>Markowicz, A.; Subic, A.*; Wang, X.</b>	239
11:00	Validation of sound models in the car <b>Bisping, R.*; Thoma, G.; Reichle, M.; Zeitler, A.</b>	240

SS15-3	Tuesday, July 4, 2006	S11
<b>Aeroacoustics</b>		
Organiser: S. KAJI		
10:00	Numerical evaluation and experimental comparison of airframe noise for the optimization of next generation aircraft design <b>Scarselli, G.*; Amoroso, F.; Lecce, L.</b>	241
10:20	Absolute instability computations for the prediction of tonal slat noise <b>Longueteau, F.*; Brazier, J.</b>	242
10:40	Optimal distribution of surface impedance for reducing wing noise <b>Akishita, S.*</b>	243
11:00	Sound generation from tapered cylinder <b>Hayashi, H.*; Kodama, Y.; Fukano, T.</b>	244
11:20	Account for elasto-inertial properties of frames at evaluation of noise inside aircraft cabin <b>Efimtsov, B.*; Lazarev, L.</b>	245
11:40	Design of automobile components for the minimization of aeroacoustic noise <b>Kingan, M.*; Pearse, J.</b>	246

SS12-3	Tuesday, July 4, 2006 <b>Noise &amp; Vibration Control in Vehicles</b> Organiser: N. IVANOV	S12
10:00	Noise & vibration control on board of luxury passenger ships <b>Francesco, D.*; Enrico, L.</b>	247
10:20	Trend analysis of vibration parameters marine gas turbine engines <b>Grzadziela, A.*</b>	248
10:40	Vibroacoustic testing on helicopters in operating conditions <b>Vecchio, A.*; Valent, L.; Janssens, K.; Berthe, A.</b>	249
11:00	Implementation of a GPS based pass by measurement system <b>Piana, E.*; Piana, G.</b>	250
11:20	A study of the interface pressure distribution between pad and rotor <b>Ashraf, N.*; Talbot, C.; Fieldhouse, J.</b>	251
11:40 Withdrawn	Superposition of piezoelectric actuation in smart structures control and optimization <b>Yousefi-Koma, A.*; Haddadi, S.</b>	252

SS22-1

Tuesday, July 4, 2006

S13

## Inverse Problems in Vibro-Acoustics

Organisers: A. SEYBERT, J.-G. IH

10:00	Improved regularisation criteria for inverse sound source reconstruction <b>Chiesa, L.; Nijman, E.*</b>	253
10:20	Source reconstruction using inverse spherical wave spectrum fitting <b>Nijman, E.; Machetta, I.*</b>	254
10:40	On number and position of the equivalent sources in scattering by simple geometry bodies <b>Gounot, Y.; Musafir, R.*</b>	255
11:00	Design of source array by inverse approach <b>Cho, W.*; Ih, J.</b>	256
11:20	Wavenumber-frequency analysis in underwater acoustic arrays <b>Brown, A.*; Deeks, J.</b>	257
11:40	The synthesis of a diffuse sound field with a near-field array of loudspeakers <b>Bravo, T.; Maury, C.*</b>	258

RS22-3

Tuesday, July 4, 2006

S14

## Non-Linear Acoustics and Vibration

Chairperson: C.-K. SUNG

10:00	Response of structures subjected to horizontal-vertical random excitations <b>Orabi, I.*</b>	259
10:20	Moored dock under random waves: a stochastic perturbation and linearization technique. <b>Culla, A.*; Massi, F.</b>	260
10:40	Damping across the length scales <b>Chiroiu, V.*; Munteanu, L.</b>	261
11:00	Non deterministic seismic excitation of structures of inelastic behavior <b>Brasil, R.; Corbani, S.*</b>	262
11:20	Nonlinear dynamic analysis of a beam by the smoothed particle hydrodynamics <b>Chou, Y.*</b>	263
11:40	Excitation of nonlinear normal shearing waves in crystal half-layer <b>Kurennaya, K.*</b>	264

SS06-3	Tuesday, July 4, 2006		S15
<b>Combustion Noise</b>			
Organisers: M. OCHMANN, M. HECKL, R. PISCOYA			
10:00	Separation of variables for nonlinear Navier-Stokes equation in cylinder coordinates <b>Shermenev, A.*</b>	265	
10:20	Towards active stabilization of thermo-acoustic instabilities in laminar combustion <b>van den Boom, J.*; Lopez, I.; Schreel, K.; de Goey, L.; Nijmeijer, H.</b>	266	
10:40	The Rijke tube: Green's function and stability analysis <b>Heckl, M.*; Howe, M.</b>	267	
11:00	Acoustic and stronger pressure wave interactions with flames <b>McIntosh, A.*</b>	268	
11:20	Experimental investigation of acoustic excitation by heat release rate fluctuations in a non-premixed half-dump combustor <b>Shreenivasan, O.; Chakravarthy, S.*; Dreizler, A.; Janicka, J.</b>	269	
11:40 Withdrawn	Experimental methods of investigations of the role of a gas vortex motion in the mechanism maintaining acoustic oscillations <b>Samsonov, V.*</b>	270	



SS01-3	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Active Control of Sound</b></p> <p style="text-align: center;">Organiser: M. PAWELCZYK</p>	S16
10:00	Nonuniform signal sampling for active sound control <b>Czyz, K.*</b>	271
10:20	Inexpensive implementation of active noise control systems for one-dimensional duct with application to a ventilating system <b>Kobayashi, Y.*; Fujioka, H.</b>	272
10:40	The acoustic window - a new local method for global active noise control <b>Kletschkowski, T.*; Sachau, D.; Böhme, S.; Breitbach, H.</b>	273
11:00	First investigations on active noise control applied to daybeds <b>Kletschkowski, T.*; Sachau, D.; Sommer, J.</b>	274
11:20	Active noise control for high frequencies <b>Kaymak, E.*; Atherton, M.; Rotter, K.; Millar, B.</b>	275
11:40	Acoustic efficiency limitation using add-on acd tratements: numerical modeling and experimental results <b>Viscardi, M.*; Amoroso, F.; Lecce, L.</b>	276

RS17-2	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Mid and High Frequency Methods</b></p> <p style="text-align: center;">Chairperson: S. LEWY</p>	S17
10:00	Improving sea prediction of structure-borne noise by describing junctions details with FE <b>Cotoni, V.*; Shorter, P.; Kuba, T.</b>	277
10:20	A hybrid sea-measurement technique to predict driver's ear SPL from energy flow through a vehicle dash and transfer functions <b>Musser, C.*; Moron, P.</b>	278
10:40	Analyses and assessment of the sensitivity of trim parameters on sea simulation for interior noise reduction <b>Brandl, S.*; Hauer, I.; Priebisch, H.; Bartosch, T.; Volkwein, S.</b>	279
11:00	Measurements and sea modeling of the sound transmission of the ribbed-stiffened panels <b>Gomes, C.; Gerges, S.*</b>	280
11:20	Prediction of energy levels of simple plate systems using WIA based on experimental SEA parameters <b>Bayod, J.*; Kamata, M.; Yamazaki, T.</b>	281
11:40	SEA-like energy and variance prediction from free interface subsystem modal models <b>Ji, L.*; Mace, B.</b>	282

RS29-1

Tuesday, July 4, 2006

S18

## Transportation Noise

Chairpersons: C.-C. CHENG, N.V. TYURINA

10:00	A two-microphone method for the determination of the acoustic source height of a moving rectilinear source above a flat ground with impedance discontinuity <b>Ecotiere, D.*; Guntzer, F.; Dutilleux, G.</b>	283
10:20	An applied research on railway noise in urban areas <b>Patania, F.*; Gagliano, A.; Nocera, F.</b>	284
10:40	Noise from trams – source identification and effects of noise mitigation measures <b>Frid, A.*; Ognar, M.</b>	285
11:00	The effect of modal damping on brake squeal instability <b>Massi, F.*; Sestieri, A.; Baillet, L.</b>	286
11:20 Withdrawn	Experimental study for rubber stick/slip <b>Kim, Y.*; Lee, G.; Lee, S.</b>	287

<i>RS19-2</i>	Tuesday, July 4, 2006	<i>S19</i>
<b>Musical Acoustics</b>		
Chairperson: G. WIDHOLM		
10:00	The vibrations of the tenor steelpan: a finite element study <b>Bridge, J.*</b>	288
10:20	The tuning of vocal tract resonances in singing and in playing the didjeridu <b>Smith, J.*; Wolfe, J.</b>	289
10:40	Acoustic spectrum and timbre variation over the attack in the txistu <b>Elejalde-García, M.*; Macho-Stadler, E.; Agos-Esparza, A.</b>	290
11:00	On acoustical properties of ancient Chinese musical bells <b>Pan, J.*; Li, X.; Tian, J.</b>	291
11:20	Audibility of tower bells - further experiments and calculations <b>Newland, D.*</b>	292
11:40	Correlation between subjective descriptors and objective parameters of theatres and auditoria acoustics simulated with binaural sound system <b>Capra, A.*; Binelli, M.; Marmiroli, D.</b>	293

<i>PS04</i>	Tuesday, July 4, 2006 <b>Plenary Session 4</b> Chairperson: F. JACOBSEN		<i>AudiMax</i>
13:30	Compressor noise control <b>Wang, S.*</b>	4	
14:20	Invitation to ICSV14		

RS03-4

Tuesday, July 4, 2006

H1

## Active Noise and Vibration Control

Chairpersons: G. BIRLIK, P. BRATU

15:00	Semi-active train bogie suspensions using skyhook dampers <b>Fotoohi, A.*; Yousefi-Koma, A.</b>	294
15:20	Heave motion control of TLP under wave load using tuned mass damper <b>Tabeshpour, M.*; Golafshani, A.; Seif, M.</b>	295
15:40	Surge motion control of TLP under wave load using tuned mass damper <b>Tabeshpour, M.*; Golafshani, A.; Seif, M.</b>	296
16:00 Withdrawn	Magneto-rheological fluid dampers modeling: simulation and experiment <b>Yasrebi, N.*</b>	297

SS05-3

Tuesday, July 4, 2006

H2

## Pattern Recognition in Acoustics and Vibration

Organiser: L. GELMAN

15:00	Damage tracking in variable operating conditions <b>Chelidze, D.*; Liu, M.</b>	298
15:20	Averaging the symptoms in multidimensional condition monitoring for machines in nonstationary operation <b>Cempel, C.*; Tabaszewski, M.</b>	299
15:40	Trending analysis of defective rolling element bearings using a morphological index <b>Antoniadis, I.*; Yiakopoulos, C.; Patargias, T.</b>	300
16:00	The pattern recognition in analysis of vibroacoustic signal <b>Radkowski, S.*; Dybala, J.; Gontarz, S.</b>	301

RS02-1

Tuesday, July 4, 2006

H3

## Acoustics and Vibration Theory

Chairperson: J.P. ARENAS

15:00	A study on the vibration characteristics of circular ring with multiple local mass and stiffness deviations <b>Park, H.*; Lee, J.</b>	302
15:20	Dynamic reliability analysis of a stochastic structure with response surface method <b>Chen, Y.*</b>	303
15:40	Modelling of oscillatory systems with viscous and dry-friction damping under real random kinematical excitation <b>Stein, G.*; Zahoranský, R.; Múčka, P.</b>	304
16:00	Vibrating systems with random damping: an analytical solution based on normal modes <b>Heinkele, C.*; Pernot, S.; Sgard, F.; Lamarque, C.</b>	305



<i>RS01-4</i>	Tuesday, July 4, 2006	<i>H4</i>
<b>Acoustic Signal Processing</b>		
Chairpersons: R. FAIRBROTHER, H. WADA		
15:00	Performance identification of racing motorbike by acoustic measurement <b>Battaglia, C.*; Bregant, L.; Zugna, A.</b>	306
15:20	Low-latency virtual acoustics for live music performance and recording <b>Woszczyk, W.*</b>	307
15:40	Round robin tests <b>Petraskova, V.*; Dolejsi, J.</b>	308
16:00	Horizons for an aeroacoustic research platform by European co-operation in Romania <b>Rugescu, R.*; Slavu, B.; Morosanu, C.</b>	309

<i>RS07-4</i>	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Computational Acoustics</b></p> <p style="text-align: center;">Chairperson: G. MICCOLI</p>	<i>H5</i>
15:00	<p>Income effect in the railway galleries  <b>Venditti, A.*; Coppi, M.</b></p>	310
15:20	<p>Critical comparison of viscoelastic damping, electrorheological fluid and magnetorheological fluid core damping in cantilever skew plates  <b>Narayana, V.*</b></p>	311
15:40	<p>Numerical model for the interaction of a gas bubble with a strong acoustic field  <b>Teterev, A.*; Doinikov, A.; Misychenko, N.; Rudak, L.</b></p>	312
16:00	<p>What happens to frequency band-gaps width in finite repetitive medium?  <b>Matos Neves, M.*</b></p>	313

RS08-1

Tuesday, July 4, 2006

H6

## Condition Monitoring and Vibration Testing

Chairperson: G. ZUSMAN

15:00	Rotor dynamic analysis of a system with a flexible shaft and journal bearings <b>Herfat, A.*</b>	314
15:20	A comparative study of feature extraction methods for crack detection in rotating machines operating at steady state <b>Luo, Y.*; Daley, S.</b>	315
15:40	Broken rotor bar detection without motor loading <b>ShamsMosavi, S.*; Poshat, J.; Zarei, J.</b>	316
16:00	Modeling considerations for the dynamic behavior of a rigid rotor supported by hydrodynamic journal bearings <b>L. Santos, F.; M. Duarte, M.*; C. Faria, M.; C. Eduardo, A.</b>	317

RS18-4

Tuesday, July 4, 2006

H7

## Modal Analysis

Chairpersons: B. MACE, K. SETO

15:00 Withdrawn	Dynamic analysis of large in-space deployable membrane antennas Fang, H.*; Yang, B.; Ding, H.; Hah, J.; Huang, J.	318
15:00 NEW	Application of periodic structures in MEMS Ahn, T.*; Shkel, A.	319
15:20 NEW	Influence of bar spacing and free-stream turbulence on flow-induced vibration of trashracks Pollak-Reibenwein, C.*; Drobir, H.	320
15:40 NEW	Linear normal modes of thermally prestressed planar beams including prebending effects Treyssede, F.*	321

RS16-2

Tuesday, July 4, 2006

H8

### Measurement Techniques

Chairperson: J. EBERHARDSTEINER, J. TALBOT

15:00	Defect size estimation in pipes by measuring the group velocity of guided wave <b>Yang, S.*; Li, B.; Cheng, J.</b>	322
15:20	Denoising ultrasonic signals using wavelet transform processing <b>San Emeterio, J.*; Pardo, E.; Rodriguez, M.; Ramos, A.</b>	323
15:40	Optimized filter applied to swept sine technique for SNR improvement <b>Preto Paulo, J.*; Martins, C.; Bento Coelho, J.</b>	324
16:00	Combined acoustic and vibration monitoring of rotating systems <b>Bauzer Medeiros, E.*; Torre e Silva, L.</b>	325

<i>RS05-4</i>	Tuesday, July 4, 2006 <b>Architectural Acoustics</b> Chairperson: W. DEUTSCH	<i>S9</i>
15:00	How important is watertightness for a room acoustic model? <b>Xu, J.*; Shimada, S.</b>	326
15:20	Applied virtual sources method <b>Grubesa, S.*; Grubesa, T.; Domitrovic, H.</b>	327
15:40	Sound field reproduction in closed spaces using the boundary element method <b>Stefanakis, N.*; Sarris, J.</b>	328

<i>RS27-2</i>	Tuesday, July 4, 2006 <b>Sound Quality and NVH</b> Chairperson: R. KIRBY	<i>S10</i>
15:00	Specific loudness expression of quasi-steady sounds by considering percentile distribution <b>Kim, D.*; Wang, S.</b>	329
15:20	Prediction of engine sound and sound quality control using wavelet transform <b>Yoshizumi, K.*; Ohta, K.; Honda, I.; Ajiro, K.</b>	330

