

Contents

1	Accurate Damping Estimation by Automated OMA Procedures.....	1
	C. Rainieri and G. Fabbrocino	
2	Real-Time Structural Health Monitoring and Damage Detection.....	11
	Yavuz Kaya and Erdal Safak	
3	Improved Substructure Identification Through Use of an Active Control Device.....	21
	Charles DeVore, Erik A. Johnson, and Richard E. Christenson	
4	Hybrid MPC: An Application to Semiactive Control of Structures.....	27
	Wael M. Elhaddad and Erik A. Johnson	
5	Findings with AVC Design for Mitigation of Human Induced Vibrations in Office Floors.....	37
	Donald Nyawako, Paul Reynolds, and Malcolm Hudson	
6	Power Requirements for Active Control of Floor Vibrations.....	45
	M.J. Hudson, P. Reynolds, and D.S. Nyawako	
7	Tuning TMDs to “Fix” Floors in MDOF Shear Buildings.....	55
	Jennifer Rinker	
8	Precise Stiffness Control with MR Dampers.....	61
	Marcin Maślanka and Felix Weber	
9	Employing Hybrid Tuned Mass Damper to Solve Off-Tuning Problems for Controlling Human Induced Vibration in Stadia.....	71
	Nima Noormohammadi and Paul Reynolds	
10	Semi-Active TMD Concept for Volgograd Bridge.....	79
	Felix Weber, Johann Distl, and Marcin Maślanka	
11	A New Shape Memory Alloy-Based Damping Device Dedicated to Civil Engineering Cables.....	89
	G. Helbert, L. Dieng, T. Lecompte, S. Arbab-Chirani, S. Calloch, and P. Pilvin	
12	Using Pall Friction Dampers for Seismic Retrofit of a 4-Story Steel Building in Iran.....	101
	Seyed Mehdi Zahraei, Alireza Moradi, and Mohammadreza Moradi	
13	Modal Identification of a 5-Story RC Building Tested on the NEES-UCSD Shake Table.....	109
	Rodrigo Astroza, Hamed Ebrahimian, Joel P. Conte, Jose I. Restrepo, and Tara C. Hutchinson	
14	Modal Testing of a Repaired Building After 2010 Chile Earthquake.....	119
	Manuel Archila, Ruben Boroschek, Carlos E. Ventura, and Sheri Molnar	
15	System Identification and Displacement Profiles of Multi-Span Skewed Bridges with Seat Type Abutments.....	127
	Seku Catacoli, Carlos E. Ventura, and Steve McDonald	

16	Robustness of Modal Parameter Estimation Methods Applied to Lightweight Structures	137
	Kristoffer A. Dickow, Poul Henning Kirkegaard, and Lars V. Andersen	
17	A Comparative Study of System Identification Techniques Under Ambient Vibration	145
	Muhammad S. Rahman and David T. Lau	
18	Some Implications of Human-Structure Interaction	155
	Lars Pedersen	
19	Evolution of Dynamic Properties of a 5-Story RC Building During Construction	163
	Rodrigo Astroza, Hamed Ebrahimián, Joel P. Conte, Tara C. Hutchinson, and Jose I. Restrepo	
20	Structural Dynamic Parameter Identification and the Effect of Test Techniques	175
	A. Devin, P.J. Fanning, C.J. Middleton, and A. Pavić	
21	Comparison of Damping Models for Space Flight Cables	183
	Kaitlin Spak, Gregory Agnes, and Daniel Inman	
22	Forced 3D Nonlinear Dynamics of a Hanging Cable Under Multiple Resonance Conditions	195
	R. Alaggio, F. Benedettini, G. Rega, and D. Zulli	
23	Computationally Efficient Design of Semiactive Structural Control in the Presence of Measurement Noise	203
	Mahmoud Kamalzare, Erik A. Johnson, and Steven F. Wojtkiewicz	
24	Optimal Nonlinear Control Using a Non-quadratic Cost Function for Scalar Systems	211
	Elham Hemmat-Abiri and Erik A. Johnson	
25	Optimal Sensor Placement with a Statistical Criterion for Subspace-Based Damage Detection	219
	Michael Döhler, Kenny Kwan, and Dionisio Bernal	
26	Application of Efficient Model Correction for Damage Assessment Using Limited Measurements	231
	Yi-Cheng Wu and Chin-Hsiung Loh	
27	Theory Based Sensitivity Analysis and Damage Detection of Steel Roof Sheeting for Hailstone Impact	243
	P. Sharafi, Lip H. Teh, and Muhammad N.S. Hadi	
28	Long-Term Dynamic Monitoring of an Offshore Wind Turbine	253
	Christof Devriendt, Filipe Magalhães, Mahmoud El Kafafy, Gert De Sitter, Álvaro Cunha, and Patrick Guillaume	
29	Nondestructive Evaluation of Surface Crack Depth in Concrete	269
	Ninel Alver and Masayasu Ohtsu	
30	An Improved Methodology for Anomaly Detection Based on Time Series Modeling	277
	Qipei Mei and Mustafa Gul	
31	Response Surface Model Updating for Nonlinear Structures	283
	Golnaz Shahidi and Shamim N. Pakzad	
32	Application of Multivariate Statistically Based Algorithms for Civil Structures Anomaly Detection	289
	Masoud Malekzadeh, Mustafa Gul, and F. Necati Catbas	
33	System Identification of a Three-Story Precast Concrete Parking Structure	299
	Andrea Belleri, Babak Moaveni, and Jose I. Restrepo	
34	Structural Damage Localization Using Sensor Cluster Based Regression Schemes	307
	Ruigen Yao and Shamim N. Pakzad	
35	Operational Modal Analysis Based on Multivariable Transmissibility Functions: Revisited	317
	Wout Weijtjens, Gert de Sitter, Christof Devriendt, and Patrick Guillaume	
36	Diagnosis of Building Vibration Sources via Time-Frequency Analysis	327
	Linda M. Hanagan and Martin W. Trethewey	

