

# **10th International Congress on Noise as a Public Health Problem 2011**

**(ICBEN 2011)**

**Proceedings of the Institute of Acoustics Volume 33 Pt.3**

**London, United Kingdom  
24-28 July 2011**

**Volume 1 of 2**

**Editors:**

**Barbara Griefahn**

**ISBN: 978-1-61839-079-0  
ISSN: 1478-6095**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2011) by the Institute of Acoustics  
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the Institute of Acoustics  
at the address below.

Institute of Acoustics  
77A St. Peter's Street  
St. Albans Hertfordshire  
AL1 3BN  
United Kingdom

Phone: +44(0) 1727 848195

Fax: +44(0) 1727 850553

[ioa@ioa.org.uk](mailto:ioa@ioa.org.uk)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

<b>Hearing Loss Is A Public Health Problem Determined By Noise And Life-Course Events</b> .....	1
<i>Adrian Davis</i>	
<b>Healthy Diets And Dietary Supplements: Recent Changes In How We Might Think About Hearing Conservation</b> .....	2
<i>C. Ke Prell, C. Spankovich</i>	
<b>Oral Pharmacologic Otoprotective Agents To Prevent Noise-Induced Hearing Loss (NIHL): When Dietary Concentration Isn't Enough</b> .....	15
<i>K. C. M. Campbell</i>	
<b>Contribution Of Genetic Factors To Noise-Induced Hearing Loss</b> .....	22
<i>Mariola Sliwinska-Kowalska</i>	
<b>Summary Of Evidence Of Risk For Noise-Induced Hearing Loss From Recreational Music Exposures: Prevalence Estimates And Potential Severity Of Threshold Shift And Other Hearing Disorders</b> .....	23
<i>B. J. Fligor</i>	
<b>Novel Personal Noise Dosimeters</b> .....	34
<i>Stephen Dance, Bradford Backus, Emad Bukhary</i>	
<b>Modeling The Incidence And Prevalence Of Noise-Induced Hearing Loss In New Zealand</b> .....	39
<i>P. Thorne, G. John, A. Grynevych, J. Stewart, S. Ameratunga, D. Welch</i>	
<b>Exposure To Very High Noise Levels And The Effect Of Double Hearing Protection</b> .....	46
<i>S. E. Mercy, S. H. James</i>	
<b>MP3 Player Listening Sound Pressure Levels Among 10 To 17 Year Old Students</b> .....	55
<i>S. E. Keith, D. S. Michaud, K. Fedor, Ifaz Haidor, L. Marro, E. Thompson, A. Marcoux</i>	
<b>Driving Change For The Better In Occupational Health Surveillance For Noise Induced Hearing Loss</b> .....	60
<i>C. Forshaw</i>	
<b>Hearing Loss Amongst Classical Music Students</b> .....	68
<i>G. Zepidou, S. Dance</i>	
<b>Hearing Loss In Professional Orchestral Musicians</b> .....	74
<i>M. Pawlaczek-Luszczynska, A. Dudarewicz, M. Zamojska, M. Sliwinska-Kowal</i>	
<b>The Use Of Hearing Protection Devices (HPDs) In A Group Of South African Musicians</b> .....	82
<i>K. Horrell, K. Joubert, L. Petrocchi-Bartal</i>	
<b>Assessment of Life Course Noise Exposure</b> .....	90
<i>David Welch, Gareth John, Alla Grynevych, Peter Thorne</i>	
<b>The Monitoring Role Of Otoacoustic Emissions And Oxidative Stress Markers In The Protective Effects Of Antioxidant Administration In Noise-Exposed Subjects: A Pilot Study</b> .....	96
<i>M. Garzaro, L. Raimondo, A. R. Fetoni, G. Pecorari, G. Paludetti, C. Giordano</i>	
<b>Comparison Of Hearing Loss In Elderly With And Without History Of Occupational Noise Exposure</b> .....	105
<i>Luciana Lozza De Moreas Marchiori, Juliana Jandre Melo, Caroline Luiz Menese</i>	
<b>Using Multiple Media Outlets To Enhance A Community Based Noise-Induced Hearing Loss Prevention Program</b> .....	111
<i>J. L. Sobel, G. Y. Martin, T. M. Becker, W. E. Lambert, W. H. Martin, L. C. Howarth</i>	
<b>Hearing Thresholds Of Young Workers And Conscripts In Switzerland</b> .....	114
<i>Salome Ryf, Franz Frey, Beat Hohmann, Carlo Prestele</i>	
<b>Vuvuzelas At South African Soccer Matches: Risks For Spectators' Hearing</b> .....	119
<i>L. Ramma, L. Petersen, S. Singh</i>	
<b>Noise Induced Hearing Loss In The Entertainment Sector</b> .....	127
<i>E. Toppila, H. Koskinen, A. Savolainen, R. Paakonen, E. Airo, P. Olkinuora, I. Pyykko</i>	
<b>The Influence Of Room Acoustic Aspects On The Noise Exposure Of Symphonic Orchestra Musicians</b> .....	133
<i>R. H. C. Wenmaekers, C. C. J. M. Hak, L. C. J. Van Luxemburg</i>	
<b>Hearing Function In Workers Engaged In Industry: Georgian Material</b> .....	141
<i>N. Sharashenidze, I. Khundadze, M. Tushishvili, Z. Kevanishvili</i>	
<b>Four-Chamber Cochlea Box Model: Establishing Acoustic Comfort, Illustrating Injury And Towards Therapy</b> .....	146
<i>Luis Maria Bo-ot, Henry Lee, Che-Ming Chiang, Henry Ramos</i>	
<b>Noise Exposure And Hyperacusis</b> .....	147
<i>Deepak Prasher, Hashir Aazh</i>	
<b>Are Occupational Noise-Exposure Levels Declining?</b> .....	148
<i>H. A. Kolstad, Z. A. Stokholm, C. S. Jensen, T. W. Frederiksen, J. P. Bonde</i>	