<i>RS04-1</i>	Tuesday, July 4, 2006	<i>S11</i>
<b>Aero-Acoustics and Aviation Noise</b>		
Chairperson: R. PAUROBALLY		
15:00	Matching the aircraft noise to a target sound: a novel approach for the optimal design under community noise constraints <b>lemma, U.*; Diez, M.; Marchese, V.</b>	332
15:20	Numerical investigations for optimizing the aero-acoustical design of modern LP-turbines <b>Traub, P.*; Gründel, H.; Gautier, S.</b>	333
15:40	Psychometric analysis of stationary aircraft sounds <b>Bisping, R.*; Dickson, C.; Khan, S.</b>	334
16:00	Development of low-noise ducted-fan tail rotor for helicopter antitorque system <b>Chung, K.*; Kang, H.; Song, K.; Hwang, C.; Joo, G.</b>	335



SS22-2

Tuesday, July 4, 2006

S13

## Inverse Problems in Vibro-Acoustics

Organisers: A. SEYBERT, J.-G. IH

15:00 Withdrawn	Detection of damage in beam structures using changes in natural frequencies <b>Zhu, W.*; Xu, G.; Emory, B.</b>	336
15:00 NEW	Hybrid modelling of a helicopter gearbox <b>Vecchio, A.*; Janssens, K.; Gallina, A.; Cenedese, F.</b>	337
15:20 NEW	Inverse methods for identification of cables parameters with applications <b>Migdalovici, M.*; Onisoru, J.; Videa, E.; Albrecht, A.</b>	338
15:40 NEW	Inverse model of beam for boundary condition identification <b>Majkut, L.*; Engel, Z.</b>	339

RS22-4

Tuesday, July 4, 2006

S14

## Non-Linear Acoustics and Vibration

Chairpersons: J. BÖS, H. HUNT

15:00	Analysis of nonlinear forced vibration using component mode synthesis method <b>Kawamura, S.*; Naito, T.; Minamoto, H.; Zahid, H.</b>	340
15:20	Mode localisation in nonlinearly coupled cables <b>Bridge, J.*</b>	341
15:40	Moderately large flexural vibrations of layered panels with initial imperfections <b>Adam, C.*</b>	342
16:00	Mechanized mathematics modelling and algorithm analysis for 200 MW turbine set <b>Wang, L.*</b>	343

SS21-1

Tuesday, July 4, 2006

S15

## Thermo Acoustics and Structure Interaction in Gas Turbine Combustors

Organisers: J. KOK, W. POLIFKE

15:00	Diagnostic and control of lean premixed combustion with alternative fuels <b>Ballester, J.*; Hernandez, R.; Sanz, A.; Smolarz, A.</b>	344
15:20	The interaction of combustion pressure oscillations and liner vibrations <b>Pozarlik, A.*; Kok, J.</b>	345
15:40	State-space modelling of thermoacoustic systems for stability analysis and time-domain simulation <b>Paschereit, O.; Moeck, J.*; Bothien, M.</b>	346
16:00	Measuring the flame transfer function of turbulent non-premixed syngas flames <b>Pater, S.*; Kok, J.; van der Meer, T.</b>	347

<i>SS01-4</i>	Tuesday, July 4, 2006 <b>Active Control of Sound</b> Organiser: M. PAWELCZYK	<i>S16</i>
15:00	The performance of active control of sound and vibration in a fully-coupled structural-acoustic system using different reference sensors <b>Mohammad, J.*; Elliott, S.</b>	348
15:20	Improved broadband performance of strain-based continuous radiation sensors <b>Anthony, D.*; Simón, F.</b>	349
15:40	Control of supersonic jet noise using a mesh screen <b>Kweon, Y.*; Miyazato, Y.; Aoki, T.; Kim, H.; Setoguchi, T.</b>	350

SS08-1

Tuesday, July 4, 2006

S17

## Dynamic of Robotic Systems and Applications

Organisers: D. COJACARU, D. MARGHITU

15:00	An optimization method for reducing residual vibrations of compliant manipulators <b>Incerti, G.*</b>	351
15:20	Damping estimation via energy-dissipation method <b>Liang, J.*</b>	352
15:40	Investigation of vibration phenomena in LCD transfer robots undergoing low speed operation <b>Yoo, H.*; Cho, P.; Lee, K.; Lim, H.; Kwon, S.</b>	353
16:00	Open kinematic chains with multiple impacts <b>Marghitu, D.*; Dupac, M.</b>	354

<i>RS29-2</i>	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Transportation Noise</b></p> <p style="text-align: center;">Chairpersons: C.-C. CHENG, N.V. TYURINA</p>	<i>S18</i>
15:00	Prediction of the attenuation given by a baffled highway using a scale model <b>Serra, M.*</b>	355
15:20	Modeling the noise generated by a vehicle moving behind a noise barrier <b>Fuchs, L.*; Aberg, M.; Szasz, R.</b>	356
15:40	Noise climate in the seaport of Trapani: measure and evaluation <b>Barbaro, S.*; Caracausi, R.</b>	358

SS32-1	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Lawnmowers, Construction Machinery, and other Outdoor Equipment</b></p> <p style="text-align: center;">Organiser: M. BOCKHOFF</p>	S19
15:00	Psychoacoustic characterisation of lawnmowers versus standard a-weighted sound power and comparison with virtual prototyping results <b>Besombes, M.*; Goth, Y.</b>	359
15:20	Lamonov: lawnmower noise and vibration control - first results <b>Tetteroo, P.*; Bockhoff, M.</b>	360
15:40	Analysis of noise control measures on outdoor machinery using EQUIP+ <b>Dittrich, M.*</b>	361
16:00	Noise from construction site: point of view of a contractor <b>Aubrit, M.*; Autuori, P.</b>	362

RS03-5

Tuesday, July 4, 2006

H1

## Active Noise and Vibration Control

Chairpersons: G. BIRLIK, P. BRATU

16:50	Magnetorheological damper control systems using the programmable logical controllers <b>Vladareanu, L.*; Sireteanu, T.</b>	363
17:10	Specific requirements for the rigidity and damping in case of passive base isolating systems <b>Bratu, P.*</b>	364
17:30	Active control in flexible plates with piezoelectric actuators using linear matrix inequalities <b>Bueno, D.*; Marqui, C.; Cordeiro, L.; Lopes Júnior, V.</b>	365
17:50	Feedforward and feedback H2 and HINF controllers for active vibration control of a PZT laminated thin plate <b>Kouhi, S.*; Montazeri, A.; Poshtan, J.</b>	366
18:10	Optimization of the size, position and number of actuators and sensors for active vibration control of a piezoelectric laminated thin plate <b>Kouhi, S.*; Montazeri, A.; Poshtan, J.</b>	367



<i>SS05-4</i>	Tuesday, July 4, 2006 <b>Pattern Recognition in Acoustics and Vibration</b> Organiser: L. GELMAN	<i>H2</i>
16:50	Classification strategies for audio signals using wavelet analysis and artificial neural networks <b>McLachlan, N.*; Kumar, D.</b>	368
17:10	Novel signal processing techniques for certification scheme for vibro-acoustical condition monitoring <b>Gelman, L.*; Kolbe, P.</b>	369

RS02-2

Tuesday, July 4, 2006

H3

## Acoustics and Vibration Theory

Chairperson: J.P. ARENAS

16:50	Vibration analysis of systems involving uncertain parameters <b>Rao, S.*</b>	370
17:10	A 3D-stochastic model for simulating vibrations in soil layers <b>Kreuzer, W.*; Waubke, H.; Balazs, P.</b>	371
17:30	Wave propagation in layered orthotropic media: a component-wise Fourier approach <b>Kramer, F.*; Waubke, H.</b>	372
17:50	Free vibration analysis of cylindrical shells with arbitrary boundary conditions <b>Wen, L.*; Hongan, X.</b>	374

<i>SS09-1</i>	Tuesday, July 4, 2006 <b>Nonlinear Acoustics and Vibration</b> Organiser: W. GAN	<i>H5</i>
16:50	Nonplanar nonlinear vibration analysis of external excited the circular cantilever beam <b>Kim, M.*; Cho, C.; Cho, H.; Lee, H.</b>	375
17:10	Application of counterpropagating nonlinear waves to inhomogeneous prestress characterization <b>Ravasoo, A.*</b>	376
17:30	Dynamic phenomena in the plate with the sudden stratification <b>Vladimir, G.*; Yuri, S.; Vladimir, S.</b>	377
17:50	Influence of gyroscopic effect on the critical speed of the rotation of the heterogeneous rod <b>Yuri, S.*; Vladimir, G.; Svetlana, O.</b>	378
18:10	On the formation of classical and non-classical shocks in a tube lined with Helmholtz resonators <b>Scheichl, S.*; Kluwick, A.</b>	379

<i>RS08-2</i>	Tuesday, July 4, 2006 <b>Condition Monitoring and Vibration Testing</b> Chairperson: G. ZUSMAN		<i>H6</i>
16:50	Coupled lateral and torsional vibrations in misaligned rotors <b>Gomez De Leon, F.*; Meroño Perez, P.</b>	380	
17:10	An experimental study of the effects of engine torque variation on the power spectrum of a helicopter transmission <b>Sparis, P.*; Vachtsevanos, G.</b>	381	
17:30	Detection of breathing cracks in a frame structure using dynamic response <b>Kamiya, K.*; Yasuda, K.</b>	382	
17:50	Vibration data analysis for prognosis of the planetary gear plate crack <b>Wu, B.*; Vachtsevanos, G.</b>	384	
18:10 NEW	Forecast of a system's destruction as the basis for a new strategy of system operation <b>Radkowski, S.*; Zawisza, M.</b>	903	

<i>RS18-5</i>	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Modal Analysis</b></p> <p style="text-align: center;">Chairpersons: B. MACE, K. SETO</p>	<i>H7</i>
16:50	Vibration modes of short cylinders: frequency crossings and mode shapes <b>Bayón, A.*; Nieves, F.; Gascón, F.</b>	385
17:10	Modal identification and vibration control using mass-spring and cantilever-beam absorbers <b>Silva-Navarro, G.*; Vazquez-Gonzalez, B.; Ortega-Cobos, O.; Rios-Gutierrez, M.</b>	386
17:30	Calculation of logarithmic decrement by morlet wavelet of a decay curve <b>Prokofiev, A.*; Lenchine, V.; Shakhmatov, E.</b>	387

RS16-3

Tuesday, July 4, 2006

H8

## Measurement Techniques

Chairpersons: , J. EBERHARDSTEINER, J. TALBOT

16:50	Vibration analysis using high speed digital image correlation <b>Siebert, T.*; Splitthof, K.; Becker, T.; Krupka, R.</b>	388
17:10	Standardized crumbling noise measurement <b>Dekoninck, L.*; Botteldooren, D.</b>	389
17:30	A new online rotor condition monitoring method using FBG sensors and no telemetry system <b>Hwang, Y.*; Lee, I.; Lee, J.; Lee, S.</b>	390
17:50	Defects detection in welds using ultrasonic analysis <b>Sonia, D.*; Faiza, B.; Rafik, H.</b>	391
18:10	Acoustical measurement accompanying tensile test: new modality for non-destructive testing and characterization of sheet materials <b>Mfoumou, E.*; Rudenko, O.; Hedberg, C.; Kao-Walter, S.</b>	392

SS30-1

Tuesday, July 4, 2006

S9

## Architectural Acoustics

Organiser: J. KANG

16:50	On the subjective assessment of church acoustics <b>Martellotta, F.*; Skaug, C.</b>	393
17:10	The acoustic field under the dome in a central plan church <b>Ricciardi, P.*; Magrini, A.</b>	394
17:30	Speech generated by crowds: a preference study <b>Novo, P.*</b>	395
17:50	Acoustic comfort, quality and atmosphere in 'non-acoustic' spaces - case studies in railway stations and open plan offices <b>Kang, J.*</b>	396
18:10	The generation and 3-dimensional display of auditorium forms by means of the www <b>Oldham, D.*; Hetherington, R.; Farrimond, B.</b>	397

<i>RS21-1</i>	Tuesday, July 4, 2006 <b>Noise Source Identification</b> Chairperson: I. MORIOKA		<i>S10</i>
16:50	Minimising the number of microphones required for characterisation of distributed source regions <b>Holland, K.*; Nelson, P.</b>	398	
17:10	Source identification enhancement using array design with quasi-random configurations <b>Wang, P.*; Johns, M.; Callahan, D.</b>	399	
17:30	Quantifying the correlation between tonal noise sources <b>Sherman, P.*</b>	400	
17:50	Identification method of plural sound sources by using measured values with error and power spectra identification <b>Nakagawa, N.*; Sekiguchi, Y.</b>	401	
18:10	The application of inverse method to sound sources' measurements industrial conditions <b>Stryczniewicz, L.*; Engel, Z.</b>	402	



<i>RS04-2</i>	Tuesday, July 4, 2006 <b>Aero-Acoustics and Aviation Noise</b> Chairperson: R. PAUROBALLY		<i>S11</i>
16:50	Numerical simulation of rotor-stator interaction noise generation and propagation in an engine duct with segmented liners <b>Lu, Y.*; Yu, Y.; Hu, Z.</b>	403	
17:10	Blast wave and afterburning at ignition of rocket engines <b>Varnier, J.*; Prévot, P.; Dunet, G.; Barat, M.; Mazin, B.</b>	404	
17:30	Study of aero-acoustic performance of forward slanted perforated tube field: noise control <b>Seto, K.*; Khan, M.; Teramoto, K.; Kumamoto, A.; Kakinaga, K.</b>	405	
17:50	Numerical model of aircraft gas turbine engine (based on experimental data of dynamical compliances of engine body) <b>Baklanov, V.*; Denisov, S.</b>	406	

<i>RS25-1</i>	Tuesday, July 4, 2006 <b>Signal Processing</b> Chairpersons: A. CIOLFI, F. JACOBSEN	<i>S12</i>
16:50	Increasing the average transmitted power in DRM broadcasting systems using the multiband audio compressor-limiter algorithms for baseband signal <b>Grubesa, S.; Grubesa, T.*; Domitrovic, H.</b>	407
17:10	Adaptive design of linear-phase maximally flat filters for digital audio <b>Dadic, M.*; Sruk, V.; Somek, B.</b>	408
17:30	Early fault detection in a ball bearing using minimum variance cepstrum <b>Park, C.*; Choi, Y.; Kim, Y.</b>	409
17:50	Analysis and study of the ultrasonic structural noise signal for material characterisation <b>Bettayeb, F.*; Boussiha, K.; Benachir, D.</b>	410

SS22-3	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Inverse Problems in Vibro-Acoustics</b></p> <p style="text-align: center;">Organisers: A. SEYBERT, J.-G. IH</p>	S13
16:50	Comparison of a diffracting and a non-diffracting cylindrical microphone array <b>Johnson, M.*; Carneal, J.; Gillett, P.</b>	411
17:10 Withdrawn	Inversion-free sound source reconstruction <b>Maynard, J.*</b>	412
17:10 NEW	Force prediction via the inverse FRF using experimental and numerical data from a demonstrator with tuneable nonlinearities <b>Oosterhuis, E.*; Eidhof, W.; van der Hoogt, P.; de Boer, A.</b>	413

RS22-5	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Non-Linear Acoustics and Vibration</b></p> <p style="text-align: center;">Chairpersons: J. BÖS, H. HUNT</p>	S14
16:50 Withdrawn	Identification and quantification of the nonlinear vibration characteristics of the commercial PWR nuclear fuel assembly <b>Lee, K.*; Yoon, K.; Song, K.; Kang, H.; Song, K.</b>	414
16:50 NEW	Coupled vibrations of an axially moving web and rolls with time dependent parameters <b>Frondelius, T.*</b>	415
17:10 NEW	Nonlinear dynamic analysis of a motion transformer mimicking a hula hoop <b>Sung, C.*; Chao, P.; Wang, C.</b>	416

SS28-1	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Intelligent Methods of Active Noise and Vibration Control</b></p> <p style="text-align: center;">Organiser: O. TOKHI</p>	S16
16:50	Neuro-modelling of flexible systems: structure optimisation and learning using evolutionary algorithms <b>Alam, M.*; Shaheed, M.; Tokhi, M.</b>	419
17:10	Modelling and vibration control of a twin rotor system: a particle swarm optimisation approach <b>Alam, M.*; Tokhi, M.</b>	420
17:30	Identification of rotor unbalance in minimax statement <b>Menshikov, Y.*</b>	421

