

PROCEEDINGS OF THE 13th INTERNATIONAL SYMPOSIUM ON STRUCTURAL ENGINEERING

Volume I

Zuocai Wang, Weixin Ren, Jiping Ru



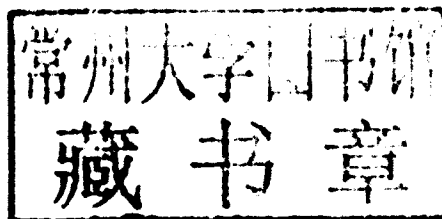
Science Press

PROCEEDINGS OF THE THIRTEENTH INTERNATIONAL SYMPOSIUM ON STRUCTURAL ENGINEERING

Volume I

Edited By

Zuocai Wang, Weixin Ren and Jiping Ru



Science Press

Beijing

Responsible Editor: Jialin Ren

**PROCEEDINGS OF THE TWELFTH
INTERNATIONAL SYMPOSIUM ON
STRUCTURAL ENGINEERING**

Copyright © 2014 by Science Press, Beijing

Published by Science Press

16 Donghuangchenggen North Street

Beijing 100717, P.R.China

Printed in Beijing

All right reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form on by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the copyright owner.

ISBN 978-7-03-042032-9

International Scientific Committee

Chairman

Weixin REN, Hefei University of Technology, P.R.China

Vice Chairman

Zuocai WANG, Hefei University of Technology, P.R.China

Members (In alphabetical order)

Kaiming BI, University of Western Australia, Australia

S.C.S. CAI, Louisiana State University, USA

Jianfei CHEN, The University of Edinburgh, UK

Nawawi CHOUW, The University of Auckland, New Zealand

Jie CUI, Guangzhou University, P.R.China

Yang DING, Tianjin University, P.R.China

Xiuli DU, Beijing University of Technology, P.R.China

Qin FANG, PLA University of Science and Technology, P.R.China

Hanbin GE, Meijo University, Japan

Linhai HAN, Tsinghua University, P.R.China

Hong HAO, University of Western Australia, Australia

Bin HUANG, Wuhan University of Technology, P.R.China

Zongming HUANG, Chongqing University, P.R.China

Weiliang JIN, Zhejiang University, P.R.China

Ying LEI, Xiamen University, P.R.China

Hui LI, Harbin Institute of Technology, P.R.China

Jie LI, Tongji University, P.R.China

Aiqun LI, Southeast University, P.R.China

Dapeng LI, National Natural Science Foundation of P.R.China, P.R.China

Dawang LI, Shenzhen University, P.R.China

Hongnan LI, Dalian University of Technology, P.R.China

Qingming LI, The University of Manchester, UK

Qiusheng LI, City University of Hong Kong, P.R.China

Xiaojun LI, Institute of Engineering Mechanics, CEA, P.R.China

Zhongxian LI, Tianjin University, P.R.China

Weiqing LIU, Nanjing University of Technology, P.R.China

Wenguang LIU, Shanghai University, P.R.China

Yong LU, The University of Edinburgh, UK

Guowei MA, Nanyang Technological University, Singapore

Z. John MA, Tennessee State University, USA

Jianguo NIE, Tsinghua University, P.R.China

Ditao NIU, Xi'an University of Architecture and Technology, P.R.China

Jinping OU, Dalian Institute of Technology, P.R.China
Weixin REN, Hefei University of Technology, P.R.China
Jiping RU, National Natural Science Foundation of China, P.R.China
Gangbing SONG, University of Houston, USA
Zhong TAO, Fuzhou University, P.R.China
Jun TENG, Harbin Institute of Technology, P.R.China
Jinguang TENG, The Hong Kong Polytechnic University, P.R.China
Xintang WANG, Ningbo University, P.R.China
Zuocai WANG, Hefei University of Technology, P.R.China
Bo WU, South P.R.China University of Technology, P.R.China
Chengqing WU, The University of Adelaide, Australia
Zhishen WU, Ibaraki University, Japan
Yan XIAO, University of Southern California, USA
Feng XING, Shenzhen University, P.R.China
Youlin XU, The Hong Kong Polytechnic University, P.R.China
Bin XU, Hunan University, P.R.China
Qingshan YANG, Beijing Jiaotong University, P.R.China
Zhiwu YU, Central South University, P.R.China
Yunfeng ZHANG, University of Maryland, USA
Yangang ZHAO, Kanagawa University, Japan
X.L. ZHAO, Monash University, Australia
Yun ZHOU, Guangzhou University, P.R.China
Hongping ZHU, Huazhong University of Science and Technology, P.R.China

Local Organizing Committee

Chairman

Zuocai WANG, (Hefei University of Technology, P.R.China)

Members

Liang Chen, long Chen, Xingxin Li, Jingliang Liu, Yuan Peng, Lian Wang, Zuocai Wang, Yahui Shao, Guangfeng Zhang, Huanlin Zhou, Xiaohan Zuo (Hefei University of Technology, P.R.China)

Preface

As the technologies advance by the day, structural engineering makes great progress and plays a more and more important role in social development due to safety, economic and environmental incentives. To provide an international academic communication platform for experts and scholars from the research and practicing engineering communities, and for those who concern with and give supports to the development of structural engineering, the previous twelve International Symposiums on Structural Engineering were successfully held in Leshan, Harbin, Shanghai, Beijing, Shenyang, Kunming, Tianjin, Xi'an, Fuzhou, Changsha, Guangzhou and Wuhan between 1990 and 2012. Due to developments over the two decades, this series of structural engineering symposiums possess distinct characteristics and features, which continue to attract many elite academics from among Chinese people.