<b>The Audience Is Influenced By The Loud Sound In The Open-Air Stage Concert In The Campus Festival.....</b>	152
<i>Satoshi Mizuta, Kenji Muto, Masataka Chikai, Yasuhiro Shimono, Shohei Nakayama, Hideo Shibayama</i>	
<b>The Determination Of Noise Effect On Hearing Level And Performance Of Teachers In Primary Schools .....</b>	156
<i>Meymaneh Jafari, Nariman Rahbar, Mohammad Reza Keihani, Jalan Sameni</i>	
<b>A Consideration About Effect Of Ear Protector In 3-Tesla MRI Driving Sound .....</b>	157
<i>Masataka Chikai, Kenji Muto, Yasuhiro Shimono, Kazuo Yagi, Yuki Arakawa</i>	
<b>Possible Identification Of Noise-Induced Hearing Loss Susceptibility Genes .....</b>	163
<i>Regina Celia Poli-Frederico, Luciana Lozza De Moraes Marchiori, Juliana Jandre Melo, Paula Carolina Dias Gibrin, Luiz Carlos Lucio Carvalho</i>	
<b>Auditory Effects Of Noise Exposure During Magnetic Resonance Imaging .....</b>	169
<i>S. Sasheendran, S. Suresh, Y. Krishna, B. Rajashekhar</i>	
<b>Classroom Acoustics And Self-Reported Noise Exposure As Determinants Of Fatigue After Work, Job Satisfaction And Intentions To Quit The Job Among School Teachers.....</b>	174
<i>J. Kristiansen, R. Persson, S. P. Lund, H. Shibuya, P. M. Nielsen</i>	
<b>Noise And Hearing Loss In Developing Countries.....</b>	179
<i>Deepak Prasher</i>	
<b>D-Methionine In Preventing Noise-Induced Hearing Loss .....</b>	180
<i>Mariola Sliwinska-Kowalska</i>	
<b>Self-Reported Noise-Disturbance And Hearing Of Schoolteachers In Relation To Audiometric Determinations.....</b>	181
<i>S. P. Lund, J. Kristiansen, R. Persson, H. Shibuya, P. M. Nielsen</i>	
<b>Real-Ear Attenuation Of Hearing Protection In Young Children.....</b>	184
<i>D. K. Meinke, E. H. Berger, J. Eggebrecht</i>	
<b>Comparison Of Impulse Noise Levels Generated By A .22 Caliber Starter Pistol And A .22 Revolver .....</b>	192
<i>J. Sondergaard, D. Meinke, D. Finan, G. Flamme, J. Lankford, M. Stewart</i>	
<b>Evaluation Of Awareness Of Noise-Induced Hearing Loss Among South African Soccer Spectators.....</b>	199
<i>Lebogang Ramma</i>	
<b>From ISO 1999 To Noise Policy.....</b>	205
<i>E. Toppila, R. Paakonen</i>	
<b>Increased DPOAE Levels Following High Level Noise Exposure: A Case Study Using DPOAE Level/Phase Mapping .....</b>	212
<i>D. Meinke, O. Clavier, J. Norris, R. Kline-Schoder, J. Buckley</i>	
<b>Usage Of Personal Music Player Among Teenagers And Young Adults In Malaysia .....</b>	219
<i>A. H. Sulaiman, K. Seluakumaran, R. Husain</i>	
<b>Advanced Hearing Protection And Communication: Progress And Challenges.....</b>	225
<i>C. Giguere, C. Laroche, A. J. Brammer, V. Vaillancourt, G. Yu</i>	
<b>Update On Fitness Standards For Hearing-Critical Jobs .....</b>	234
<i>C. Laroche, C. Giguere, V. Vaillancourt, S. Soli</i>	
<b>The Perceptual And Cognitive Aspects Of Warning Sound Design .....</b>	242
<i>J. Edworthy</i>	
<b>Communication In Noise For Aging Adults: Interactions Of Auditory, Cognitive And Social Factors.....</b>	248
<i>M. K. Pichora-Fuller</i>	
<b>Effect Of Noise And Reverberation On Vocal Effort And Fatigue Of Primary School Teachers .....</b>	256
<i>A. Astolfi, P. Bottalico, F. Bronuzzi, A. Accomero, M. Garzaro, G. Pecoran, J. Nadalin, C. Giordano</i>	
<b>Using Cluster Analysis To Explore How Children Use Semantic Cues When Listening To Sentences Presented With A Babble Noise.....</b>	264
<i>J. Lagace, C. Giguere, S. Breau Godwin</i>	
<b>Improvement Of Speech Privacy In Open-Plan Offices.....</b>	272
<i>P. J. Lee, B. K. Lee, J. Y. Jeon</i>	
<b>Comparison Of Different Vehicle Backup-Alarm Types With Regards To Worker Safety.....</b>	279
<i>H. Nelisse, C. Laroche, C. Giguere, J. Boutin, V. Vaillancourt, P. Laferrriere</i>	
<b>Intelligibility Of Speech Corrupted By Nonlinear Distortion .....</b>	287
<i>A. J. Brammer, G. Yu, E. R. Bernstein, M. G. Cherniack, J. B. Tufts, D. R. Peterson</i>	
<b>Poor Acoustical Environment: An Architectural Barrier To People With Hearing Loss .....</b>	293
<i>J. Handelsman, V. Gladstone</i>	
<b>Perception Of Classroom Acoustics And Listening Tests – A Web-Based Survey.....</b>	297
<i>K. Persson Waye, L. Magnusson, A. Agge, K. Kahari</i>	
<b>Noise And Cardiovascular Disease: A Review Of The Literature 2008-2011.....</b>	302
<i>Hugh Davies, Irene Van Kamp</i>	