SS08-2

Tuesday, July 4, 2006

S17

## Dynamic of Robotic Systems and Applications

Organisers: D. COJACARU, D. MARGHITU

16:50	Real time control systems of the compliant robots with insertion functions <b>Vladareanu, L.*</b>	422
17:10	The finite element modeling of the dynamic response of the mechanisms <b>Nicolae, D.*; Mirela, C.</b>	423
17:30	Contributions to the analysis of the dynamic response a hexapode type mobile robot <b>Nicolae, D.*; Mirela, C.</b>	424
17:50	Fuzzy based image processing for robotic vision <b>Cojocaru, D.*; Tanasie, R.</b>	425

RS29-3

Tuesday, July 4, 2006

S18

## Transportation Noise

Chairperson: N.V. TYURINA

16:50	Noise control at design and construction of linear transportation objects <b>Butorina, M.*; Minina, N.</b>	426
17:10	Noise level control on a busy intersection <b>Grubesa, S.*; Domitrovic, H.; Horvat, M.</b>	427
17:30	A comparative analysis of urban traffic noise models: Kuwait urban area case <b>Koushki, P.*</b>	428
17:50	Reduction of noise from transport in relation to directive 2002/49/EC <b>Cholava, R.*; Dvorakova, P.; Smekal, P.</b>	429

SS32-2	<p style="text-align: center;">Tuesday, July 4, 2006</p> <p style="text-align: center;"><b>Lawnmowers, Construction Machinery, and other Outdoor Equipment</b></p> <p style="text-align: center;">Organiser: M. BOCKHOFF</p>	S19
16:50	<p>Noise reduced construction site - planning and supervision: a case study  <b>Hintzsche, M.*; Neuhofer, R.</b></p>	430
17:10	<p>Construction site noise: comparison of predicted and in-situ measured values  <b>Trautmann, U.*</b></p>	431
17:30	<p>Verification criterion to use in the frame of directive 2000/14/EC  <b>Lukovnikova, M.*; Van Dyck, J.</b></p>	432
17:50	<p>2000/14/EC directive: some experiences about the measurement uncertainties in relation with the equipment realistic operating condition during the tests  <b>Cellard, P.*</b></p>	433



<i>PS05</i>	Wednesday, July 5, 2006 <b>Plenary Session 5</b> Chairperson: D. NEWLAND	<i>AudiMax</i>
08:30	Psychoacoustic basis of sound quality evaluation and sound engineering Fastl, H.*	5

<i>RS03-6</i>	Wednesday, July 5, 2006 <b>Active Noise and Vibration Control</b> Chairpersons: T. BASTEN, B.M. GIBBS		<i>H1</i>
10:00	The use of dynamical recurrent neural network for identification and active vibration control of a laminated thin plate <b>Kouhi, S.*; Montazeri, A.; Poshtan, J.</b>	434	
10:20	Passive vibration control of plates using piezoceramics and negative capacitance shunt circuits: numerical and experimental assessment <b>Chegury Viana, F.; Steffen Jr., V.; Rade, D.*</b>	435	
10:40	Set membership identification of lightly damped flexible beam for robust control <b>Montazeri, A.*; EsmaeilSabzali, H.; Poshtan, J.; Jahed Motlagh, M.</b>	436	
11:00 Withdrawn	Simulation and robust control of piezo electric beam <i>Yasrebi, N.*; Mayahy, A.; Rajae Salmasi, F.; Rakhsha, R.</i>	437	
11:00 NEW	A detailed evaluation of analytical, numerical and experimental methods for a smart piezoelectric beam in a higher frequency range <b>Dennerlein, J.*; Köppe, H.; Nunninger, S.; Bechtold, M.; Gabbert, U.</b>	438	
11:20 NEW	Robust control of a smart beam with piezoelectric actuators <b>Khanmirza, E.*; Yousefi-Koma, A.; Akbari, S.; Tarverdi zadeh, B.</b>	439	

<i>RS06-1</i>	Wednesday, July 5, 2006	<i>H2</i>
<b>Community and Environmental Noise</b>		
Chairperson: C. HELLMICH		
10:00	Long-term noise prediction in a busy airport <b>Alberici, A.*; Bassanino, M.; Mussin, M.; Giampaolo, M.; Telaro, B.</b>	440
10:20 <i>Withdrawn</i>	Study and proposal of the prediction equation for traffic noise during workable days in Buenos Aires downtown <i>Ausejo, M.*; Recuero, M.</i>	441
10:20 NEW	New approach to studying traffic noise nuisance <b>Derbal, R.*; Zeglache, H.</b>	442
10:40 NEW	Territoriality and sound delimitation of urbain space <b>Derbal, R.*; Zeglache, H.</b>	443
11:00 NEW	Lärmspoiler, friendly noise, innvoative noise abatement technology along tracks and roads <b>Brunbauer, W.*</b>	444
11:20 NEW	Day-evening-night levels appraisal using a 'noise chart' <b>Guglielmo, A.*; Carati, G.; Carlini, E.; Marzi, C.; Donati, D.</b>	445

<i>RS02-3</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Acoustics and Vibration Theory</b></p> <p style="text-align: center;">Chairpersons: R. HEUER, E.M. SALOMONS</p>	<i>H3</i>
10:00	Sound radiation by the coloured noise excited viscoelastic shallow shells <b>Kozien, M.*; Niziol, J.</b>	446
10:20	Vibroacoustic behaviour of cylindrical shell: comparison of numerical approach and experimental measurement. <b>El Hafidi, A.*; Lay, B.; Plessy, A.</b>	447
10:40	Wave analysis of vibration energy transmission at the corner of two plates for reduction of structure-borne sound <b>Chen, D.*; Che, C.</b>	448
11:00	Torsional vibration analysis on circular and annular plate <b>Wu, T.*</b>	449
11:20	Free vibration analysis and dynamic behaviour on the multilayered composite plates formulation <b>Kai, J.*</b>	450
11:40	Free vibration of layered annular circular plate of variable thickness by spline approximation <b>Viswanathan, K.*</b>	451

SS29-1

Wednesday, July 5, 2006

H4

## Elastic Waves in Solids and Structures

Organiser: V. KRYLOV, S. SOROKIN

10:00	Acoustic wave scattering from a clad rod encased in an isotropic matrix <b>Honarvar, F.*; Sodagar, S.; Sinclair, A.</b>	452
10:20	Wave-based analysis for exact transfer functions of one-dimensional distributed parameter systems <b>Kang, B.*</b>	453
10:40	Wave propagation, reflection and transmission in non-uniform beams <b>Lee, S.*; Mace, B.; Brennan, M.</b>	454
11:00	Resonant vibrations and acoustic radiation of rotating spherical structures <b>Shatalov, M.*; Fedotov, I.; Joubert, S.</b>	455
11:20	A thin orthotropic plate under transverse impulse loading <b>Cerv, J.*; Vales, F.</b>	456
11:40	A middle frequency method based on space-averaged quadratic variables for one-dimensional systems <b>Devaux, C.*; Joly, N.; Pascal, J.</b>	457

SS09-2

Wednesday, July 5, 2006

H5

## Nonlinear Acoustics and Vibration

Organiser: W. GAN

10:00	Quantum nondestructive testing <b>Gan, W.*</b>	458
10:20	Nonlinear dynamic analysis of a 2-DOF discontinuous system under two-frequency excitations <b>Zu, J.*</b>	459
10:40	High technology processes based on aeroacoustic effect <b>Erofeev, V.*; Vorobjova, G.; Genkin, P.</b>	460
11:00	Quantum acoustical imaging <b>Gan, W.*</b>	461
11:20	Application of negative refraction to ultrasonic nondestructive evaluation <b>Gan, W.*</b>	462
11:40	Intensity effects of finite amplitude ultrasonic waves on the absorption coefficient <b>Khelladi, H.*; Djelouah, H.</b>	463

<i>RS08-3</i>	Wednesday, July 5, 2006	<i>H6</i>
<b>Condition Monitoring and Vibration Testing</b>		
Chairpersons: E. KOZACZKA, A. TROHIDIS		
10:00	Methods for detecting faults and damages in gear units <b>Belsak, A.*; Flasker, J.</b>	464
10:20	Noise reduction of a high precision gearbox based on experimental study <b>Kim, W.*; Im, H.; Park, J.; Chung, J.</b>	465
10:40	Analysis of roller bearings vibration during nondestructive testing on gearbox <b>Docekal, A.*</b>	466
11:00	Time series analysis of cylinder cover vibration and diesel engine fault diagnosis <b>Zhu, J.*</b>	467
11:20	Study on changes of dynamic characteristics according to cracked condition in a turbine blade <b>Yang, K.*; Cho, C.; Bae, C.; Kim, G.; Song, O.</b>	468
11:40 NEW	Use of vibroacoustic diagnosis in reducing the uncertainty of technical risk estimation <b>Guminski, R.*; Radkowski, S.</b>	828

SS23-1		Wednesday, July 5, 2006	H7
		<b>Modal Analysis</b>	
		Organiser: J. WASSERMANN	
10:00	Comparison between different approaches for low-frequency vibroacoustic analysis of a plate coupled to air or water filled cavity <b>David, J.*</b>		470
10:20 Withdrawn	Interval dynamic analysis for structures with bounded uncertain parameters <b>Gao, W.*; Kessissoglou, N.</b>		471
10:20 NEW	A perturbation method for the accurate estimation of the vibration spectrum for the Timoshenko beam <b>Coleman, M.*</b>		472
10:40 NEW	A new evolutionary optimization method with an example of a connecting-rod model <b>Okuma, M.*; Yoshida, M.; Nakahara, T.</b>		473
11:00 NEW	Modal analysis of the high-voltage disconnecter using finite element method <b>Negru, M.*; Rinderu, P.; Manea, I.</b>		474
11:20 NEW	Spectrum analysis of the SF6 high voltage circuit breaker using finite element method <b>Negru, M.*; Rinderu, P.; Manea, I.</b>		475



<i>RS16-4</i>	Wednesday, July 5, 2006 <b>Measurement Techniques</b> Chairpersons: C. ADAM, R. LACKNER		<i>H8</i>
10:00	An acoustical method for the localisation of fire propagation risks in buildings <b>Ryden, L.*</b>	476	
10:20	Multi-channel reverberation time measurement with sweeps <b>Massarani, P.*; Muller, S.</b>	477	
10:40	Design, construction, and validation of a reverberation room <b>Elnemr, Y.; Elnady, T.*</b>	478	
11:00	New techniques to characterize soft rubber materials used in tires <b>Tittmann, B.*; Lucas, I.; Ashok, V.</b>	479	
11:20	Experimental determination of the acoustic characteristics of porous materials in a standing wave tube <b>Lim, B.*; Chang, H.</b>	481	

SS30-2	Wednesday, July 5, 2006 <b>Architectural Acoustics</b> Organiser: J. KANG		S9
10:00	Prediction of the reverberation time in rooms with non uniform absorptions using a diffusion model <b>Billon, A.*; Sakout, A.</b>	482	
10:20	Numerical and visual analyses of sound propagation and scattering in concert halls by means of a FDTD method <b>Miyashita, T.*</b>	483	
10:40	Characterization of low frequency sound field in the scaled chambers <b>Hyun-Ju, K.*; Jae-Seung, K.; Bong-Ki, K.; Jun-Shin, L.</b>	484	
11:00	Measurement of the average sound pressure level in a room at low frequency <b>Moorhouse, A.*; Ramadorai, R.</b>	485	
11:20 Withdrawn	Certified acoustical measurements according to ISO3382 of teatro colon - Buenos Aires - Argentina <b>Valletta, P.*; Gareis, R.; Sánchez Quintana, R.</b>	486	
11:20 NEW	Sustainability analysis of architectural acoustic materials <b>Kang, J.; Yu, C.*</b>	487	

RS21-2	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Noise Source Identification</b></p> <p style="text-align: center;">Chairperson: I. MORIOKA</p>	S10
10:00	<p>Sound power level estimation of a machine in presence of disturbing noise sources  <b>De Sitter, G.*; Guillaume, P.; Talal, A.</b></p>	488
10:20	<p>Vibro-acoustic characterization of a light metro rail  <b>Rusciano, N.*; Viscardi, M.; Ferraiuolo, S.</b></p>	489
10:40	<p>Noise sources identification of a diesel engine using sound intensity technique  <b>Garg, N.*; Bhattacharya, M.; Jain, S.</b></p>	490
11:00	<p>Acoustic behaviour of a switched reluctance motor  <b>Llado, J.*; Sanchez, B.; Martinez, A.; Martín del Rio, B.; Vicuña, J.</b></p>	491
11:20	<p>Acoustic characterization of an induction cooking  <b>Sanchez, B.*; Llado, J.; Garcia, J.; Pina, C.; Monterde, F.</b></p>	492

SS39-1

Wednesday, July 5, 2006

S11

## Computational Aeroacoustics – Models and Methods

Organiser: R. LEUNG

10:00	An advanced branch and bound method to interpolate acoustic data on structural finite element meshes <b>Rose, M.*; Nagel, B.</b>	494
10:20	Experience of using a CFD code for estimating the noise generated by gusts along the sun-roof of a car <b>Lai, L.; Pericleous, K.*</b>	495
10:40	Low speed jet noise prediction using the vortex sound formulation <b>Alonso, M.*; Avital, E.</b>	496
11:00	Identification of sources of sound in low mach number flows by the use of flow field eigenmodes <b>Kierkegaard, A.*; Efrainsson, G.; Hoepffner, J.; Åkervik, E.; Åbom, M.</b>	497
11:20	Direct simulation of duct aero-acoustics using CE/SE method <b>Leung, R.*; Yu, K.; Tang, S.</b>	498
11:40 NEW	Validation of computational aeroacoustics <b>Kaltenbacher, M.; Becker, S.; Escobar, M.*; Hahn, C.; Ali, I.</b>	499

<i>RS25-2</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Signal Processing</b></p> <p style="text-align: center;">Chairpersons: A. CIOLFI, F. JACOBSEN</p>	<i>S12</i>
10:00	Impedance of multilayered matching of ultrasonic piezo transducers <b>Sung, C.*; Zhu, Y.; Chiang, Y.</b>	500
10:20	Vibration-proof systems of hydrophysical velocity field sensors in the contour of a circular cylinder <b>Fedotov, G.*</b>	501
10:40	Vector quantization techniques for remote train detection <b>Carvalho, C.*; Martins, C.; Serralheiro, A.</b>	502
11:00	A recursive time-frequency method for the signal processing of flutter test with progressional speed <b>Shubiao, S.; Chengming, P.*</b>	503
11:20	Voice message priorities using fuzzy mood identifier <b>Abdel Alim, O.*; Elragal, H.; Mahmoud, H.</b>	504
11:40	On the IIR inverse filter merits for the equalization of loudspeaker non-minimum phase systems <b>Marques, A.*; Freitas, D.</b>	505

<i>RS15-1</i>	Wednesday, July 5, 2006	<i>S13</i>
<b>Machinery Noise and Vibration Control</b> Chairpersons: D.J. INMAN, E. NIJMAN		
10:00	Design of adjustable hydro-pneumatic damper for cab suspension <b>Ruotsalainen, P.; Nevala, K.; Marjanen, Y.*</b>	506
10:20	Performance analysis of vibration isolation for vehicle ER suspension systems <b>Tseng, W.*; Wu, J.</b>	507
10:40	Modelling a selective hydro-pneumatic suspension element <b>Kroneld, P.; Liedes, T.; Nevala, K.; Marjanen, Y.*</b>	508
11:00	Allocation of three control forces to four actuators for 3-DOF hybrid vibration isolation system <b>Mizutani, K.*; Ito, K.; Ikeura, R.</b>	509
11:20	Application of feed forward structures for isolation of car engine vibration <b>Paschedag, J.*; Schwarz, J.</b>	510
11:40	Comparison of different actuator configurations for active isolation of car engine induced vibration regarding power consumption <b>Paschedag, J.*; Koch, G.</b>	511

<i>RS22-6</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Non-Linear Acoustics and Vibration</b></p> <p style="text-align: center;">Chairpersons: J. BÖS, H. HUNT</p>	<i>S14</i>
10:00	<p>Can we guarantee the enhancement of accuracy of time integration analyses with smaller nonlinearity tolerances?</p> <p><b>Soroushian, A.*</b></p>	512
10:20	<p>Robust response convergence for time integration of nonlinear equations of motion in lengthy time intervals</p> <p><b>Soroushian, A.*</b></p>	513
10:40	<p>Calculation of influence on the dispersion law of the temperature variations of atoms</p> <p><b>Vladimir, S.*; Vladimir, G.; Yuri, S.</b></p>	514

