Acoustics 2024

Proceedings of the Institute of Acoustics Volume 46 Part 2

Broadbeach, Australia 6-8 November 2024

ISBN: 979-8-3313-0989-3

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© (2024) by Institute of Acoustics All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

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

Institute of Acoustics 3rd Floor St Peter's House 45-49 Victoria Street St. Albans, Hertfordshire AL13WZ United Kingdom

Phone: +44(0) 1727 848195 Fax: +44(0) 1727 850553

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: 845-758-2633

Email: curran@proceedings.com Web: www.proceedings.com

TABLE OF CONTENTS

MEASUREMENT UNCERTAINTY IN SOUND INSULATION	1
APPLICATION OF THE SOTTEK HEARING MODEL FOR ENVIRONMENTAL NOISE ASSESSMENT	6
THE HISTORICAL AURALISATION OF LICHFIELD CATHEDRAL'S QUIRE	13
DEVELOPING A NEW SOURCE MODEL FOR ROAD TRAFFIC VEHICLE NOISE	24
COMPATABILITY BETWEEN NOISE AND VENTILATION REQUIREMENTS IN TEACHING SPACES IN SCOTTISH SCHOOLS	32
APPLICATION OF PYSCHOACOUSTIC PHENOMENA AS A METHOD FOR LOW FREQUENCY NOISE CONTROL FOR EVENTS	40
HARNESSING GENERATIVE AI LEVERAGING OPENAI'S APIS TO ENHANCE ACOUSTIC FIELD NOTE-TAKING	48
WIND INDUCED CREAKING NOISE IN TALL BUILDINGS - PART 1	59
MITIGATING BLAST NOISE: EVALUATING WATER CURTAINS AND EXPANDED METALS Z Simcox, G Mackenzie, G Manuel, D Waddington	65
SOUNDSCAPE MAPPING FOR LARGE-SCALE URBAN GREEN SPACES: CASE STUDY OF THE CHENGDU OUTER RING ECOLOGICAL ZONE	73
EVALUATING HUMAN RESPONSE TO AIR SOURCE HEAT PUMP NOISE FOR SUSTAINABLE DOMESTIC HEATING	81
REDUCING EMBODIED CARBON IN HEAVYWEIGHT ACOUSTIC DESIGN T Van Dongen	89
QUANTITATIVE MEASUREMENTS OF LIGHTWEIGHT TIMBER FLOORS USING LOW- FREQUENCY IMPACT SOURCE; ANALYSIS OF THE ACCURACY OF 1/3 OCTAVE BAND HEAVY-HARD IMPACT PREDICTION MODELLING IN LIGHTWEIGHT STRUCTURES	97
THE FUTURE OF SOUNDSCAPE ASSESSMENT - WHAT CAN WE LEARN FROM QUALITATIVE DISCIPLINES?	105

TOWARDS AN IN-DIRECT METHOD FOR LOW FREQUENCY SOUND TRANSMISSION	115
THE QUIET PROJECT - A NATIONAL ENVIRONMENTAL NOISE SURVEY UNDERTAKEN DURING LOCKDOWN	125
FACE THE MUSIC: 20 A YEAR PLAN	131
PRODUCING NEW AND UPDATED GUIDANCE FOR THE NOISE ASSESSMENT OF RENEWABLE ENERGY SOURCES	137
UNCERTAINTY WITHIN OUTDOOR PROPAGATION CALCULATIONS SUBMITTED TO THE ENVIRONMENT AGENCY FOR PERMIT APPLICATIONS	140
ACOUSTIC IMPLICATIONS OF LOW CARBON HOUSING	148
SPEECH BABBLE AS SOUND MASKING IN OPEN-PLAN OFFICES - A STATISTICAL APPROACH	156
LISTENER EVALUATION OF REAL AND SYNTHESISED IMPULSE RESPONSE DESIRABILITY USING CONVOLUTION WITH THE VIOLIN STRING SIGNAL P Gaydecki, J You	165
THE ENVIRONMENT AGENCY AND NIAS FOR ENVIRONMENTAL PERMIT APPLICATIONS - WHERE ARE WE NOW? P Doyle, M Hill	171
NOISE DISTURBANCE - BASELINE LEVEL MONITORING IN THE SOLENT	180
DOUBLE REED SOUND PRODUCTION ON THE BASS CRUMHORN	188
A COMPARISON OF TWO ACOUSTIC CHARACTERISATION METHODS OF AIR SOURCE HEAT PUMPS	197
TESTING OF NOISE & VIBRATION ISOLATED FLOOR-CEILING SETUPS FOR CROSS- LAMINATED TIMBER (CLT) CONSTRUCTIONS	205
A DRAFT CONCEPTUAL FRAMEWORK FOR A NEW INTERNATIONAL TECHNICAL STANDARD ON NON-ACOUSTIC FACTORS	211
FROM SKY TO SHAKER: A CASE STUDY ON REPLICATING DRONE-INDUCED VIBRATION FOR THE ASSESSMENT OF THE INTEGRITY OF MEDICAL PRODUCTS	218