<b>Noise And Health In Vulnerable Groups: A Review</b> .....	312
<i>Irene Van Kamp, Hugh Davies</i>	
<b>Dose-Response Relationships Between Hypertension And Several Night Noise Indices Of Aircraft Noise Exposure Around The Kadena US Airfield In Okinawa</b> .....	323
<i>T. Matsui, K. Hiramatsu</i>	
<b>The Quantitative Relationship Between Road Traffic Noise And Hypertension: A Meta-Analysis</b> .....	331
<i>E. Van Kempen, W. Babisch</i>	
<b>Traffic Noise And Blood Pressure In North-American Urban Schoolchildren</b> .....	336
<i>G. Belojevic, G. W. Evans</i>	
<b>Spatial Relationships Between Residential Levels Of Traffic Noise From Road And Rail And Air Pollution In Oslo, Norway</b> .....	343
<i>B. Ofjedal, G. M. Aasvang, C. Madsen, P. E. Schwarze, S. E. Walker, E. Aune, P. Nafstad</i>	
<b>Cross-Sectional Association Between Road Traffic Noise And Hypertension In A Population-Based Sample In Girona, Spain (REGICOR-AIR Project)</b> .....	351
<i>M. Foraster, X. Basagana, I. Aguilera, M. Rivera, D. Agis, L. Bouso, A. Deltell, J. Dratva, D. Juvinya, J. Sunyer, R. Elosua, N. Kunzli</i>	
<b>Exposure To Road, Aircraft And Railway Noise And The Incidence Of Antihypertensives Use</b> .....	354
<i>D. Houthuijs, M. Marra, O. Breugelmans, C. Van Wiechen, F. Griens, W. Swart, J. Van De Kasstele</i>	
<b>Risk Increase Of Cardiovascular Diseases And Impact Of Aircraft Noise - The Cologne-Bonn Airport Study</b> .....	362
<i>Eberhard Greiser, Claudia Greiser, Katrin Janhsen</i>	
<b>Effects Of Workplace Noise Exposure During Pregnancy. Systematic Review With Meta-Analysis And Meta-Regression</b> .....	363
<i>Agathe Croteau, Maurice Poulin, Lise Goulet, Mylene Trottier</i>	
<b>Noise Sensitivity - Medical, Psychological And Genetic Aspects</b> .....	364
<i>Marja Heinonen-Guzejev, Heikki S. Vuorinen, Helena Mussalo-Rauhamaa, Kauko Heikkila, Tapani Jauhiainen, Markku Koskenvuo, Jaakko Kaprio</i>	
<b>Patterns Of Physiological And Subjective Responses To Vehicle Pass-By Noises, Depending On Age, Gender, And Personality Traits</b> .....	373
<i>G. Notbohm, R. Schmook, S. Schwarze</i>	
<b>Road Traffic Noise, Air Pollution And Blood Pressure In Oslo, Norway</b> .....	382
<i>B. Ofjedal, P. Nafstad, P. Schwarze, G. M. Aasvang</i>	
<b>Noise Exposure And Serum Lipid Levels When Adjusted For Established Risk Factors</b> .....	386
<i>M. C. Arlien-Soborg, A. S. Schmedes, Z. A. Stokholm, C. S. Jensen, H. A. Kolstad</i>	
<b>NORAH – Study On Noise-Related Annoyance, Cognition And Health: A Transportation Noise Effects Monitoring Program In Germany</b> .....	390
<i>D. Schreckenberg, T. Eikmann, F. Faulbaum, E. Haufe, C. Herr, M. Klatte, M. Meis, U. Mohler, U. Muller, J. Schmitt, A. Seidler, E. Swart, H. Zeeb, A. Zur Nieden, R. Guski</i>	
<b>Reliability And Validity Of Instruments To Measure Pre-School Children’s Reaction To And Coping With Noise</b> .....	399
<i>Kerstin Persson Waye, Irene Van Kamp, Katrin Nielsen, Lotta Dellve</i>	
<b>Occupational Noise Exposure And The Risk Of Stroke</b> .....	407
<i>Z. A. Stokholm, J. P. Bonde, K. L. Christensen, A. M. Hansen, H. A. Kolstad</i>	
<b>Long-Term Exposure To Traffic Noise And Traffic-Related Air Pollution And Coronary Heart Disease Mortality</b> .....	410
<i>Wenqi Gan, Hugh Davies, Mieke Koehoorn, Lillian Tamburic, Paul Demers, Mike Brauer</i>	
<b>The Effects Of Recorded Traffic Noise On Hemodynamic Parameters In Healthy Women – A Pilot Study</b> .....	418
<i>K. Paunovic, G. Belojevic, V. Stojanov, B. Jakovljevic</i>	
<b>The Effect Of Aircraft Noise Exposure On Quality Of Life And Psychiatric Problem: A Report Of The Bangkok Airport Study</b> .....	422
<i>C. Ekpanyaskul, C. Padungtod, N. Monlang, P. Nuchpongsai, T. Matsui, K. Hiramatsu</i>	
<b>Disruptive Effect Of Urban Environmental Noise On The Physiological Recovery Response After Stress Testing</b> .....	426
<i>K. Herranz-Pascual, I. Iraurgi, I. Garcia-Perez, I. Aspuru, I. Garcia-Borreguero, D. Herrero-Fernandez</i>	
<b>Reviewing Evidence On Noise Exposure And Non-Auditory Health Effects In The European Network For Noise And Health (ENNAH)</b> .....	434
<i>A. Hansell, H. Laszlo</i>	
<b>The Need For And Access To Quiet Areas In Relation To Annoyance, Health And Noise-Sensitivity</b> .....	440
<i>E. Van Kempen, I. Van Kamp, H. Kruize</i>	