SS11-1

Wednesday, July 5, 2006

S15

## Duct Acoustics and Mufflers

Organisers: M. ABOM, H. BODEN, A. TORREGROSA

10:00	Multi-mode sound propagation in pod silencers <b>Kirby, R.*</b>	515
10:20	Hybrid mufflers with short lateral chambers: analytical, numerical and experimental studies <b>Denia Guzmán, F.*; Selamet, A.; Martínez Bordes, M.; Torregrosa Huguet, A.</b>	516
10:40	Use of parallel micro-perforated panel absorbers for noise control in ducts <b>Sum, K.*; Peng, S.</b>	517
11:00	Elliptical side resonators for broadband noise reduction: theory and experiments <b>Nijhof, M.*; Wijnant, Y.; de Boer, A.</b>	518
11:20	Passive noise control design used on automotive HVAC system to reduce tonal noise <b>Wang, P.*</b>	519
11:40	Side branch resonator for axial cooling fan <b>Prezelj, J.*; Cudina, M.</b>	520



SS28-2

Wednesday, July 5, 2006

S16

## Intelligent Methods of Active Noise and Vibration Control

Organiser: O. TOKHI

10:00	Smart modal control of a flexible panel using smart actuators <b>Tanaka, N.*</b>	521
10:20	Application of digital filter based motion command preconditioning methods for vibration suppression of a flexible truss with densely spaced modes <b>Glossiotis, G.*; Antoniadis, I.</b>	523
10:40	Interior active noise control in turbofan aircraft: numerical simulation and optimal actuators positioning using dedicated genetic algorithms <b>Monaco, E.*; Franco, F.; Lecce, L.</b>	525

SS33-1	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Noise Mapping &amp; GIS</b></p> <p style="text-align: center;">Organiser: G. LICITRA</p>	S17
10:00	Integrated solutions noise-mapping - GIS <b>Probst, W.*</b>	526
10:20	GIS and noise mapping - recent solutions <b>Stapelfeldt, H.*; Shilton, S.</b>	527
10:40	Comparison between EU directive noise exposure and annoyance <b>Knauss, D.*</b>	528
11:00	Simulating the effect of diffuse reflections on noise maps using phonon mapping <b>de Greve, B.*; Willems, T.; De Muer, T.; Botteldooren, D.</b>	529
11:20	Techniques to measure the European LDEN noise indicator for major sources in complex urban environments <b>Paviotti, M.*; Kephelopoulos, S.; Iacoponi, A.</b>	530
11:40	Use of web based real time noise data transmission for acoustic investigation and noise mapping <b>Cerniglia, A.*; Amadasi, G.</b>	531

SS20-1	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Environmental Noise &amp; Vibration From Urban Transportation</b></p> <p style="text-align: center;">Organiser: C. VOGIATZIS</p>	S18
10:00	Experimental methods for train vibration forecasts <b>Steinhauser, P.*</b>	532
10:20	Influence of passing underground trains in Warsaw on the acoustic conditions in residential buildings located near the tunnels <b>Niemas, M.*</b>	533
10:40	Prototype barriers for trams and trains in urban environment: measurement campaign at Athens tram network <b>Vogiatzis, C.*</b>	534
11:00	Low-frequency noise radiated from a high-speed train running in an open section <b>Takami, H.*; Kikuchi, K.; Iida, M.; Maekawa, H.; Kurita, K.</b>	535
11:20	An experimental investigation into the influence of track crossovers on tram-generated ground-borne vibration and re-radiated noise <b>Talbot, J.*</b>	536

RS20-1	Wednesday, July 5, 2006 <b>Noise Control Elements</b> Chairpersons: Z. HUNYADI, B. ROOZEN		S19
10:00	Some numeric and experimental study of micro-perforated panel absorbers with heterogeneous cavity <b>Jiang, W.*; Liu, X.; Wang, C.</b>	537	
10:20	The sound transmission loss of foam-filled honeycomb-core sandwich panels <b>Zhou, R.*; Crocker, M.; Li, Z.</b>	538	
10:40	Comparison between experimental transmission loss measurement and theoretical models based on experimentally determined acoustic materials parameters <b>Vanzo, P.*; Amadasi, G.</b>	539	
11:00	A silencer for an acoustic enclosure in a power transformer <b>Lee, W.*; Lee, J.; Son, S.</b>	540	
11:20	A study of duct vent silencer <b>Bauzer Medeiros, E.*; Campolina França, G.; Silveira, C.</b>	541	
11:40	On the design of Helmholtz resonators for damping pulsations in gas turbine combustion chambers <b>Bellucci, V.*; Nowak, D.; Schuermans, B.</b>	542	

<i>PS06</i>	Wednesday, July 5, 2006 <b>Plenary Session 6</b> Chairperson: S. GERGES	<i>AudiMax</i>
13:30	Recent findings on our auditory system: it is very sensitive owing to the motility of sensory cells <b>Wada, H.*</b>	6

<i>RS03-7</i>		Wednesday, July 5, 2006	<i>H1</i>
		<b>Active Noise and Vibration Control</b>	
		Chairpersons: T. BASTEN, B.M. GIBBS	
14:30	Active vibration control of a rotor using a novel adaptive repetitive control algorithm <b>Tammi, K.*; Hötönen, J.; Daley, S.</b>		543
14:50	Active vibration control of rotor-bearing systems using on-line algebraic identification of eccentricity <b>Blanco-Ortega, A.*; Beltrán-Carbajal, F.; Silva-Navarro, G.</b>		544
15:10	Semiactive balancing control of a Jeffcott-like rotor system supported on MR dampers <b>Silva-Navarro, G.*; Amado-Cabrera, A.</b>		545
15:30 <i>Withdrawn</i>	Optimal control of a rotating beam with tip rotor <i>Chandiramani, N.*; Librescu, L.</i>		546
15:30 NEW	Adaptive-like active vibration suppression for a nonlinear mechanical system using on-line algebraic identification <b>Beltrán-Carbajal, F.*; Silva-Navarro, G.; Sira-Ramírez, H.</b>		547
15:50 NEW	Evaluation of the autoparametric pendulum vibration absorber for nonlinear duffing systems <b>Vázquez-González, B.*; Silva-Navarro, G.</b>		548

<i>RS06-2</i>	Wednesday, July 5, 2006	<i>H2</i>
<b>Community and Environmental Noise</b>		
Chairperson: C. HELLMICH		
14:30	Acoustical characterisation of historical squares: a case study <b>Marletta, L.; Evola, G.; Sicurella, F.*</b>	549
14:50	Environmental impact of industrial noise: a perceptual typology of permanent sources <b>Le Nost, G.*; Viollon, S.; Marquis-Favre, C.</b>	550
15:10	New strategy for noise in Egypt <b>El Bardisi, M.*</b>	551
15:30	Research on subjective noise in several hospitals of Buenos Aires city <b>Ausejo, M.*; Recuero, M.</b>	552
15:50	Influence of events upon noise and air pollution <b>Barbaro, S.*; Caracausi, R.</b>	553
16:10	Acoustical design of an electrical emergency plant using SEA method <b>Podzharov, E.*; De la Mora Galvez, F.; Alvarez Sanchez, J.</b>	554

RS02-4	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Acoustics and Vibration Theory</b></p> <p style="text-align: center;">Chairpersons: R. HEUER, E.M. SALOMONS</p>	H3
14:30	<p>Sound transmission loss model of curved multilayered panels  <b>Simon, F.*</b></p>	555
14:50	<p>Sound insulation of layered walls – comparison of experimental and theoretical results  <b>Godinho, L.*; Tadeu, A.; Santos, A.</b></p>	556
15:10	<p>Research of acoustic characteristics stability of the stand for tests of the hydroequipment  <b>Berestovitsky, E.*; Gladilin, Y.</b></p>	557
15:30	<p>New designs for nutation gyroptic dampers  <b>Haji Ali Najjar, M.; Sohrabian, M.*; Abedi, H.</b></p>	558
15:50	<p>A variable damping and stiffness semi-active vibration isolation system using magnetorheological fluid dampers  <b>Liu, Y.*; Matsuhisa, H.; Utsuno, H.</b></p>	559
16:10	<p>Physical mechanism behind the effect of vanishingly small damping on the stability bound of Beck's column  <b>Langthjem, M.*; Sugiyama, Y.</b></p>	560



SS29-2	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Elastic Waves in Solids and Structures</b></p> <p style="text-align: center;">Organiser: V. KRYLOV, S. SOROKIN</p>	H4
14:30	<p>Longitudinal guided waves in transversely isotropic circular cylindrical shells  <b>Honarvar, F.*; Safari, N.; Bazargan, M.; Enjilela, E.</b></p>	561
14:50	<p>On alternative theories for analysis of time harmonic behaviour of elastic plates with and without heavy fluid loading  <b>Sorokin, S.*</b></p>	562
15:10 <i>Withdrawn</i>	<p>Flexural vibration band gaps in periodic plates with fluid loading  <i>Yu, D.*; Liu, Y.; Qiu, J.; Wen, J.; Zhao, H.</i></p>	563
15:10 NEW	<p>Control of dispersion properties of normal electroelastic waves in cylindrical piezoelectric waveguides  <b>Puzyrev, V.*</b></p>	564
15:30 NEW	<p>First experimental observation of the aquatic propulsion caused by localised flexural waves in immersed structures  <b>Krylov, V.*; Pritchard, G.</b></p>	565
15:50 NEW	<p>Mode behaviour in monolithic interface 2D arrays  <b>Kapelewski, J.*; Lila, B.</b></p>	566

SS09-3

Wednesday, July 5, 2006

H5

## Nonlinear Acoustics and Vibration

Organiser: W. GAN

14:30	Ejectors pulsating processes investigation <b>Slobodkina, F.*; Evtukhin, A.</b>	567
14:50	Propagation of ultrasonic waves in isotropic materials under axial elastic stresses <b>Si-Chaib, M.*; Djelouah, H.; Nour, A.</b>	568
15:10 Withdrawn	Acoustic streaming induced by a resonance of cylindrical wave <b>Yano, T.*</b>	569
15:10 NEW	Acoustical waves generated by a pulsating sphere with time-varying radius <b>Lakhdar, G.*</b>	570
15:30 NEW	Axisymmetric nonlinear acoustic resonators: numerical analysis of the effect of the source <b>Vanhille, C.*; Campos-Pozuelo, C.</b>	571
15:50 NEW	Nonlinear thermal vibration a thin laminate with thermal diffusion <b>He, X.*</b>	572

RS08-4

Wednesday, July 5, 2006

H6

## Condition Monitoring and Vibration Testing

Chairpersons: E. KOZACZKA, A. TROHIDIS

14:30	Some process of detection of cutting tool wear in high speed milling <b>Mecheri, K.; Ouahabi, A.*; Serra, R.; R'mili, W.</b>	573
14:50	An experimental investigation of vertically vibrating aerostatic circular porous thrust bearings <b>Jung, S.*; Lee, J.; Lee, S.; Ji, H.; Choi, H.</b>	574
15:10	Tool wear monitoring in turning process using vibration measurement <b>Rmili, W.*; Serra, R.; Ouahabi, A.; Gontier, C.</b>	575
15:30	Wear monitoring of a tool for marble cutting <b>Bartolini, A.*</b>	576
15:50	Fault detection in slowly rotating large sized bearings <b>Zvokelj, M.*; Zupan, S.; Kunc, R.; Prebil, I.</b>	577
16:10	A threshold level approach to the detection of broken rotor bars in electrical-signal-based methods <b>ShamsMosavi, S.*; Poshtan, J.; Zarei, J.</b>	578

SS23-2	Wednesday, July 5, 2006	H7
<b>Modal Analysis</b>		
Organiser: J. WASSERMANN		
14:30	Transverse modes of vibration in european church bells <b>McLachlan, N.*</b>	579
14:50	Operational modal analysis of a mobile substation during transport <b>Devriendt, C.*; Guillaume, P.; Lopez-Roldan, J.</b>	580
15:10	Direct methods versus modal methods in the identification of rigid body properties <b>Maia, N.*; Almeida, R.; Urgueira, A.</b>	581
15:30	Vibration characteristics of the technical degradation process of an object <b>Kazmierczak, H.; Cempel, C.; Pawlowski, T.*; Kromulski, J.</b>	582
15:50	Operational modal analysis in the presence of unknown arbitrary loads using transmissibility measurements <b>Devriendt, C.*; Guillaume, P.</b>	583
16:10	Operational modal analysis of a race-car using cyclostationarity with engine as excitation <b>Hanson, D.*; Randall, B.; Antoni, J.; Ford, R.</b>	584

<i>RS16-5</i>	Wednesday, July 5, 2006	<i>H8</i>
<b>Measurement Techniques</b> Chairpersons: C. ADAM, H. WADA		
14:30 NEW	Coriolis dynamic absorbers for attenuation of swing of ropeway Matsuhisa, H.*; Utsuno, H.; Yasuda, M.	956
14:50	Dynamic characteristics analysis of turbine disk Zexia, H.*; Qin, S.; Feng, L.; Yonghua, T.	586
15:10	The applying research on vibration and acceleration test using fiber optic sensors displacement measurement technique Yi, Z.*; Yong, W.; Jianzhong, H.; Rongjian, H.; Changchun, Z.	587
15:30	Application of the video camera measurements to experimental determination of the structural acoustic vector for vibrating plates Kozien, M.*	588
15:50	The random-incidence sensitivity of measurement microphones Barrera-Figueroa, S.*; Rasmussen, K.; Jacobsen, F.	589
16:10	Material effect on the performance of squeeze film dampers Ismail, G.*; Albagul, A.; Khalid, A.; Faris, W.; Hrair, M.	590

SS30-3

Wednesday, July 5, 2006

S9

## Architectural Acoustics

Organiser: J. KANG

14:30	Comparison of sound insulation prediction methods of lightweight partitions <b>Prascevic, M.*; Cvetkovic, D.; Mihajlov, D.</b>	591
14:50	A study on floor impact noise <b>Kim, H.*; Kim, B.; Cha, S.; Kim, Y.</b>	592
15:10	Garage structure vibration transmission to human occupied spaces <b>Evans, J.*</b>	593
15:30	Airborne sound insulation and its subjective perception - how much makes a difference in loudness <b>Neubauer, R.*</b>	594
15:50 Withdrawn	Absorption based scaling method to predict steady-state broadband sound fields in reverberant enclosures <b>Bliss, D.*; Rouse, J.; Franzoni, L.</b>	595
15:50 NEW	The possibilities of application of inverse methods in acoustical analysis of sacral objects <b>Kosala, K.*; Engel, Z.; Engel, J.</b>	596

SS38-1	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Numerical Methods in Acoustics</b></p> <p style="text-align: center;">Organiser: O. VON ESTORFF</p>	S10
14:30	Advanced features in computational acoustics <b>Lerch, R.*; Kaltenbacher, M.</b>	597
14:50	A three dimensionnal finite element model for sound propagation in non potential mean flows <b>Ben Tahar, M.; Beriot, H.*</b>	598
15:10	On the use of the multi-scale finite element method for calculating the acoustic response of double porosity material <b>Amirouche, N.*; Bécot, F.; Sgard, F.</b>	599
15:30	A finite element approach to the prediction of sound transmission through panels with acoustic resonators <b>Hannink, M.*; Spiering, R.; Wijnant, Y.; de Boer, A.</b>	600
15:50	Numerical modelling of sound radiation and transmission loss of a honeycomb panel using measured material properties <b>Lippert, S.*; von Estorff, O.</b>	601
16:10	Infinite elements of variable order for exterior acoustic problems <b>von Estorff, O.*; Petersen, S.</b>	602

SS37-1	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Active Damping of Flexible Structures</b></p> <p style="text-align: center;">Organiser: M. KOZEK</p>	S11
14:30	Semi-active damping of vibrations of mechanical structures with friction dampers <b>Becker, J.*; Gaul, L.</b>	603
14:50	Influence of Frahm's damping on the vibro-acoustic characteristics of a rotor structure <b>Abdelkader, N.*; Nouredine, C.; M. Said, B.; M. Ouali, S.</b>	604
15:10	Optimisation of an electromagnetic feedback for active or passive damping and energy scavenging <b>Foltete, E.*; Collet, M.; Mammosser, D.</b>	605
15:30	A new sensing technology using piezoelectric film sensors for controlling multi-mode of vibration in flexible structures <b>Seto, K.*; Nishikiori, M.</b>	606
15:50	Design and experimental validation of an optimal positioning criterion of strain sensors for plate structures <b>Diaz, I.*; Pereira Gonzalez, E.; Lopez Cela, J.; Feliu Batlle, V.</b>	607
16:10	Stabilization of a non-collocated active structural acoustic control on a clamped-free beam <b>Aizpuru, A.*; Abete, J.</b>	608