COMPARISON OF DIFFERENT AMPLITUDE MODULATION METHODOLOGIES USING TEST CASES AND MEASUREMENTS	226
INFLUENCE OF PORE WALL ROUGHNESS ON SOUND ABSORPTION	234
COMPARATIVE ANALYSIS OF MFCC AND GTCC PERFORMANCE IN LARYNGEAL PATHOLOGY DETECTION BASED ON ELECTROGLOTTOGRAPHIC SIGNALS	242
A MACHINE LEARNING APPROACH TO NOISE SUPPRESSION AND TIMBRE ENHANCEMENT OF EARLY 20TH CENTURY MUSIC	251
AN ACOUSTIC VECTOR RECEIVER FOR WALL CONDITION ASSESSMENT IN A WATER-FILLED PIPE	260
J Watts, K Horoshenkov	
NEXT STEPS FOR NOISE AND SOUNDSCAPES IN WALES - WHAT DOES IMPLEMENTATION OF THE ENVIRONMENT ACT (AIR QUALITY AND SOUNDSCAPES) (WALES) ACT 2024 MEAN FOR THE FUTURE OF SOUNDSCAPES IN WALES?	266
FIBRE-OPTIC SENSING FOR ANALYSIS OF TURBULENT PRESSURE FLUCTUATIONS IN PARTIALLY FILLED PIPES	272
J Shamas, A Krynkin, G Sailor, S Tait, Y Liu, K Horoshenkov	
TOWARDS A SIMPLIFIED MODEL FOR PARTIALLY OPEN WINDOWS - CONNECTING ACOUSTIC AND THERMAL COMFORT	280
J Harvie-Clark, J Hill, J Batten, L Pereira, J Healey, J Howell, G Fusaro	
STRENGTH OF COMMUNITY AND GOOD PR OVERCOME TRADITIONAL NOISE LIMITS FOR MUSIC VENUE	286
J Harvie-Clark, J Hill, G Venus, P Rogers, F Aletta, J Kang	
PLANNING FOR SOUND FROM ASHPS: OPTIONS, RISKS AND OPPORTUNITIES	296
UPDATING BS 8233: ALIGNING RESIDENTIAL ACOUSTIC DESIGN GUIDANCE WITH THE HEALTH EVIDENCE	320
INVESTIGATING VIBRATION EFFECTS ON WOODEN FRAME BUILDINGS: A FOCUS ON CLT RESPONSE TO TRAFFIC-INDUCED VIBRATION	337
ASSOCIATION BETWEEN PERCEIVED ACOUSTIC COMFORT AND WEBEING FOR SCHOOL TEACHERS AT WORK: A CROSS-SECTIONAL SURVEY IN THE UK	345
SOUND TRANSMISSION THROUGH RIGID POROUS MATERIALS WITH AND WITHOUT PERFORATIONS	352
• -	

WHY A-WEIGHTING NETWORK IS INADEQUATE FOR MEASUREMENT OF NOISE WITH HIGH CONTENT OF INFRASOUND AND LOW FREQUENCY NOISE (ILNF)?	358
THAMES TIDEWAY TUNNEL. THE MANAGEMENT OF CONSTRUCTION NOISE TAKING ACCOUNT OF INDIVIDUAL CIRCUMSTANCES	365
WHEN BARRIERS FALL DOWN. IDENTIFYING COMMON ERRORS IN NOISE BARRIER DESIGNS FOR ENVIRONMENTAL APPLICATIONS	372
ACOUSTIC SPECTROGRAM FOR EVALUATING THE EFFECTIVENESS OF ACCEPTANCE AND COMMITMENT TRAINING (ACT) AS A MUSIC PERFORMANCE ANXIETY MANAGEMENT METHOD IN PROFESSIONAL SINGERS	376
EVALUATION OF F0 STABILITY IN SPEECH AND SINGING USING LARYNGEAL BIOIMPEDANCE MEASUREMENTS	384
NOISE EXPOSURE OF MUSICIANS IN AMATEUR WIND BANDS	390
DIFFERENT LOGGING RATES FOR MEASURING THE PROMINENCE OF IMPULSIVE SOUNDS AND FOR THE ADJUSTMENT OF LAEQ	397
LOW FREQUENCY SOUND AT OUTDOOR CONCERTS – A NECESSARY NOISE	405
ADVANCED VIBRATION ISOLATION OF A MULTI-STOREY BUILDING USING TAILORED SOLUTIONS FOR DIFFERENT FOUNDATION SYSTEMS	413
SOUND POWER OF NORMAL SPEECH FOR BUILDING ACOUSTICS	421
BUILDING ACOUSTICS AND SUSTAINABILITY - SOME REAL WORLD EXAMPLES	426
PROVOKING PROPORTIONATE CONSIDERATION OF ANTHROPOGENIC NOISE ON TERRESTRIAL ANIMALS	439
BANG, BANG, BEEP - NON-OPERATIONAL AIRBORNE SOUND FROM OFFSHORE WINDFARMS	450

Author Index