<b>Free Field Evaluation Of The Influence Of Naturalistic Road And Rail Traffic Noise On Both Psychological And Physiological Parameters .....</b>	<b>448</b>
<i>Michael Cik, Kurt Fallast, Egon Marth</i>	
<b>The Effects Of Noise On Biochemical Parameters Using Rat's Hearts.....</b>	<b>456</b>
<i>Ailin Razali, Salm Muayad, Ni Ni Win, H. M. Rafidah</i>	
<b>The Effects Of Noise On Cardiovascular Parameters Using Isolated Rat's Hearts.....</b>	<b>457</b>
<i>Salm Muayad, Ailin Razali, Ni Ni Win, H. M. Rafidah</i>	
<b>The Influence Of Noise On Performance And Behavior – 3 Year Update.....</b>	<b>458</b>
<i>C. Clark, P. Sorqvist</i>	
<b>Noise In Secondary Schools: Pupils' Perceptions And Performance.....</b>	<b>468</b>
<i>Julie Dockrell</i>	
<b>Noise Effects On Children's Cognition - WHO Work On Noise, Burden Of Disease (Bod) And Disability-Adjusted Life Years (DALY) .....</b>	<b>469</b>
<i>S. Hygge</i>	
<b>The Long-Term Effects Of Aircraft Noise Exposure On Children's Cognition: Findings From The UK RANCH Follow-Up Study.....</b>	<b>477</b>
<i>C. Clark, J. Head, S. A. Stansfeld</i>	
<b>Effects Of Noise, Job Characteristics And Stress On Mental Health And Accidents, Injuries And Cognitive Failures At Work.....</b>	<b>486</b>
<i>Andrew P. Smith</i>	
<b>Disruption Of Cognitive Performance By Sound: Differentiating Two Forms Of Auditory Distraction.....</b>	<b>493</b>
<i>Robert W. Hughes, Francois Vachon, Mark Hurlstone, John E. Marsh, William J. Macken, Dylan M. Jones</i>	
<b>The Importance Of Meaning In Ambient Speech To Eliciting Cognitive Performance Effects .....</b>	<b>500</b>
<i>S. J. Schlittmeier, A. Assfalg, H. Hofmann, A. Liebl</i>	
<b>Room Acoustics And Work Performance - Experimental Study In A Full-Scale Open-Plan Office Laboratory .....</b>	<b>507</b>
<i>Annu Haapakangas, Valtteri Hongisto, Joonas Kokko, David Oliva, Jukka Keranen, Jarkko Hakala, Jukka Hyona</i>	
<b>Impact Of Intensive Care Unit Noise On Nurses .....</b>	<b>515</b>
<i>E. E. Ryherd, S. Okcu, T. Hsu, C. Zimring, K. Persson Waye</i>	
<b>Consideration Of Objective Measures Of Performance And Subjective Assessments Under Background Speech In Open-Plan Offices .....</b>	<b>523</b>
<i>M. Hawighorst, A. Liebl</i>	
<b>Memory Of Spoken Discourse Masked By Speech .....</b>	<b>528</b>
<i>P. Sorqvist, J. Ronnberg</i>	
<b>Restoration At Work: Effects Of Different Sound Exposures .....</b>	<b>532</b>
<i>H. Jahncke</i>	
<b>Background Noise Means Process Interference In Counting Performance.....</b>	<b>540</b>
<i>R. Ljung, J. Lene</i>	
<b>Children's Perceptions Of Classroom Noise: Self-Reported Data From Clinical And Non-Clinical Populations.....</b>	<b>546</b>
<i>Linnett Sanchez, David Turner, Sarah Kilcoyne</i>	
<b>Metrology Of Subjective Reaction To Noise Through Performance Evaluation.....</b>	<b>549</b>
<i>L. Rossi, A. Schiavi, A. Astolfi</i>	
<b>Comparison Of Five Speech Masking Sounds - A Laboratory Experiment.....</b>	<b>558</b>
<i>A. Haapakangas, V. Hongisto</i>	