<i>RS25-3</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Signal Processing</b></p> <p style="text-align: center;">Chairpersons: A. CIOLFI, F. JACOBSEN</p>	<i>S12</i>
14:30	Automatic gain control for the measurement of a flexible body motion using a Laser Doppler vibrometer <b>Choi, H.*; Yeom, W.; Yoon, H.; Park, K.</b>	609
14:50	Speech formant estimation using Hilbert-Huang transform <b>Huang, H.*; Pan, J.</b>	610
15:10 <small>Withdrawn</small>	An application of time-frequency signal analysis technique to estimate the impact mass on a plate type structure <small>Choi, Y.*; Park, J.</small>	611

<i>RS15-2</i>	Wednesday, July 5, 2006	<i>S13</i>
<b>Machinery Noise and Vibration Control</b>		
Chairpersons: D.J. INMAN, E. NIJMAN		
14:30	Design and analysis of auto-balancer of an optical disk drive using rotational vibration absorbers <b>Cheng, C.*</b>	612
14:50	Isolation of vibrations transmitted to the operator of vibrating rollers used for compacting works <b>Bratu, P.*</b>	613
15:10	A broadband dynamic vibration absorber: optimal design and experimental assessment <b>Kotinda, G.; Steffen Jr., V.; Rade, D.*</b>	614
15:30	Influence of damping treatment on sound radiation <b>Feng, L.*</b>	615
15:50	A selective hydraulic damping valve <b>Kroneld, P.; Liedes, T.; Nevala, K.; Marjanen, Y.*</b>	616
16:10	Simple gear set dynamic transmission error measurements <b>Tuma, J.*</b>	617

SS02-1	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Noise and Vibration in Space Vehicles</b></p> <p style="text-align: center;">Organiser: H. OSMAN</p>	S14
14:30	Vibroacoustic environment prediction on detailed spacecraft models using reduction techniques <b>Ngan, I.*; Santiago-Prowald, J.; Henriksen, T.</b>	618
14:50	Controlling shock propagation in struts using cylindrical distributed vibration absorbers <b>Johnson, M.*; Batton, B.; Osman, H.; Fuller, C.</b>	619
15:10	Efficiency of sound radiation of cylindrical shells <b>Alzahabi, B.*</b>	620
15:30	Optimization of cylindrical shells using MSC.Nastran <b>Alzahabi, B.*</b>	621
15:50	Sound transmission through aircraft panels subjected to boundary layer pressure fluctuations <b>Liu, B.*</b>	622
16:10 Withdrawn	A 2D analysis of active composite structures using plate elements for piezoelectric actuators Shaeri, N.*; Sadr Lahidjani, M.; Yousefi-Koma, A.	623

SS11-2	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Duct Acoustics and Mufflers</b></p> <p style="text-align: center;">Organisers: M. ABOM, H. BODEN, A. TORREGROSA</p>	S15
14:30	Experimental investigation of the acoustic effect of non-rigid walls in IC-engine intake systems <b>Bodén, H.; Knutsson, M.*; Varma Nadampalli, R.</b>	624
14:50	Acoustic modeling of a filter in the air cleaner box of engine intake system <b>Ih, J.*; Kang, J.</b>	625
15:10	Linear acoustic simulation and experimental characterisation of a modular automotive muffler <b>Fairbrother, R.*; Abom, M.; Elnady, T.; Ollivier, F.</b>	627
15:30	Acoustic modeling and testing of a complex car muffler <b>Allam, S.*; Åbom, M.</b>	628
15:50	Aeroacoustics of flow duct with multiple cavities <b>Leung, R.*; So, R.</b>	629

SS13-1

Wednesday, July 5, 2006

S16

## Soil Vibrations by Infrastructure

Organiser: H. STUIT

14:30	A review of strategies to control manmade induced ground vibrations <b>Rahman, M.*; Orr, T.</b>	630
14:50	Vibrations from the tunnel boring machine in soft soil <b>Gardien, W.*</b>	631
15:10	A parametric study of backfill trench for reduction of TBM induced ground vibrations <b>Rahman, M.*; Orr, T.</b>	632
15:30	Traffic induced ground vibrations from viaduct: prediction and mitigation procedures <b>Takemiya, H.*; Chen, F.; Shimabuku, J.</b>	633
15:50	Stiffness requirements for slab track railways: soil improvement versus slab reinforcement, and effects on dynamic response <b>Steenbergen, M.*; Metrikine, A.</b>	635

SS33-2	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Noise Mapping &amp; GIS</b></p> <p style="text-align: center;">Organiser: G. LICITRA</p>	S17
14:30	Input data preparation for noise mapping according to the European directive on environmental noise <b>Licitra, G.*; Chiari, C.; Iacoponi, A.; Paviotti, M.; Memoli, G.</b>	636
14:50	Noise mapping with GIS - managing uncertainty helps promote quality <b>Shilton, S.*; Stapelfeldt, H.</b>	637
15:10	Simplified mapping algorithm for fast surveys, requiring minimal input data <b>Farina, A.*; Galaverna, P.; Truffelli, G.</b>	638
15:30	Use of remote sensing data in noise mapping – a case study for Leicester, UK <b>Goodman, P.*; Skelton, P.; Bell, M.</b>	639
15:50	Methodology for spatial classification of transport routes in the view of their impact on the acoustic climate of the environment <b>Kompala, J.*; Lipowczan, A.</b>	640
16:10	Noise mapping and impact analysis in GIS <b>Sivertun, Å.; Gumos, A.*</b>	641

SS20-2

Wednesday, July 5, 2006

S18

## Environmental Noise & Vibration From Urban Transportation

Organiser: C. VOGIATZIS

14:30	Long term environmental & transportation noise monitoring in the cities of Veria & Ioannina in Northern Greece according to the 2002/49/EC directive <b>Vassiliadis, V.*; Tzekakis, E.; Vogiatzis, C.</b>	642
14:50	Application of a combined wavenumber finite and boundary element method to noise radiation from embedded track <b>Nilsson, C.*; Jones, C.</b>	643
15:10	Acoustic waves emanating from transitional structures in a compressible boundary-layer for high-speed train <b>Watanabe, D.*; Takami, H.; Maekawa, H.; Suzuki, H.; Iida, M.</b>	644
15:30	Optimization of the acoustic performance of T-shaped noise barriers with a reactive top surface <b>Baulac, M.*; Defrance, J.; Jean, P.</b>	645
15:50	Measurement of noise in ultrasonic frequency range in traffics and environments <b>Masuzawa, N.; Fukahori, K.*</b>	646

<i>RS20-2</i>	Wednesday, July 5, 2006	<i>S19</i>
<b>Noise Control Elements</b>		
Chairpersons: Z. HUNYADI, B. ROOZEN		
14:30	Performance evaluation of spherical reflector in suppressing supersonic jet noise field: noise control <b>Khan, M.*; Seto, K.; Teramoto, K.</b>	647
14:50	An approach to the solution of the problem of noise pollution at the social living spaces in Trabzon <b>Demýrel, Ö.*; Barlý, Ö.; Yasar, Y.; Özdemir, B.; Sarýkoç, E.</b>	648
15:10	Acoustical optimization of a roller blind box <b>Asdrubali, F.*; Pispola, G.</b>	649
15:30 <i>Withdrawn</i>	Conditions of excitation of sound for condensed and gas fuels <i>Samsonov, V.*; Murunov, E.</i>	650
15:30 <b>NEW</b>	Prediction and design of noise barriers for stationary noise sources <b>Tyurina, N.*</b>	651



<i>RS03-8</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Active Noise and Vibration Control</b></p> <p style="text-align: center;">Chairpersons: T. BASTEN, B.M. GIBBS</p>	<i>H1</i>
17:00	<p>A study of the pressure oscillation in a supersonic cavity flow and its control  <b>Kim, H.; Lim, C.*; Lee, Y.</b></p>	652
17:20	<p>Experimental investigations of different microphone installations for active noise control in ducts  <b>Larsson, M.*; Johansson, S.; Håkansson, L.; Claesson, I.</b></p>	653
17:40	<p>Stabilized multi-channel IIR filters for active control of noise in a duct  <b>Nam, H.*; Suh, S.; Yoon, K.; Ahn, D.</b></p>	654
18:00	<p>Active control of high frequency vibration in uncertain structures  <b>Gani, A.*; Langley, R.</b></p>	655
18:20	<p>Closed-loop control of flow-induced noise using a perturbation technique  <b>Ming Ming, Z.; Li, C.*; Yu, Z.</b></p>	656

<i>RS23-1</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Occupational Noise</b></p> <p style="text-align: center;">Chairpersons: P. BOREJKO, I. DOMBI</p>	<i>H2</i>
17:00	Utilization of silencers to reduce the personal noise exposure in work environment <b>Costescu, M.*; Platon, S.</b>	657
17:20	Floor impact noise reduction effect of polyester felt <b>Jang, J.*; Jung, M.; Lee, Y.; Hwang, Y.</b>	658
17:40	Noise maps: a tool for the demarcation of risk areas of noise exposure in the surface mining industry <b>Pavón, I.*; Recuero, M.</b>	659
18:00	The safety issues of intense airborne ultrasound: parametric array loudspeaker <b>Tan, A.*; Tanaka, N.</b>	660
18:20	Experimental study of ototoxic interaction of styrene and furosemide in the Guinea Pig <b>Morioka, I.*; Minami, Y.; Yamamoto, H.; Kawai, T.; Miyashita, K.</b>	661

<i>RS02-5</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Acoustics and Vibration Theory</b>  Chairpersons: R. HEUER, E.M. SALOMONS</p>	<i>H3</i>
17:00	Numerical study of sound generation by vortex induced flexible wall vibration <b>Zheng, T.*; Tang, S.; Shen, W.</b>	662
17:20	Lateral vibration of rotor-bearing system with flexible coupling and parallel offset <b>Huang, S.*; Tsai, C.</b>	663
17:40	Rotating shaft analytical response in adimensional form <b>Fayos, J.; Rovira, A.*; Baeza, L.; Carballeira, J.</b>	664
18:00	New approximation of structure-external acoustic interactions, part I: model derivation <b>Park, K.*; Lee, M.; Park, Y.</b>	665
18:20	New approximation of structure-external acoustic interactions, part II: model evaluation <b>Park, K.; Lee, M.*; Park, Y.</b>	666

SS29-3	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Elastic Waves in Solids and Structures</b></p> <p style="text-align: center;">Organiser: V. KRYLOV, S. SOROKIN</p>	H4
17:00	Spectral element and experimental analysis of lightweight sandwich structures <b>Bonfiglio, P.*; Peplow, A.; Nilsson, A.; Pompoli, F.</b>	667
17:20	Effect of cross-coupling on the injection of vibratory power from sets of point forces into a periodic support structure <b>Ohlrich, M.*; Friis, L.</b>	668
17:40	Wave propagation in drilling boreholes <b>Rashed, G.*; Ghajar, R.; Hashemi, S.</b>	669
18:00	Thermodynamic shock characterization of the superalloy <b>Abdelkader, N.*; Youcef, O.; Nouredine, C.; Abderrahmane, S.</b>	670
18:20	Acoustic non-linearity, pseudo-elasticity and anisotropy of ferromagnetic Heysler alloys with shape memory <b>Koledov, V.; Kostiuik, D.; Kuzavko, Y.; Shavrov, V.*</b>	671

<i>SS09-4</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Nonlinear Acoustics and Vibration</b></p> <p style="text-align: center;">Organiser: W. GAN</p>	<i>H5</i>
17:00	Soft-ratchet paradigm in the nonclassical nonlinear dynamics of rocks <b>Vakhnenko, O.*; Vakhnenko, V.; Shankland, T.; Ten Cate, J.</b>	672
17:20	Resonant frequencies of nonlinear output frequency response functions <b>Peng, Z.*; Lang, Z.; Billings, S.; Lu, Y.</b>	673
17:40	Experimental and theoretical investigation of vibrational convection in Hele-Shaw cell <b>Babushkin, I.; Demin, V.*</b>	674
18:00	Bifurcations analysis of a flexible rotor in squeeze-film dampers with retainer springs <b>Inayat-Hussain, J.*</b>	675
18:20	Vibrations of nonlinear structures using structural coupling method <b>Kim, D.; Han, J.*</b>	676

RS08-5	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Condition Monitoring and Vibration Testing</b></p> <p style="text-align: center;">Chairpersons: E. KOZACZKA, A. TROHIDIS</p>	H6
17:00	Shock monitoring technology for reciprocating machinery <b>Zusman, G.*</b>	677
17:20	Drill wear monitoring based on measured instantaneous angular speed <b>Heyns, S.*; Sambayi, P.</b>	678
17:40	Damage detection in beams using time-frequency analysis of transient flexural waves <b>Trochidis, A.*; Apostoloudia, A.; Douka, E.; Hadjileontiadis, L.; Rekanos, I.</b>	679
18:00	A novel method for the detection of leakage and blockage in pipelines <b>Papadopoulou, K.*; Glover, D.; Lennox, B.; McKay, D.; Taylor, A.; Turner, J.T.</b>	680
18:20	Sonic pressure vessel sensor <b>Tittmann, B.*</b>	681

SS23-3	Wednesday, July 5, 2006	H7
<b>Modal Analysis</b>		
Organiser: J. WASSERMANN		
17:00	Modal detection for non-uniform beams using continuous and discrete strain sensors <b>Anthony, D.*</b>	682
17:20	Experimental modal analysis of a scaled car body for metro vehicles <b>Popprath, S.*; Benatzky, C.; Bilik, M.; Kozek, M.; Stribersky, A.; Wassermann, J.</b>	683
17:40	Preparation for the validation of a simple elevator model <b>Isasa, I.*; Pagalday, J.; Abete, J.; Sagartzazu, X.; Cogan, S.</b>	684
18:00	Dynamic properties assessment and updating of large diesel ship engines <b>Pestelli, C.*; Palloni, F.; Bregant, L.; Castellani, F.</b>	685
18:20	Dynamic behaviour of flat post-tensioned concrete floors <b>Jetann, C.*; Thambiratnam, D.; Kajewski, S.</b>	686
18:40	Effective models of civil structures in dynamics based on measurement and optimization <b>Rosko, P.*</b>	687

<i>RS16-6</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Measurement Techniques</b></p> <p style="text-align: center;">Chairpersons: C. ADAM, H. WADA</p>	<i>H8</i>
17:00	A PZT-coated cantilever transducer for simultaneous sensing and actuating in dynamic testing of structures <b>Ling, S.*; Wang, D.</b>	688
17:20	Determination of the thickness-shear resonance frequency for piezoelectric accelerometers using the KLM model <b>Ursu, M.*</b>	689
17:40	Non destructive characterization of steels carbon rate by ultrasounds <b>Badidi Bouda, A.*; Halimi, R.; Benzohra, M.; Lebaili, S.</b>	690



SS03-1

Wednesday, July 5, 2006

S9

## Acoustic Materials and Their Characterisation

Organisers: K. HOROSHENKOV, F. POMPOLI

17:00	Automatic characterisation of ground surfaces from in situ measurements <b>Dutilleux, G.; Ecotière, D.*</b>	691
17:20	An hybrid p-u probe for the study of acoustical properties of materials with sound intensity <b>Bonfiglio, P.; Prodi, N.*; Pompoli, F.</b>	692
17:40	Determining acoustic properties of open-cell metal foams using the multi-microphone transfer matrix method <b>Neunert, U.*; Kathan, R.; Sattelmayer, T.</b>	693
18:00	Reproducibility experiments on measuring acoustical and related non-acoustical parameters of porous media (round-robin tests) <b>Horoshenkov, K.*; Khan, A.; Sgard, F.; Bécot, F.; Jaouen, L.; Renaud, A.; Amirouche, N.; Hübelt, J.</b>	694
18:20	Quantification of the uncertainty of measurement of the normal incidence absorption coefficient <b>Ramis Soriano, J.*; Alba Fernández, J.; Juliá Sanchis, E.; Escuder Silla, E.</b>	695