37	Medial-Lateral Gait Patterns in Healthy Adult Walkers	337
	Daniel Claff, M.S. Williams, A. Blakeborough, and J. Stebbins	
38	Quantifying Differences Between Walking Locomotion on Rigid and Flexible Pavements.....	349
	M.V. Istrate, S. Zivanovic, A. Lorenzana, N. Ibán, and H.V. Dang	
39	Using MSD Model to Simulate Human-Structure Interaction During Walking	357
	E. Shahabpoor, A. Pavic, and V. Racic	
40	Effect of Sensory Stimuli on Dynamic Loading Induced by People Bouncing	365
	Vitomir Racic, James M.W. Brownjohn, Shu Wang, Mark T. Elliot, and Alan Wing	
41	Design and Construction of a Very Lively Bridge	371
	S. Živanović, R.P. Johnson, H.V. Dang, and J. Dobrić	
42	Experimental Results from a Laboratory Test Program to Examine Human-Structure Interaction	381
	Kelly A. Salyards and Nicholas C. Noss	
43	Alleviation of Wind-induced Vibrations of Railings in a Building	391
	C.M. Hou and W.D. Zhu	
44	Operational Modal Analysis of a Slender Footbridge to Serviceability Purposes	403
	Anna Cappellini, Stefano Manzoni, Marcello Vanali, and Elena Mola	
45	Optimal Sensor Placement for Structural Health Monitoring of Power Transmission Tower-Line Systems	415
	José Antonio Vergara, Rafael Castro-Triguero, David Bullejos, Rafael Gallego, and Diego Zamora	
46	Evaluation of Economical Dynamic Exciters for Vibration Testing of Bridges	423
	E.V. Fernstrom, J.L. Carreiro, and K.A. Grimmelsman	
47	Assessment of Floor Vibrations for Building Re-use: A Case Study	435
	Brad Pridham	
48	Experimental Validation on a Continuous Modulated Wave-Form Command Shaping Applied on Damped Systems.....	445
	Khaled A. Alhazza	
49	Quantification of Damping Effect of Humans on Lightly Damped Staircases	453
	Anna Cappellini, Stefano Manzoni, and Marcello Vanali	
50	Robust Design Optimization of Steel Moment Resisting Frame Under Ground Motion Uncertainty	461
	Zhifeng Liu, Sez Atamturktur, and Hsein Juang	
51	Structural Assessment of Fort Sumter Masonry Coastal Fortification Subject to Foundation Settlements .	471
	Sez Atamturktur, Saurabh Prabhu, and Rick Dorrance	
52	Condition Assessment of a Coal Mine Shiploader.....	485
	Carlos E. Ventura, Freddy Pina, Steve Yee, and Christopher Prychon	
53	Experimental Assessment of Structure Borne Noise Generated by a Braking Resistor	495
	F. Braghin, F. Cheli, and G. Galli	
54	Pre-Test Nonlinear FE Modeling and Simulation of a Full-Scale Five-Story Reinforced Concrete Building	503
	Hamed Ebrahimian, Rodrigo Astroza, Joel P. Conte, Jose I. Restrepo, and Tara C. Hutchinson	
55	The Dynamic Stiffening Effects of Non-Structural Partitions in Building Floors	513
	C.J. Middleton and A. Pavic	
56	Experimental Characterization and Predictive Modeling of a Residential-Scale Wind Turbine	521
	Jordan B. Chipka, Andrew R. Lisicki, Chuong T. Nguyen, Stuart G. Taylor, Gyuhae Park, Curtt N. Ammerman, and Charles R. Farrar	

57	Sizing Optimization of Trapezoidal Corrugated Roof Sheeting, Supporting Solar Panels, Under Wind Loading	535
	P. Sharafi, Lip H. Teh, and Muhammad N.S. Hadi	
58	Establishment of Optimized Digging Trajectory for Hydraulic Excavator	543
	Tatsuya Yoshida, Takayuki Koizumi, Nobutaka Tsujiuchi, Kan Chen, and Yozo Nakamoto	
59	Modeling, Simulation, and Optimization of California High-Speed Rail Bridge Under Earthquakes	555
	Yong Li and Joel P. Conte	

Topics in Dynamics of Civil Structures, Volume 4
Proceedings of the 31st IMAC, A Conference on
Structural Dynamics, 2013

Catbas, F.N.; Pakzad, S.; Racic, V.; Pavic, A.; Reynolds,
P. (Eds.)

2013, X, 569 p. 467 illus., 372 illus. in color.,

ISBN: 978-1-4614-6555-3