## VOLUME 2

<b>The Effect Of Aircraft Noise Exposure On Long-Term Memory: A Report Of The Bangkok Airport Study .....</b>	<b>566</b>
<i>M. Miyakawa, P. Nuchongsai, T. Matsui, K. Hiramatsu, C. Ekpanyaskul, C. Padungtod, N. Laemun</i>	
<b>A Comparison Of Children's Attention And Cognitive Function Across Noise Conditions – A Randomized Controlled Study.....</b>	<b>574</b>
<i>Jiho Lee, Sooyoung Bang, Changmyung Lee, Jaewon Lee, Jaekook Yoon, Joo-hyun Sung, Cheolin Yoo, Changsun Sim</i>	
<b>The Effects Of Aircraft Noise On The Auditory Language Processing Abilities Of English First Language Primary School Learners .....</b>	<b>581</b>
<i>Cara Hollander, Victor De Andrade</i>	
<b>Overview Of Research Into Sleep Disturbance Due To Noise In The Last Three Years.....</b>	<b>589</b>
<i>K. Hume</i>	

<b>Experimental Shift Work And Noise Exposure During Sleep</b> .....	595
<i>Barbara Griefahn, Anke Marks, Sibylle Robens</i>	
<b>Acoustic, Individual, And Situational Determinants Of Vegetative And Cortical Arousals Induced By Traffic Noise During Sleep</b> .....	603
<i>Mathias Basner, Uwe Muller, Eva-Maria Elmenhorst</i>	
<b>A Comparison Of Noise-Induced Sleep Disturbance Predictions Around Airports Using Awakening Models And Simplified Sleep Structure Based Models</b> .....	610
<i>S. McGuire, P. Davies</i>	
<b>Sleep Disruption Due To Hospital Noises</b> .....	618
<i>Jeffrey M. Ellenbogen, Orfeu M. Buxton, Wei Wang, Andy Carballeira, Shawn O'Connor, Dan Cooper, Scott M. McKinney, Jo M. Solet</i>	
<b>Number Of Aircraft Noise Events And Motility During Sleep</b> .....	627
<i>S. A. Janssen, H. Vos, I. Van Kamp</i>	
<b>An Event-Related Examination Of Awakenings Due To Nocturnal Church Bell Sounds</b> .....	632
<i>M. Brink, S. Omlin, M. Basner, R. Pieren</i>	
<b>Sleep Times, Sleep Quality And Subjectively Perceived Disturbing Noise Sources In A Representative Sample Of The Swiss Population</b> .....	640
<i>G. Tinguely, C. Cajochen</i>	
<b>Impact Of Nocturnal Railway And Aircraft Noise On Awakening Probability In The Field</b> .....	649
<i>Eva-Maria Elmenhorst, Uwe Mueller, Vincent Rolny, Sibylle Pennig, Julia Quehl Hartmut Maab, Mathias Basner</i>	
<b>Adverse Health Effects Of Industrial Wind Turbines: A Preliminary Report</b> .....	650
<i>Michael Nissenbaum, Jeff Aramini, Chris Hanning</i>	
<b>A Critical Review Of Current Policy For The Assessment Of Night-Time Noise In The EU</b> .....	656