SS38-2

Wednesday, July 5, 2006

S10

## Numerical Methods in Acoustics

Organiser: O. VON ESTORFF

17:00	Fast boundary integral solution for acoustic scattering by large objects <b>Rath-Spivack, O.*; Spivack, M.</b>	696
17:20	High frequency broadband energy-intensity boundary element method for specular reflection in three-dimensional reverberant enclosures <b>Rouse, J.*; Franzoni, L.; Bliss, D.</b>	697
17:40	Fast and accurate solution of the Helmholtz equation <b>Rjasanow, S.*</b>	698
18:00	A combined Helmholtz integral equation – Fourier series formulation of acoustical radiation and scattering problems <b>Shatalov, M.*; Fedotov, I.; Nicalaides, K.</b>	699
18:20	BEM calculation of acoustic wave localized in 2-dimensional random field <b>Tsuru, H.*; Ishizuka, T.; Ohtuki, T.</b>	700

SS37-2	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Active Damping of Flexible Structures</b></p> <p style="text-align: center;">Organiser: M. KOZEK</p>	S11
17:00	Active damping of a quadratic plate for a non-collocated disturbance <b>Kozek, M.*; Gusenbauer, M.; Höftberger, F.</b>	701
17:20	Adaptive semi-active vibration control in case with uncertainties in MR damper and structure <b>Sano, A.*; Terasawa, T.</b>	702
17:40	Combination of set membership and model error modeling approaches for robust identification of a laboratorial lightly damped flexible beam <b>Esmail Sabzali, H.*; Montazeri, A.; Poshtan, J.; JahedMotlagh, M.</b>	703
18:00	Comparison of deterministic and stochastic methods for robust identification of a lightly damped flexible beam <b>Montazeri, A.*; Esmail Sabzali, H.; Poshtan, J.</b>	704

SS31-1

Wednesday, July 5, 2006

S12

## Architecture and Urban Sounds

Organisers: B. HELLSTRÖM, C. DYRSSEN, B. HELLSTRÖM

17:00	Acoustic design in commercial space <b>Hellström, B.*</b>	705
17:20	The 'sonic space' in architecture: the need of taking into account sound as an essential component of the architectural space <b>Rodriguez, F.*</b>	706
17:40	Toward a method for documentation & analysis of transitional soundspace – part II <b>Thompson, D.*</b>	707
18:00	An acoustical palette for urban design <b>Siebein, G.*; Kwon, Y.; Smitthakorn, P.; Gold, M.</b>	708
18:20	The use of visual and acoustic stimuli in landscape management and planning <b>Pheasant, R.*; Barrett, B.; Horoshenkov, K.; Watts, G.</b>	709

<i>RS15-3</i>	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Machinery Noise and Vibration Control</b></p> <p style="text-align: center;">Chairpersons: D.J. INMAN, E. NIJMAN</p>	<i>S13</i>
17:00	Reduction of noise and vibration in gear drives <b>Fuentes-Aznar, A.*; Gonzalez-Peres, I.; Litvin, F.; Hayasaka, K.; Yukishima, K.</b>	710
17:20 <small>Withdrawn</small>	A novel design of smart torque motor using shape memory alloy (sma) <small>Rakhsha, R.*; Yousefi Koma, A.</small>	711
17:20 NEW	Experimental studies of sound generated by automotive brakes <b>Szary, M.*; Filip, P.</b>	712
17:40 NEW	On-line identification of rotordynamics in a simulation environment and in a rotor test rig <b>Hyyryläinen, J.*</b>	713
18:00 NEW	Passive self-balancing for rotor system with two non-identical pendulums <b>Horvath, R.; Flowers, G.*</b>	714

SS02-2	<p style="text-align: center;">Wednesday, July 5, 2006</p> <p style="text-align: center;"><b>Noise and Vibration in Space Vehicles</b></p> <p style="text-align: center;">Organiser: H. OSMAN</p>	S14
17:00	Development of space boom for micro-satellite: design of hinge and dynamics of boom <b>Sugiyama, Y.; Shirako, M.*; Araki, K.; Honda, H.; Nakamura, Y.; Kobayashi, C.</b>	715
17:20	Development of space boom for micro-satellite: design of pin-puller and vibration test <b>Sugiyama, Y.; Araki, K.*; Shirako, M.; Honda, H.; Nakamura, Y.; Kobayashi, C.</b>	716

SS11-3

Wednesday, July 5, 2006

S15

## Duct Acoustics and Mufflers

Organisers: M. ABOM, H. BODEN, A. TORREGROSA

17:00	Analysis of wave propagation in fluid-filled viscoelastic pipes <b>Prek, M.*</b>	717
17:20 <small>Withdrawn</small>	Novel sound attenuating ducts utilizing spatially periodic area changes with absorbing material <b>Bliss, D.*; Danilov, P.; Burton, L.; Nesbitt, J.</b>	718
17:20 NEW	Over-determination in acoustic two-port data measurement <b>Allam, S.*; Bodén, H.; Åbom, M.</b>	719
17:40 NEW	New calibration method for the two microphone transfer function method to measure acoustical impedance in a wide frequency range <b>Boonen, R.; Sas, P.; Desmet, W.*</b>	720
18:00 NEW	Measurement of acoustic intensity in ducts with hot turbulent gas flows <b>Nilsson, E.*</b>	721

SS07-1

Wednesday, July 5, 2006

S16

## Active Control of Noise and Vibrations in Practical System Implementations

Organisers: S. JOHANSSON, M. WINDBERG

17:00 Withdrawn	Modeling and control of ionic polymer-metal composite structures <b>Yousefi Koma, A.*; Fazeli, R.</b>	722
17:00 NEW	Experimental results of active longitudinal vibration control on a helicopter gearbox strut <b>Forghieri, A.*; Dozio, L.; Ghiringhelli, G.</b>	723
17:20 NEW	Analysis and rejection of out of plane moving web vibrations in web handling systems <b>Vedrines, M.*; Knittel, D.</b>	724
17:40 NEW	Active vibration control of a slender cantilever using distributed piezoelectric patches <b>Nader, M.*; Kaltenbacher, M.; Krommer, M.; Von Garssen, H.; Lerch, R.</b>	725
18:00 NEW	Control design for hard mount vibration isolation in high-precision machinery <b>Van Der Poel, T.*; Van Dijk, J.; Jonker, J.; Soemers, H.</b>	726



RS31-1	Wednesday, July 5, 2006		S17
<b>Vibro-Acoustics and Shock Excitation</b>			
Chairpersons: J.-L. GUYADER, M. PETYT			
17:00	Vibro - acoustic low frequency analysis of the VLS equipment bay using finite elements <b>D'Andrade Souto, C.*; Pirk, R.</b>	727	
17:20	A symmetric modal reduction method for coupled structure-acoustic finite element models <b>D'Andrade Souto, C.*; Pavanello, R.</b>	728	
17:40	Vibration and sound field analysis of a holed plate subjected to a rotating sound source <b>Huang, Y.*; Hsu, R.</b>	729	
18:00 Withdrawn	Some properties of the energy flow corresponding to flexural waves in sandwich beam structures <b>Backström, D.*; Nilsson, A.</b>	730	
18:00 NEW	Using shock excitation in condition monitoring of prestressed structures <b>Radkowski, S.; Szczurowski, K.; Galezia, A.*</b>	731	

SS04-1

Wednesday, July 5, 2006

S18

## Acoustic Signal Processing

Organisers: A. IKUTA, M. OHTA

17:00	A state estimation method for sound environment system with uncertainty by introducing fuzzy inference <b>Ikuta, A.*; Ohta, M.</b>	732
17:20	Acoustic blind source separation based on the particle velocity vector measurement <b>Teramoto, K.*; Khan, M.</b>	733
17:40	Multi-wavelet detection and denoising of low frequency chirp signals using adaptive wavelet methods. <b>Wheatley, J.*</b>	734
18:00	Independent component analysis for 3-dimensional complex signals due to 3-dimensional unitary transformation - maximization of evaluation function based on complex Hermite moment <b>Nakasako, N.*; Ogura, H.; Nakamura, S.; Yamamoto, D.</b>	735
18:20	The principles of coin-tap method of non-destructive testing <b>Kim, S.*</b>	736

<i>RS10-1</i>	Thursday, July 6, 2006 <b>Environmental and Occupational Noise</b> Chairpersons: J. BRIDGE, M. DITTRICH	<i>H2</i>
08:30	Acoustic model and noise map of a CERN installation implemented by TYMPAN 3.2 <b>Egea-Valero, J.*; Bernardes, A.</b>	738
08:50	Problem of traffic noise around public places <b>Derbal, R.*; Zeglache, H.</b>	739
09:10	Is the noise act 1996 an effective means of limiting disturbance due to noise in dwellings at night? <b>Morrissey, H.*</b>	740

RS02-6

Thursday, July 6, 2006

H3

### Acoustics and Vibration Theory

Chairpersons: F. FAHY, Y. FUJITA

08:30	Dynamic response of beams with a flexible support under a moving load <b>Lin, H.*</b>	741
08:50	Dynamical model determination of a jointed beam under follower force <b>Sohrabian, M.*; Ahmadian, H.</b>	742
09:10	Influence of bridge continuity on impact factor <b>Asnachinda, P.*; Pinkaew, T.</b>	743
09:30	Dynamics of ultrasound contrast agents with lipid coating <b>Doinikov, A.*; Teterov, A.</b>	744

SS29-4	Thursday, July 6, 2006 <b>Elastic Waves in Solids and Structures</b> Organiser: V. KRYLOV, S. SOROKIN		H4
08:30 Withdrawn	Resonant vibrations of metallic inserts in honeycomb sandwich <b>Dayal, V.*</b>	745	
08:30 NEW	Vibration characteristics of rotating beams with periodically distributed piezoelectric dampers <b>Alaa El-Din, M.; Tawfik, M.; Mostafa, M.*</b>	746	
08:50 NEW	Wave propagation behavior of a multi-connected structure <b>Nishida, A.*</b>	747	

SS09-5

Thursday, July 6, 2006

H5

## Nonlinear Acoustics and Vibration

Organiser: W. GAN

08:30	Resonant acoustic model of catastrophic Tsunami <b>Galiev, S.*; Mallinson, G.</b>	748
08:50	Non-linear characterisation of piezoelectric ceramics for acoustic transducers <b>Mukherjee, B.*</b>	749
09:10	The series method for wave propagation in hippoclastic medium <b>Chigarev, A.*; Kireyeva, I.; Gudehus, G.</b>	750
09:30	Parametric resonance in a capacitive mems <b>D'Angola, A.*</b>	751

RS08-6

Thursday, July 6, 2006

H6

## Condition Monitoring and Vibration Testing

Chairpersons: M.F.M. HUSSEIN, J. VERHEIJ

08:30	Frequency dependence of promotion degree in lactic fermentation promotion using sound and ultrasound <b>Masuzawa, N.; Katayama, K.*</b>	752
08:50	Vibration damping of long fiber thermoplastic composites <b>Vaidya, U.*; Crocker, M.</b>	753
09:10	A simple impact test method for accurate measurement of material properties <b>Zhu, W.*; Emory, B.</b>	754
09:30	AR pole trajectory in condition monitoring studies <b>Thanagasundram, S.; Ram Gurung, K.; Feng, Y.; Schlindwein, F.*</b>	755

SS16-1	Thursday, July 6, 2006		H7
<b>Passive Techniques in Vibrations and Acoustics Attenuation</b> Organisers: M. TAWFIK, W. AKL, M. AL-AJMI			
08:30	Bridge vibration control system using VDW-type passive damper <b>Yi, J.*; Jung, W.; Kim, S.; Kim, N.</b>	756	
08:50 Withdrawn	A study on low-vibration rotor blade design for helicopter by using tapered mass distribution methodology Kim, D.*; Song, K.; Kee, Y.; Kim, J.; Joo, G.	757	
08:50 NEW	Investigation of aeroelastic stability of a hingeless rotor system with tailored composite flexures <b>Kim, D.*; Song, K.; Kim, S.; Joo, G.</b>	758	



RS16-7

Thursday, July 6, 2006

H8

### Measurement Techniques

Chairpersons: D.K. ANTHONY, S.-K. YANG

08:30	Influence of ultrasound on cellulose fibres dyeing mechanism with reactive dyes <b>Miljkovic, M.*; Ignjatovic, V.; Zarubica, A.</b>	759
08:50	The mechanical property evaluation of film material based on laser speckle interferometry <b>Kisoo, K.*; Choi, M.; Kim, K.</b>	760
09:10	Computation of complex dynamic stiffness of inflated diaphragm in pneumatic springs by using FE codes <b>Lee, J.*; Kim, K.</b>	761
09:30	Railway sound source separation by combined sound pressure and sound velocity measurements <b>Wunderli, J.*</b>	762

SS03-2

Thursday, July 6, 2006

S9

## Acoustic Materials and Their Characterisation

Organisers: K. HOROSHENKOV, F. POMPOLI

08:30	Empirical equations for sound propagation for different absorbents <b>Alba Fernández, J.*; Ramis Soriano, J.; Juliá Sanchis, E.; Escuder Silla, E.</b>	763
08:50	Normal incidence transmission loss of symmetric sandwich structures in a plane wave tube <b>Bonfiglio, P.*; Pompoli, F.; Peplow, A.</b>	764
09:10	A fitting method to estimate the air flow resistivity of porous materials <b>Simon, F.*; Fernandez, D.; Pfretzschner, J.</b>	765
09:30	Sound and thermal insulating properties of materials on mineral bases <b>Fojtu, D.*; Polasek, A.; Lapcik, Jr., L.</b>	766

SS38-3	Thursday, July 6, 2006 <b>Numerical Methods in Acoustics</b> Organiser: O. VON ESTORFF	S10
08:30	Numerical simulation of sound wave propagation with sound absorption in time domain <b>Tsuchiya, T.*</b>	767
08:50	Application of optimized compact finite difference schemes on uneven grid to the computation of acoustic wave propagation <b>Iwatsu, R.*; Tsuru, H.; Hirosawa, K.</b>	769
09:10	A physical interpretation of the frequency dependent boundary conditions in a digital waveguide mesh <b>Escolano-Carrasco, J.*; Jacobsen, F.</b>	770

SS26-1

Thursday, July 6, 2006

S11

## Vibro-Acoustic Transmission in Buildings

Organisers: B. GIBBS, H.-M. FISCHER

08:30	Towards a practical structure-borne source characterisation for machines in buildings <b>Gibbs, B.*</b>	771
08:50	Bending wavenumber and associated damping <b>Nightingale, T.*</b>	772
09:10	Vibration transmission across plate junctions using the statistical energy analysis formulation <b>De Castro Magalhaes, M.*</b>	773
09:30	Consideration of vibration sources in buildings on a power basis <b>Mayr, A.*; Gibbs, B.; Fischer, H.</b>	774

<i>SS19-1</i>	Thursday, July 6, 2006	<i>S12</i>
<b>Urban Noise</b>		
Organiser: L.B. COELHO		
08:30	The good practice guide for strategic noise mapping <b>Bento Coelho, J.*; Hinton, J.</b>	775
08:50	The effect of speed and traffic volume on noise levels in a city <b>Sahasrabudhe, A.*</b>	776
09:10	Application of a forecast code and measurement of train noise: a case study in Catania (Sicily) <b>Patania, F.*; Gagliano, A.; Nocera, F.; Galesi, A.</b>	777
09:30	Noise exposure guidelines for use in city environmental impact review <b>Valenta, M.*</b>	778

RS15-4

Thursday, July 6, 2006

S13

## Machinery Noise and Vibration Control

Chairpersons: Z. ENGEL, K. SETO

08:30	The effect of bearing clearance on the dynamic behavior of a mechanical press with variable angular velocity <b>Wang, J.*; Lai, Y.</b>	779
08:50 Withdrawn	Study for 2F noise reduction of air-conditioner using single phase induction motor Hong, S.*; Joo, J.; Lee, J.	780
08:50 NEW	Acoustic pattern of the little tool-machines super-family <b>Fernandez, M.*; Recuero, M.; Blas, J.</b>	781
09:10 NEW	Design of MEMS resonator array for minimization of mode localization factor subject to random fabrication error <b>Lee, C.*; Kim, W.</b>	782

SS25-1

Thursday, July 6, 2006

S14

## Flow Induced Noise and Structural-Acoustic Coupling

Organisers: G. MATHUR, H. OSMAN, N. AGARWAL

08:30	Evaluation of TBL excited cfrp fuselage structure noise transmission loss <b>Paonessa, A.*; Di Glulio, M.; De Rosa, S.; Franco, F.; Imperatore, B.</b>	783
08:50	Comparison of the vibroacoustic behaviour of a rectangular thin plate excited by a diffuse sound field and a turbulent boundary layer <b>Cacciolati, C.; Guyader, J.; Neple, P.*</b>	784
09:10 Withdrawn	High frequency broadband radiation from panels and periodic structures including the effect of structural power flow on directivity <b>Bliss, D.*; Franzoni, L.; Danilov, P.</b>	785
09:30 Withdrawn	Semi-empirical prediction of the flow structure behind a longitudinally oscillating cylinder based on surface vorticity analysis <b>Xu, S.*; Wang, M.; Zhou, Y.; Tu, J.</b>	786

SS07-2

Thursday, July 6, 2006

S16

## Active Control of Noise and Vibrations in Practical System Implementations

Organisers: S. JOHANSSON, M. WINDBERG

08:30	Active noise control system in passenger car <b>Dabrowski, Z.; Stankiewicz, B.*</b>	787
08:50	Active control of noise from a vacuum cleaner <b>Paurobally, R.*</b>	788
09:10	Active/passive facade insulation againsts aircraft noise <b>Jacques, R.*; Julien, M.; Remi, L.</b>	789
09:30	Implementation of a semi-active noise control system for duct applications <b>Noronha Castro Pinto, F.*; Souza Pacheco, W.</b>	790



RS31-2

Thursday, July 6, 2006

S17

### Vibro-Acoustics and Shock Excitation

Chairpersons: J.-L. GUYADER, M. PETYT

08:30	Lift-off vibro-acoustic analysis of upper stage of small launch vehicle <b>Park, S.*; Seo, S.; Jeong, H.; Jang, Y.</b>	791
08:50	Design of the shock isolator using topology optimization with application to ballistic shock <b>Lim, K.*; Wang, S.; Kim, C.</b>	792
09:10	Removal of charged powder deposits by high intensity low frequency sound: the role of inertial and drag forces <b>Seiffert, G.*; Gibbs, B.</b>	793
09:30	Ultrasound propagation in concrete <b>Chilibon, I.*</b>	794

SS04-2	<p style="text-align: center;">Thursday, July 6, 2006</p> <p style="text-align: center;"><b>Acoustic Signal Processing</b></p> <p style="text-align: center;">Organisers: A. IKUTA, M. OHTA</p>	S18
08:30	<p>An experimental study for the evaluation of sound and other environmental factors from the physiological and psychological point of view</p> <p><b>Iwashige, H.*; Ohta, M.; Ogawa, H.</b></p>	795
08:50	<p>Sound immission measurement for sources with different temporary constant emission (aircraft engine) applying accuracy monitored background sound separation</p> <p><b>Heiss, A.*</b></p>	796
09:10	<p>The optimal pole-zero model for a room transfer function and its spatial interpolation and extrapolation</p> <p><b>Shin, M.*; Wang, S.</b></p>	797
09:30	<p>Tracking noise sources using multiple mobile microphone arrays</p> <p><b>Mennitt, D.; Gillett, P.; Carneal, J.; Johnson, M.*</b></p>	798

SS17-1

Thursday, July 6, 2006

S19

## Recent Advances in Industrial Technology

Organisers: T. LAGÖ, A. BRANDT

08:30	Development of transmission-type pixel enhancement actuator for DLP projection device <b>Yun, G.*; Hong, S.; Ko, E.; Koo, H.; Park, S.</b>	799
08:50	A first prototype of an active boring bar tested in industry <b>Åkesson, H.*; Smirnova, T.; Håkansson, L.; Claesson, I.; Lagö, T.</b>	800
09:10	Piezoelectric vibrator for medical vibroacoustic diagnostics <b>Bazhenov, A.*; Didenkulov, I.; Korneichuk, V.; Yarovikov, V.</b>	801
09:30	Vold-Kalman and other order tracking methods in MATLAB® <b>Brandt, A.*; Lagö, T.; Ahlin, K.; Tuma, J.</b>	802

<i>RS03-9</i>	Thursday, July 6, 2006	<i>H1</i>
<b>Active Noise and Vibration Control</b>		
Chairperson: M. ASSELINEAU		
10:20	Improved noise reduction in audio signals using grazing estimation method <b>Manikandan, S.*</b>	803
10:40	Modal analysis and control of adaptive structures with shear piezoelectric actuators <b>Al-ajmi, M.*; Tawfik, M.</b>	804
11:00	Structures parameters identification for active vibration control <b>Daniel, G.; Bueno, D.; Melo, G.; Lopes Júnior, V.*</b>	805
11:20	Optical laser jitter suppression using feedback and adaptive control methods <b>Sugathevan, S.*; Agrawal, B.</b>	806
11:40	Active vibration control of civil structures under seismic loading <b>Kouhi, S.*; Montazeri, A.; Poshtan, J.</b>	807

<i>RS10-2</i>	Thursday, July 6, 2006	<i>H2</i>
<b>Environmental and Occupational Noise</b>		
Chairpersons: J. BRIDGE, M. DITTRICH		
10:20	Structural and acoustical response in buildings due to surface traffic in the higher frequency range <b>Fiala, P.*; Degrande, G.; Granat, J.; Augusztinovicz, F.</b>	808
10:40	Noise of storms <b>Naugolnykh, K.*</b>	809
11:00	Noise perception of people and scoring of noise exposure <b>Probst, W.*</b>	810
11:20	Ventilation equipment noise estimation in dog care centre <b>Tsukernikov, I.*; Nekrasov, I.; Dormidontova, V.</b>	811
11:40	Acoustic analogy applied on wind turbine noise generation and propagation <b>Fuchs, L.*; Moroianu, D.</b>	812

<i>RS02-7</i>	Thursday, July 6, 2006	<i>H3</i>
<b>Acoustics and Vibration Theory</b>		
Chairpersons: F. FAHY, Y. FUJITA		
10:20	Application of wavelets to analysis of vibration due to moving load inside a layer <b>Hryniewicz, Z.*</b>	813
10:40	An experimental application of the equivalent source method to sound radiation <b>Onescu, C.; Pavic, G.; Parlac, S.; Stanescu, N.*</b>	814
11:00	Statistical energy analysis to study the vibroacoustic of a launcher vehicle: an application to different flight conditions <b>Culla, A.*; La Mendola, S.</b>	815
11:20	Experimental detection of structural damages using system norms <b>Bueno, D.*; Marqui, C.; Cordeiro, L.; Lopes Júnior, V.</b>	816
11:40	Optimization of structure of a material of the cutting tool at vibration <b>Archipov, I.*; Vasin, S.; Silakov, M.</b>	817

SS29-5

Thursday, July 6, 2006

H4

## Elastic Waves in Solids and Structures

Organiser: V. KRYLOV, S. SOROKIN

10:20	Acoustic wave scattering from immersed type I and type II transversely isotropic cylinders covered by isotropic cladding <b>Sodagar, S.*; Honarvar, F.; Sinclair, A.</b>	818
10:40	1D-space finite element approximation with 2D-space Fourier transform and with time-domain formulation for 3D-transient elastic waves in multilayer semi-infinite media <b>Desceliers, C.*; Grimal, Q.; Haiat, G.; Naili, S.; Soize, C.</b>	819
11:00	Applications of bidimensional numerical simulation of elastic wave propagation in nondestructive testing <b>Rugina, C.*</b>	820

SS09-6

Thursday, July 6, 2006

H5

## Nonlinear Acoustics and Vibration

Organiser: W. GAN

10:20 Withdrawn	Dissipation of non-linear guided bulk waves is anomalously weak in elastic solids <b>Samsonov, A.*; Dreiden, G.; Semenova, I.</b>	821
10:20 NEW	Emergence of chaotic attractor and anti-synchronized oscillations for two coupled monostable neurons <b>Courbage, M.*</b>	822
10:40 NEW	Acoustic emission monitoring of the foundation on soft saturated soil <b>Vilchinska, N.*</b>	823
11:00 NEW	Crack detection in beam-like structures using a power series technique and artificial neural networks <b>Rosales, M.*; Filipich, C.; Buezas, F.</b>	825



RS08-7

Thursday, July 6, 2006

H6

## Condition Monitoring and Vibration Testing

Chairpersons: M.F.M. HUSSEIN, J. VERHEIJ

10:20 Withdrawn	Early stages faults detection using PCA Jasinski, M.*; Radkowski, S.	826
10:20 NEW	Prediction of the interrogation range of a novel form of acoustic detection system Papadopoulou, K.; Glover, D.; Lennox, B.; McKay, D.; Taylor, A.*; Turner, J.	827
10:40 moved	Use of vibroacoustic diagnosis in reducing the uncertainty of technical risk estimation Guminski, R.*; Radkowski, S.	828
10:40 NEW	Threaded fastener loosening due to dynamic shear load Hess, D.*	829

SS16-2

Thursday, July 6, 2006

H7

## Passive Techniques in Vibrations and Acoustics Attenuation

Organisers: M. TAWFIK, W. AKL, M. AL-AJMI

10:20	The use of rheological fluids to control vibrations in mechanical systems <b>Szary, M.*</b>	831
10:40	Use of periodic blocking masses for suppression of transmission of energy in straight elastic tubes <b>Holst-Jensen, O.*; Sorokin, S.</b>	832
11:00	Effectiveness of stationary humans and tuned mass dampers in controlling floor vibrations <b>Pedersen, L.*</b>	833
11:20	A new criterion to optimize the parameters of a dynamic vibration absorber <b>Vera, S.*; Febbo, M.</b>	834

RS16-8

Thursday, July 6, 2006

H8

## Measurement Techniques

Chairpersons: D.K. ANTHONY, S.-K. YANG

10:20	Acoustic resonator for mitigation actions on underground railway lines <b>Venditti, A.*; Coppi, M.</b>	835
10:40	Measurement uncertainties related to the sound power procedures based on sound intensity <b>Carletti, E.*; Pedrielli, F.</b>	836
11:00	Relationship between time of flight (tof) measurement error and phase characteristics of sound probe <b>Odanaka, I.*; Mizutani, K.; Mizutani, K.; Wakatsuki, N.</b>	837
11:20	Verification of an effect of soil densification applying gravel drain system using surface-wave method and dem simulation <b>Kawamura, Y.; Ito, K.*; Yamamoto, K.; Sakakibara, T.</b>	838
11:40	Identification of fractional-derivative-model parameters of viscoelastic materials using an optimization technique <b>Lee, D.*; Kim, S.</b>	839

SS03-3	Thursday, July 6, 2006		S9
<b>Acoustic Materials and Their Characterisation</b>			
Organisers: K. HOROSHENKOV, F. POMPOLI			
10:20 Withdrawn	Measurements and characterization of mechanical and acoustic properties of aluminium foams <b>Torra i Fernández, È.*; Pompoli, F.</b>	840	
10:20 NEW	Complete elastic characterization of viscoelastic materials <b>Guillot, F.*; Trivett, D.; Rogers, P.</b>	841	
10:40 NEW	Nonlinear characteristics of the internal damping of composite materials used in flywheel components <b>Moreira, A.*; Flowers, G.</b>	842	
11:00 NEW	Acoustic behavior of multilayer panels formed by polymers and materials by wood <b>Alba Fernández, J.*; Ramis Soriano, J.; Segura, J.; Ivorra Chorro, S.</b>	843	
11:20 NEW	Vibration and noise damping of porous materials <b>Juricka, M.*; Vasina, M.; Lapcik, Jr., L.</b>	844	

SS38-4

Thursday, July 6, 2006

S10

## Numerical Methods in Acoustics

Organiser: O. VON ESTORFF

10:20	Evaluation of model uncertainty in modal acoustic response analysis <b>Dunne, L.*; Dunne, J.</b>	845
10:40	Further results for state space fluid-structure interaction analysis using coupled finite and boundary element analyses <b>Fahnline, J.*</b>	846
11:00	An innovative hybrid CFD/BEM method for the prediction of body-turbulence interaction noise <b>Schram, C.*; Tournour, M.</b>	847
11:20	Compact structural-acoustic coupled models via model order reduction (mor) <b>Puri, S.*; Morrey, D.; Bell, A.; Rudnyi, E.; Korvink, J.</b>	848
11:40	MOGA & MOGT optimisation strategies and SOM results representation <b>Miccoli, G.*; Bregant, L.; Pediroda, V.; Seppi, M.</b>	849

SS26-2	<p style="text-align: center;">Thursday, July 6, 2006</p> <p style="text-align: center;"><b>Vibro-Acoustic Transmission in Buildings</b></p> <p style="text-align: center;">Organisers: B. GIBBS, H.-M. FISCHER</p>	S11
10:20	<p>A reception plate method of measurement of the free velocity of machines in buildings  <b>Cookson, R.*; Qi, N.</b></p>	850
10:40	<p>A reception plate method of measurement of the source mobility of machines in buildings  <b>Qi, N.*; Cookson, R.</b></p>	851
11:00	<p>Prediction of vibration energy transmission in a structure consisting of thick elements  <b>Nishino, H.*; Honda, I.</b></p>	852
11:20	<p>Structure-borne power transmission from a lightweight stair into a connected wall  <b>Scheck, J.*; Fischer, H.; Gibbs, B.</b></p>	853
11:40	<p>Characterisation of low-frequency impact sound transmission in dwellings  <b>Neves e Sousa, A.*; Gibbs, B.</b></p>	854

SS40-1

Thursday, July 6, 2006

S12

## Noise and Vibration in Reciprocating and Rotary Compressors

Organiser: M.J. CROCKER

10:20	Noise and vibration in reciprocating and rotary compressors - a review <b>Crocker, M.*</b>	855
10:40	The influence of housing on the noise emitted by a reciprocating compressor <b>Jeric, A.*; Govekar, E.; Gradisek, J.; Grabec, I.</b>	856
11:00 NEW	Model based optimization of compressor mounting using genetic algorithms <b>Pusavec, F.*; Govekar, E.; Gradisek, J.; Grabec, I.</b>	858
11:20 NEW	The purpose of this study is to analyze the free vibration characteristics of rotating shell type blades <b>Kee, Y.*; Kim, D.; Kim, S.; Joo, G.</b>	927
11:40 NEW	Noise reduction mechanisms of a spring wound LDT for a reciprocating compressor? <b>Wang, S.*; Park, J.</b>	928

<i>RS15-5</i>	Thursday, July 6, 2006	<i>S13</i>
<b>Machinery Noise and Vibration Control</b>		
Chairpersons: Z. ENGEL, K. SETO		
10:20	Experimental studies on support transmission coefficients in a finite periodic beam <b>Sonti, V.*; Narayana, T.</b>	859
10:40	Platform design for the vibration control simulation system <b>Song, Q.*</b>	860
11:00	Finite element and optimisation model for passive techniques in vibration attenuation of mechanical components <b>Matos Neves, M.*</b>	861
11:20	Noise and vibration diagnosing of tribomechanical systems <b>Yavlensky, A.*; Belousov, A.</b>	862
11:40	Vibration analysis of rotating multidirectional laminated composite disks <b>Koo, K.*</b>	863



SS25-2

Thursday, July 6, 2006

S14

## Flow Induced Noise and Structural-Acoustic Coupling

Organisers: G. MATHUR, H. OSMAN, N. AGARWAL

10:20	Aerodynamic sound emitted from a rectangular bar with rounded edge(s) in uniform flow <b>Miyata, M.; Hayashi, Y.*</b>	864
10:40	Dynamic response of dual-layer ship structures subjected to underwater explosion <b>Wang, Y.*; Tong, Z.; Hua, H.</b>	865
11:00	Unsteady pattern and oscillation of flow in supersonic axial compressor stages <b>Ledovskaya, N.*</b>	866
11:20	The analysis of the turbulence driven plate response in presence of added masses <b>De Rosa, S.*; Franco, F.</b>	867

SS11-4	<p style="text-align: center;">Thursday, July 6, 2006</p> <p style="text-align: center;"><b>Duct Acoustics and Mufflers</b></p> <p style="text-align: center;">Organisers: M. ABOM, H. BODEN, A. TORREGROSA</p>	S15
10:20	Investigation of nonlinear acoustic investigation of nonlinear acoustic properties for perforates <b>Bodén, H.*</b>	868
10:40	Effects of mean flow on acoustic attenuation performance of straight through perforated tube silencers <b>Ji, Z.*</b>	869
11:00	The plate impingement of the weak shock wave discharging from various 3-dimensional ducts <b>Kweon, Y.*; Miyazato, Y.; Aoki, T.; Kim, H.; Setoguchi, T.</b>	870
11:20	Advanced experimental procedure for in-duct aero-acoustics <b>Allam, S.*; Åbom, M.</b>	871
11:40	An object-oriented approach for linear acoustic modelling of complex silencer systems <b>Bachner, B.*</b>	872