<i>E. A. King, E. Murphy</i>	
<b>Sleep Disturbing Effects Of Nightly Church Bell Ringings And Aircraft Noise In The Swiss Population - An Impact Analysis</b> .....	662
<i>Sarah Omlin, Beat Schaffer, Mark Brink</i>	
<b>Nocturnal Road Traffic Noise And Sleep: Location Of The Bedroom As A Mediating Factor In The Subjective Evaluation Of Noise And Its Impact On Sleep</b> .....	663
<i>S. Pirrera, E. De Valck, R. Chuydts</i>	
<b>Team 6 Activities From 2008 To 2011</b> .....	669
<i>T. Yano, S. Lee</i>	
<b>Community Response To Noise - A Theory-Based Model For Exposure-Response Relationships</b> .....	673
<i>T. Gjestland, S. Fidell</i>	
<b>Biologically Inspired Modeling Of Environmental Noise Perception</b> .....	680
<i>D. Botteldooren, B. De Coensel, D. Oldoni, M. Boes, P. Lercher</i>	
<b>Comparative Studies On Railway And Road Traffic Noise Annoyances And The Importance Of Number Of Trains</b> .....	686
<i>A. Gidlof-Gunnarsson, E. Ohrstrom, M. Ogren, T. Jerson</i>	
<b>The Types Of Human Response To Changes In Noise Exposure</b> .....	695
<i>H. E. Laszlo, A. Hansell</i>	
<b>Aircraft Noise Indexes - Recent Developments And Current Applications</b> .....	703
<i>M. Brink, B. Schaeffer, D. Schreckenberg, M. Basner</i>	
<b>Differential Exposure Of The Urban Population To Road Traffic Noise In Hong Kong</b> .....	711
<i>Kin-Che Lam</i>	
<b>Human Response To Vibration In Residential Environments: Establishing Exposure-Response Relationships</b> .....	719
<i>James Woodcock, Eulalia Peris, Gennaro Sica, Zbigniew Koziel, Andrew T. Moorhouse, David C. Waddington</i>	
<b>Quantitative Model Of Combined Annoyance Caused By Simultaneous Exposure To Outdoor Traffic Sounds</b> .....	727
<i>J. Hong, J. Kim, K. Kim, Y. Cho, S. Lee</i>	
<b>Dose-Response Relationships For Aircraft Noise Annoyance In Ho Chi Minh City And Hanoi</b> .....	734
<i>T. L. Nguyen, T. Yano, Q. Nguyenhuy, T. Nishimura, T. Sato, T. Morihara, Y. Hashimoto</i>	
<b>Evaluation Of Urban Space As A Concept Of Soundscape</b> .....	743
<i>J. Y. Jeon, P. J. Lee</i>	
<b>Effects Of Airplane And Helicopter Noise On People Living Around A Small Airport In Sapporo, Japan</b> .....	752
<i>Tetsumi Sato, Takashi Yano</i>	
<b>Effects of residential environmental factors on annoyance and activity disturbances caused by aircraft and road traffic noises in Vietnam</b> .....	760
<i>T. Morihara, T. Yano, T. L. Nguyen, H. Q. Nguyen, T. Nishimura, T. Sato, Y. Hashimoto</i>	

<b>Comparing Models To Predict The Combined Noise Annoyance In Ho Chi Minh City And Hanoi</b> .....	767
<i>Q. Nguyenhuy, T. L. Nguyen, T. Yano, Y. Nishimura, S. Nishimura, T. Sato, T. Morihara, Y. Hashimoto</i>	
<b>Noise And Health In The Greater Rotterdam Area</b> .....	775
<i>H. Wolfert</i>	
<b>Human Response To Vibration In Residential Environments: A Seven Year Journey To Establish Exposure-Response Relationships</b> .....	784
<i>Richard Perkins, Colin Grimwood, Colin Stanworth, Rupert Thornely-Taylor</i>	
<b>Assessment Of Annoyance Caused By Different Types Of Construction Noises</b> .....	787
<i>Sung Chan Lee, Pyoung Jik Lee, Jin Yong Jeon</i>	
<b>Community Response To Low Frequency Noise From Power Plants By Gas Turbine Engine Generator. Correlations Among European Studies And Peruvian Related Cases. Results Of Four Years Researching Work With More Than 300 Stakeholders Showing Health Problems</b> .....	788
<i>Walter Montano, Elena Gushiken</i>	
<b>Quantitative Evaluation Of Annoyance From Military Shooting Noise</b> .....	789
<i>Yoonho Cho, Byung-Joo Choi, Soogab Lee</i>	
<b>Estimation Of Vibration Exposure In Residential Environments</b> .....	790
<i>G. Sica, J. Woodcock, E. Peris, Z. Koziel, A. Moorhouse, D. Waddington</i>	
<b>Socio-Acoustic Survey Data Archives At INCE/J</b> .....	798
<i>Shigenori Yokoshima, Takashi Yano, Keiji Kawai, Makoto Mornaga, Atsushi Ota</i>	
<b>The DEBATS Study: Health Effects Of Aircraft Noise Near Three French Airports</b> .....	806
<i>A. S. Evrard, L. Barthelemy, P. Champelovier, M. Chiron, H. Jahi, J. Lambert, B. Laumon</i>	
<b>Effects Of Nocturnal Railway Noise On Annoyance: Dose-Response Relationships From A Field Study In Comparison To Nocturnal Aircraft Noise Annoyance</b> .....	809
<i>Sibylle Pennig, Julia Quehl, Uwe Mueller, Eva-Maria Elmenhorst, Vinzent Rohny, Hartmut Maab, Mathias Basner</i>	
<b>A Survey On Reaction Of Noise And Vibration In Construction Sites</b> .....	813
<i>Sung Chan Lee, Jin Yun Chung, Jung Bin Im</i>	
<b>Calculation Of Noise In Residential Environments</b> .....	814
<i>Zbigniew Koziel, Eulalia Peris, James Woodstock, Gennaro Sica, Andrew T. Moorhouse, David C. Waddington</i>	
<b>Community Reaction To Railway Vibration At Different Times Of The Day</b> .....	822
<i>E. Peris, J. Woodstock, G. Sica, A. Moorhouse, D. Waddington</i>	
<b>Socio-Acoustic Survey And Soundscape Analysis In Urban Parks In Rome</b> .....	830
<i>S. Curcuruto, F. Asdrubali, G. Brambilla, R. Silvaggio, F. D'Alessandro, V. Gallo</i>	
<b>Social Survey About Noise Perception On Santos Dumont Airport Neighbourhoods In Rio De Janeiro, Brazil – Data Collection And Analysis Methods</b> .....	838
<i>Rita De Cassia Cordeiro Nogueira, Webe Joao Mansur, Miguel Aloysio Sattler</i>	
<b>Mapping Of Severe Annoyance Due To Aircraft Noise</b> .....	846
<i>D. Houthuijs, C. Ameling, M. Van Acker, A. J. Bouwman-Notenboom, J. Ten Brinke, M. Van Den Brink, H. Dijkshoorn, M. Heemskerk, A. Van De Laar, M. Mulder, B. Rozema, F. Schutz, C. Verhagen, M. Marra, O. Breugelmanns, W. Swart, J. Van De Kasstele, C. L. Van Den Brink, C. Van Wiechen</i>	
<b>Trial Of A UK-Wide Support Network For Low Frequency Noise Sufferers</b> .....	854
<i>Andy Moorhouse, David M. Baguley, Tim Husband, Claire Banks, Pam Comiskey, Tony Kay, Alan Kenyon, Don McFerran, Faye Penney, Karen Smith, Christine Whalley</i>	
<b>Assessing The Impact Of Blast Noise On Communities Near U.S. Army Installations</b> .....	862
<i>D. Valente, E. Nykaza, K. Hodgdon, T. Gaugler, P. Kreckler, B. MacAllister, G. Luz</i>	
<b>The Adapted Vos' Model To Predict Total Noise Annoyance Due To An Industrial Noise With A Main Spectral Component In Middle Frequencies Combined With A Background Noise</b> .....	869
<i>C. Marquis-Favre, M. Alayrac, S. Viollon</i>	
<b>The Effect Of Regional Living Environmental Improvement On Community Response To Aircraft Noise</b> .....	878
<i>M. Morinaga, H. Tsukioka, I. Yamada, T. Matsui</i>	
<b>Issues In The Development Of A Survey Simulation Tool To Explore Robust Estimation Of Models Of Annoyance Due To Aircraft Noise</b> .....	883
<i>K. Foertsch, P. Davies</i>	
<b>Mitigation Of Noise In Nursery School Classrooms By Sound Absorption: A Yearly Noise Measurement With Different Absorbing Conditions In Actual Classrooms</b> .....	892
<i>K. Kawai, M. Saito, K. Sakoda</i>	
<b>Sound Annoyance As Loss Of Options For Viability Self-Regulation</b> .....	898
<i>T. C. Andringa, J. J. L. Lanser</i>	
<b>The Inclusion Of Cumulative Sound Exposure In Assessment Of Noise Impact On Marine Mammals</b> .....	906
<i>Paul Lepper, Stephen Robinson, Peter Theobald</i>	
<b>Ultrasonic noise emissions from wind turbines: Potential effects on bat species</b> .....	907
<i>C. V. Long, P. A. Lepper, J. A. Flint</i>	