SS07-3

Thursday, July 6, 2006

S16

## Active Control of Noise and Vibrations in Practical System Implementations

Organisers: S. JOHANSSON, M. WINDBERG

10:20	Semi-active machinery vibration control by use of magnetoreological dampers <b>Tudor, S.*; Gheorghe, G.; Odobescu, G.; Stammers, S.W.</b>	873
10:40	Experimental study on active vibration control via inverse modeling <b>Liu, D.*; Zhang, Z.; Hua, H.</b>	874
11:00	Design and application of a semi-active electromechanical vibration absorber <b>Bös, J.*; Mayer, D.</b>	875
11:20	Active vibration isolation of a rigidly mounted turbo pump <b>Basten, T.*; Doppenberg, E.</b>	876
11:40	Experimental active vibration control of an in-air or water-loaded plate: influence of typology and location of the error sensors <b>Carra, S.*; Amabili, M.; Ohayon, R.</b>	877

<i>RS31-3</i>	Thursday, July 6, 2006	<i>S17</i>
<b>Vibro-Acoustics and Shock Excitation</b>		
Chairpersons: J.-L. GUYADER, M. PETYT		
10:20	Dispersion of ultrasonic waves in transversely isotropic cylinders <b>Honarvar, F.*; Enjilela, E.; Sinclair, A.</b>	878
10:40	Earthquake resistant cellular network base transfer station proved under the severe earthquake events occurred at Niigata <b>Kim, Y.*; Huh, Y.; Lee, J.; Kim, J.</b>	879
11:00	Cavitation process improvement for extracorporeal shock wave lithotripter (eswl) system <b>Chilibon, I.*; Wevers, M.; Lafaut, J.</b>	880
11:20	Development of a flash memory drive for ATA bus <b>Jang, M.*; Park, J.</b>	881

SS04-3

Thursday, July 6, 2006

S18

## Acoustic Signal Processing

Chairperson: H. Iwashige

10:20	A methodological trial for evaluation of compound effects based on inter-subjective relationships between sound and other physical/physiological factors in indoor electrification environment <b>Ogawa, H.*; Ohta, M.</b>	882
10:40	Sub-band coding implementation for real-time time-domain acoustic holography <b>Park, C.*; Kim, Y.</b>	883
11:00	Acoustic spectral research of protective coatings on valve metals <b>Kozak, A.; Kostiuk, D.; Kuzavko, Y.*</b>	884
11:20	Resolution of multipath arrivals via application of broadband frequency modulated carrier signals <b>Kebkal, K.*; Bannasch, R.; Kebkal, A.</b>	885
11:40	Investigation of constructing a noise-robust recognition system making use of body-conducted speech <b>Ishimitsu, S.*</b>	886

RS11-1

Thursday, July 6, 2006

S19

## Human Response To Sound and Vibration

Chairperson: C. HELLMICH

10:20	Long-term measurements and analysis of day-to-day variability on whole body vibration exposure levels in work environments <b>Marjanen, Y.*</b>	887
10:40	Whole-body human vibration experiments conducted by two different laboratories in Brazil: a comparison of results <b>M. Duarte, M.*; A. das Neves, F.; C.G. Pereira, C.; Misael, M.; A. Freitas Filho, L.</b>	888
11:00	Research on the riding comfort of taxi drivers <b>Xu, Z.*; Huang, Y.; He, Y.; Zhang, Z.</b>	889
11:20	Train passengers ability to read and write during occasional lateral jerks: a laboratory study <b>Sundstrom, J.*; Khan, S.</b>	890
11:40	Human comfort analysis in a test environment simulating real work machine vibrations <b>Marjanen, Y.*; Launis, S.; Leino, S.; Kortelainen, J.</b>	891

<i>RS10-3</i>	Thursday, July 6, 2006	<i>H2</i>
<b>Environmental and Occupational Noise</b>		
Chairpersons: J. BRIDGE, M. DITTRICH		
13:30	Noise from wind turbines and comparison with standards <b>Alfredson, R.*; Davis, L.; Joshi, A.</b>	892
13:50	Considerations upon the noise generated by a power supply substation <b>Bacria, V.; Barbulescu, C.*</b>	893

RS02-8

Thursday, July 6, 2006

H3

## Acoustics and Vibration Theory

Chairpersons: F. FAHY, Y. FUJITA

13:30	Improved eigenvalues for combined dynamical systems using a modified finite element discretization scheme <b>Cha, P.*</b>	896
13:50	Hypothetical communication model of interacting rhythms in live complex open systems <b>Heinen, A.*</b>	897
14:10	Two-dimensional structural model of the vibro-acoustic feedback in a hearing aid <b>Friis, L.*; Ohlrich, M.</b>	898
14:30	Wave propagating on elastic-human compact bone interface <b>Shao-Yi, H.*</b>	899



SS29-6	Thursday, July 6, 2006		H4
<b>Elastic Waves in Solids and Structures</b>			
Organiser: V. KRYLOV, S. SOROKIN			
13:30	A vibration isolation structure with the idea of phononic crystals	900	
Withdrawn	Wen, J.*; Wang, G.; Yu, D.; Zhao, H.; Liu, Y.		
13:50	Heuristic model for estimating of lowest band gap in two- and three-dimensional ternary locally resonant phononic crystals	901	
Withdrawn	Wang, G.*; Liu, Y.; Shao, L.; Yu, D.; Wen, J.		

<i>RS08-8</i>	Thursday, July 6, 2006	<i>H6</i>
<b>Condition Monitoring and Vibration Testing</b>		
Chairpersons: M.F.M. HUSSEIN, J. VERHEIJ		
13:30	Application of wavelet transform to signal processing in diagnostic of pit shaft <b>Batko, W.; Mikulski, A.*</b>	902
13:50 moved	Forecast of a system's destruction as the basis for a new strategy of system operation <b>Radkowski, S.*; Zawisza, M.</b>	903
13:50 NEW	Technology impacts and the stiffness of a truss lunar gravity oscillator <b>Rugescu, R.*</b>	904

SS16-3

Thursday, July 6, 2006

H7

## Passive Techniques in Vibrations and Acoustics Attenuation

Organisers: M. TAWFIK, W. AKL, M. AL-AJMI

13:30	Determination of the steady-state response of viscoelastically supported viscoelastic cantilever beam with tip mass under sinusoidal base excitation <b>Kocatürk, T.; Simsek, M.*; Ilhan, N.</b>	905
13:50	Simplified model of vibrations and selfheating of viscoplastic dampers based on the conception of complex moduli <b>Vasilij, K.*; Igor, S.; Jaroslav, Z.</b>	906
14:10	Vibration control of a passive constrained layer treated open shell <b>Kumar, N.*; Singh, S.</b>	907
14:30	Measurement of structure-borne sound in trapezoidal corrugated plates, field - passive vibration control method <b>Mandal, N.*; Rahman, R.; Leong, S.</b>	908
14:50	An analytical evaluation of acoustical radiation from planar structures with varying constrained layer damping treatments <b>Zheng, H.*; Cai, C.</b>	909

RS16-9	Thursday, July 6, 2006		H8
<b>Measurement Techniques</b>			
Chairpersons: D.K. ANTHONY, S.-K. YANG			
13:30	Numerical simulation on a fatigue testing facility <b>Köberl, B.*; Kollegger, J.</b>	910	
13:50	Vibration analysis of the top plates of traditional greek string musical instruments <b>Papadogiannis, N.*; Bakarezos, M.; Tatarakis, M.; Antoniadis, A.; Papadopoulos, C.</b>	911	
14:10 Withdrawn	An experimental study on acoustical methods for the diagnosis of pulmonary pathologies <b>Cigna, C.*; Patrucco, M.; Dalmasso, F.</b>	912	
14:10 NEW	Vibrational viscoelastometry of biological soft tissues <b>Timanin, E.; Eremin, E.; Didenkulov, I.*</b>	913	
14:30 NEW	Impulsive noise attenuation of an insertion hearing protector <b>Vergara, E.*; Calçada, M.; Gerges, S.</b>	914	

SS03-4

Thursday, July 6, 2006

S9

## Acoustic Materials and Their Characterisation

Organisers: K. HOROSHENKOV, F. POMPOLI

13:30	Comparison between different methods of characterizing elastic layers <b>Simón, F.*; Anthony, D.</b>	915
13:50 Withdrawn	On the determination of the dynamic stiffness of materials used under floating floors by using impact excitation: comparison between different laboratory measurement techniques <b>Bettarello, F.*; Fausti, P.; Bonfiglio, P.; Quiqueto, G.</b>	916
13:50 NEW	The micro-slotted resonator with flexible tube bundle <b>Lu, Y.*; Tang, H.; Tian, J.; Li, H.</b>	917
14:10 NEW	Loss factor of monolithic and laminated glasses <b>Ramis Soriano, J.*; Alba Fernández, J.; Gadea, J.; Escuder Silla, E.; Ivorra Chorro, S.</b>	918
14:30 NEW	A study of dynamic bending stiffness of sandwich structures with foam filled honeycomb cores <b>Yu, Z.; Crocker, M.*</b>	919

SS38-5	Thursday, July 6, 2006 <b>Numerical Methods in Acoustics</b> Organiser: O. VON ESTORFF	S10
13:30	The source simulation technique with complex source points for computing acoustic radiation problems <b>Ochmann, M.*; Piscoya, R.</b>	920
13:50	Iterative numerical solution of nonlinear wave problems <b>Huijssen, J.*; Verweij, M.</b>	921
14:10	Simplified integral energy method: application to pass by noise <b>Andro, B.*; Chaigne, S.; Schmitt, T.; Shah, A.</b>	922
14:30	Numerical modeling of sound signal propagation through a liquid with bubble area <b>Kudryashov, N.*; Teterev, N.</b>	923
14:50	Automotive engine valve-cover acoustic radiation with frequency-dependent preloaded gaskets <b>Cipolla, J.*; D'Souza, K.</b>	924

SS26-3	<p style="text-align: center;">Thursday, July 6, 2006</p> <p style="text-align: center;"><b>Vibro-Acoustic Transmission in Buildings</b></p> <p style="text-align: center;">Organisers: B. GIBBS, H.-M. FISCHER</p>	S11
13:30	In-situ measurement of material properties of gypsum board walls <b>Schoenwald, S.*; Martin, H.; Gerretsen, E.</b>	925
13:50	Self-similarity analysis of the floor impact sound <b>Tang, Y.*; Shibayama, H.; Tanaka, W.</b>	926

<i>RS15-6</i>	Thursday, July 6, 2006 <b>Machinery Noise and Vibration Control</b> Chairpersons: Z. ENGEL, K. SETO	<i>S13</i>
13:30	Stability analysis of a three-ball automatic balancer <b>Lu, C.*; Hung, C.</b>	929
13:50	Ultrasonic noise at selected workplaces <b>Mikulski, W.; Smagowska, B.*</b>	930
14:10	Machinery noise: a drafting approach <b>Popescu, D.*</b>	931



SS24-1	Thursday, July 6, 2006	S14
<b>Speech Intelligibility and Sound Quality in Vehicles and Enclosures</b>		
Organisers: G. MATHUR, H. OSMAN, N. AGARWAL		
13:30	In-flight modified rhyme tests (mrt) for PA system qualification in a large aircraft <b>Mathur, G.*; Tsangarakis, M.; Lotts, D.; Barry, K.; Agarwal, N.</b>	932
13:50	Influence of spatiality in determining speech transmission index <b>Bozzoli, F.*; Farina, A.</b>	933
14:10	Predicting speech intelligibility and security using artificial neural network models <b>Xu, J.*</b>	934
14:30	Subjective speech intelligibility measurements in light aircraft cabin under laboratory conditions <b>Bucak, T.; Horvat, M.*; Novak, D.</b>	935
14:50	Automatic identification of noise annoyance features from engine run-up sounds <b>Janssens, K.*; Kollar, Z.; Vecchio, A.</b>	936

SS18-1	Thursday, July 6, 2006 <b>Muffler Design</b> Organiser: M. BUGARU	S15
13:30	Acoustic attenuation in fully-filled perforated dissipative mufflers with extended inlet/outlet <b>Erol, H.*; Ahmetoglu, Ö.</b>	937
13:50	The experimental identification of the transmission matrix of the muffler <b>Liu, K.*; Feng, T.; Zhou, Q.; Sha, D.</b>	938
14:10	Finite element method to calculate the transmission matrix of the muffler <b>Feng, T.*; Liu, K.; Zhou, Q.; Sha, D.</b>	939

SS07-4

Thursday, July 6, 2006

S16

## Active Control of Noise and Vibrations in Practical System Implementations

Organisers: S. JOHANSSON, M. WINDBERG

13:30	Preliminary testing of cabin noise reduction in helicopters using active gearbox struts <b>Forghieri, A.*; Dozio, L.; Ghiringhelli, G.; Cenedese, F.</b>	940
13:50	Active structural acoustic control on facades <b>Doll, T.*; Kurtze, L.; Wolf, K.</b>	941
14:10	Instantaneous harmonic control – convergence analysis and experimental verification <b>Daley, S.*; Hatonen, J.; Tammi, K.</b>	942
14:30	Comparison of various active vibration and noise reduction approaches applied to a planar test structure <b>Bös, J.*; Mayer, D.</b>	943

SS10-1

Thursday, July 6, 2006

S17

## Psycho Acoustics and Signal Processing

Organiser: W. DEUTSCH

13:30	Noidesc: content based description of traffic noise (trains) <b>Deutsch, W.; Waubke, H.; Gygi, B.*; Noll, A.</b>	944
13:50	Presentation of the transfer path analysis of the car's interior sound via headphones <b>Nentwich, F.*</b>	945
14:10	Relationship between sound classification of xylophone-like bars and wood species properties <b>Aramaki, M.*; Baillères, H.; Branceriau, L.; Kronland-Martinet, R.; Ystad, S.</b>	946
14:30	Frame multiplier and irregular Gabor filters with application in time frequency masking <b>Balazs, P.*</b>	947

SS04-4	<p style="text-align: center;">Thursday, July 6, 2006</p> <p style="text-align: center;"><b>Acoustic Signal Processing</b></p> <p style="text-align: center;">Organisers: A. IKUTA, M. OHTA</p>	S18
13:30	<p>Assessment and measure of the power in case of high power ultrasound energy  <b>Odobescu, G.*; Odobescu, R.</b></p>	948
13:50	<p>The rise of ultrasonic system efficiency by using miscellaneous adaptation schemes between electronic generator and piezoelectric transducer  <b>Odobescu, G.*; Odobescu, R.</b></p>	949
14:10	<p>Ultrasonic signal as tool for sizing discontinuities in solid body  <b>Gabriel, T.*</b></p>	950

RS11-2	Thursday, July 6, 2006	S19
<p style="text-align: center;"><b>Human Response To Sound and Vibration</b> Chairperson: C. HELLMICH</p>		
13:30	<p>Human comfort and motion under simulated vibration exposure of mobile machinery <b>Leino, S.*; Marjanen, Y.; Launis, S.; Kortelainen, J.</b></p>	951
13:50	<p>Biomechanical modelling of the human body behaviour under vibrations transmitted in case of vibrating rollers used for road construction and maintenance works <b>Mihalcea, A.*</b></p>	952
14:10	<p>Design and development of a vibratory device for rehabilitation of patients with a brain related disorder <b>Zhong, Z.*; Chandramohan, V.</b></p>	953
14:30	<p>The effects of sound and vibration to biological rhythm system (brs) in human organism non-invasive screening, analysis and modulation via voice frequencies with ess (emotional stress-screening) &amp; rfm (rhythm-frequency-modulation) <b>Heinen, A.; Heinen, A.*</b></p>	954
14:50	<p>The influence of finger position on percussion sounds <b>Van Zwieten, K.*; Potekhin, V.</b></p>	955

<i>PS07</i>	Thursday, July 6, 2006	<i>H1</i>
<b>Plenary Session 7</b>		
Chairperson: E. BENES		
15:20	Acoustics of wood <b>Bucur, V.*</b>	7
16:10	<b>Closing of ICSV13</b>	