<b>Ambient Noise Doesn't Stop At 20 Khz</b> .....	914
<i>Peter Dobbins</i>	
<b>The Weight Of Evidence Approach In The Assessment Of Hearing Impairment Induced By Noise And Ototoxic Chemicals</b> .....	915
<i>T. Leroux, A. Vyskocil, G. Truchon, F. Lemay, F. Gagnon, M. Gendron, A. Boudjerida, N. El-Majidi, C. Viau</i>	
<b>Perceived Quality Of The Living Environment And Noise</b> .....	921
<i>Luc Dekoninck, Dominique Gillis, Dick Botteldooren</i>	
<b>Environmental Exposure – Annoyance Relationships In Black And Gray Urban Areas</b> .....	929
<i>R. Klæboe</i>	
<b>Multi-Sensory Experience In Urban Historical Places</b> .....	938
<i>F. La Malva, A. Astolfi, P. Bottalico, V. R. M. Lo Verso, F. Bronuzzi</i>	
<b>Influence Of Temporal Structure Of The Sonic Environment On Annoyance</b> .....	945
<i>A. Bockstael, B. De Coensel, P. Lercher, D. Botteldooren</i>	
<b>Variation Of Evaluation Of Signal Sound In The Public Place With Several Kinds Of Noise</b> .....	953
<i>T. Akita</i>	
<b>Noise And Health-Related Quality Of Life In People Living Near A Motorway</b> .....	957
<i>David Welch, Daniel Shepherd, Kim Dirks, David McBride, Samantha Marsh</i>	
<b>Aircraft Noise And Annoyance In The Populations Living Near The Ciampino Airport In Rome</b> .....	962
<i>C. Ancona, F. Mataloni, C. Badaloni, F. Forastiere</i>	
<b>Effect Of The Co-Exposure To Organophosphate Pesticides And Noise On The Auditory Function Of Farm Workers</b> .....	966
<i>M. Robidoux-Leonard, M. Bouchard, T. Leroux</i>	
<b>Subjective Responses To Noise Levels In Inpatient Hospital Wards</b> .....	974
<i>N. Shiers, B. Shield, R. Glanville</i>	
<b>A Pilot Study Of Noise Level In A Pharmacy Department In A Teaching Hospital</b> .....	982
<i>E. Huet, G. Jakmakjian, J. F. Bussieres, T. Leroux</i>	
<b>Getting It Together - Interdisciplinary Sound Environment Research</b> .....	990
<i>Frans Mossberg</i>	
<b>Progress On Noise Policies: 2008 - 2011</b> .....	996
<i>L. Finegold, J. Lambert, D. Schwela</i>	
<b>Health Costs Of Noise: What Have We Learnt From The Literature And Their Use In Noise Policy?</b> .....	1007
<i>Katrin Ohlau, Jacques Lambert</i>	
<b>Development Of A State Planning Policy For Road And Rail Transport Noise – The Western Australian Experience</b> .....	1008
<i>J. Macpherson</i>	
<b>A Meta-Analysis Of Stated Preference Studies Of Noise Nuisance</b> .....	1016
<i>Abigail L. Bristow, Mark Wardman</i>	
<b>An Update On Research To Guide United States Policy On Aircraft Noise Impact</b> .....	1025
<i>Natalia Sizov, Lynne Pickard</i>	
<b>Status Of International Consortium On Noise Issues In Developing And Emerging Countries</b> .....	1033
<i>L. Finegold, D. Schwela</i>	
<b>The Review Of Market-Based Measures In Mitigating Aircraft Noise And The Applications For Taiwan</b> .....	1040
<i>Cherie Lu</i>	
<b>Is Quiet The New Loud? Towards The Development Of A Methodology For Estimating The Economic Value Of Quiet Areas</b> .....	1048
<i>P. Rowcroft, P. Shields, C. Skinner, S. Woodin, A. L. Bristow</i>	
<b>Noise Research &amp; Policy In The USA: Emerging From The Shadows</b> .....	1058
<i>D. Sykes, W. Cavanaugh</i>	
<b>Some Implications Of The Noise Policy Statement For England For The Regulation And Permitting Of Industry By The Environment Agency Of England And Wales</b> .....	1065
<i>T. Clayton, D. C. Waddington</i>	
<b>Protection Against Aircraft Noise. Novella Of The German Law Of October 31, 2007</b> .....	1073
<i>K. Scheuch, M. Spreng, P. Jansen, G. Jansen</i>	
<b>Risk Management For Transportation Noise</b> .....	1082
<i>D. Schwela, L. Finegold</i>	
<b>Integrating Noise Into Government Appraisal And Cost Benefit Analysis In The UK</b> .....	1090
<i>R. Dickens, A. Geleff</i>	
<b>The Importance Of Clear Policy Objectives When Managing Noise</b> .....	1098
<i>S. W. Turner, C. J. Grimwood</i>	

<b>Contribution To Meet New Requirements In Brazil For Protection Of Bedrooms Against External Noise: An Easy, Low Cost And Reliable Measurement In DbA To Estimate Sound Isolation Performance Of Windows</b> .....	1104
<i>Joao Baring</i>	
<b>The Assessment And Control Of Road Traffic Noise: A Comparison Between Irish And Australian Policy</b> .....	1105
<i>E. A. King, J. Parnell, V. P. O'Malley</i>	
<b>Management For Wind Turbine Generated Environmental Noise</b> .....	1113
<i>Z. Krukle</i>	
<b>Residential Development Near Industrial Noise Emitters</b> .....	1122
<i>Dani Fiumicelli, David C. Waddington</i>	
<b>Contribution Of Genetic Factors To Noise-Induced Hearing Loss</b> .....	1130
<i>Mariola Sliwinska-Kowalska</i>	
<b>Night Noise And Sleep In Spain</b> .....	1136
<i>S. Feijoo</i>	
<b>Author Index</b>	