The 13th International Symposium on Structural Engineering (ISSE-13) is held in Hefei, P.R.China, October 24-27, 2014. It is organized by Hefei University of Technology and sponsored by National Natural Science Foundation of China (NSFC). The goal of the forum is to present and publish the most recent researches and developments in structural analysis, design, construction, maintenance and disaster mitigation, and also discuss the implementation and development of new tools and technologies for structural health monitoring as well as structural identification. The proceedings of ISSE-13 contain more than 200 papers. The contributions of all the authors to the proceedings are really appreciated.

We would like to express our sincerely thanks to all the members of the International Scientific Committee as well as the Local Organizing Committee, whose dedication is considered to be the key for the success of this symposium. Moreover, the supports from all the organizations listed in the proceedings and the special contributions from all the keynote speakers and the invited guests are also gratefully appreciated. We really hope that all the participants will have a good time and enjoy their stay in Hefei.

Weixin REN, Hefei University of Technology, P.R.China

Zuocai WANG, Hefei University of Technology, P.R.China

Jiping Ru, National Natural Science Foundation of China, P.R.China

October 24, 2014

TABLE OF CONTENTS

International Scientific Committee

Preface

Volume I

1 Smart Material and Structures

Displacement Monitoring Method Based on Digital Image Processing Technology	3
<i>Wei Lu, Yan Cui, Jun Teng</i>	
Test on High-strength Lightweight Aggregates Concrete Deep Beams with Shear Span-to-depth Ration Variations.....	12
<i>Tao Wu, Beibei Lv, Xi Liu</i>	
An Experimental Study of New Grouted Deformed Pipe Splice under Incremental Tensile Load.....	20
<i>Yongfeng Zheng, Zhengxing Guo</i>	
Effect of Interfacial Bond on Performance of Natural Flax FRP Confined Coir Fibre Reinforced Concrete.....	26
<i>Libo Yan, Nawawi Chouw, Krishnan Jayaraman</i>	
Some Key Problems of High Performance Fiber Reinforced Concrete Submerged Floating Tunnel.....	33
<i>Yiqiang Xiang, Ying Yang</i>	
Impact Resistance of Flax Fibre Reinforced Polymer Composite.....	42
<i>Wenjie Wang, Nawawi Chouw</i>	
Compressive Behavior of Steel Fiber Reinforced Concrete-filled FRP Tubes.....	48
<i>Tianyu Xie and Togay Ozbakkaloglu</i>	
Experimental Research on Shear Behaviors of Reinforced Strain-hardening Cementitious Composite (RSHCC) Beam	56
<i>Lijun Hou, Zihan Liu, Shilang Xu, Da Chen</i>	
Behaviour of Headed Stud Shear Connectors for Composite Steel-concrete Beams Incorporating Recycled Concrete	66
<i>Vivit Nehaal Deo, Ee Loon Tan, Vivian Tam</i>	
Numerical Analysis and Experimental Research for Acoustic-optical Fiber Based Detection of Interfacial Damage in FRP-Retrofitted Structures	74
<i>Ying Xu, Zhian Liu, Changjun Shao</i>	
Experiment Research on Slip Coefficient of Q460 High Strength Steel Bolted Connections.....	88
<i>Yufeng Chen, Yongjiu Shi, Gang Shi, Huiyong Ban, Bin Pan</i>	
Experimental Research on Tensile Properties of Q460 High Strength Steel Butt Welds	96
<i>Yufeng Chen, Yongjiu Shi, Gang Shi, Huiyong Ban, Chenxi, Wei</i>	
A Sustainable Structure for ECO-friendly Building Materials: the Blocks-piled Up Frame of Chinese Antiquity Building	103
<i>Pengcheng Zhang, Zhaoyi Su, Zhengmao Yu</i>	

A Rate-dependent Constitutive Model for High Damping Rubber Bearing	108
<i>Wei Wei, Yong Yuan, Hongping Zhu</i>	
Bingham Model of MR Damper and Simulink Analysis.....	117
<i>Shengnan Wang, Hui Luo, Hongping Zhu</i>	
Dynamic Bond Behavior of GFRP Sheet-concrete Interface under Impact Loading.....	127
<i>Jingsi Huo, Jin Yang, Yuan Lu, Yan Xiao</i>	
Nanomechanical Properties of Interfacial Transition Zones in Recycled Aggregate Concrete	134
<i>Wengui Li, Jianzhuang Xiao, David A. Lange, Weijian Yi, Surendra P. Shah</i>	
Single-shear Test of Wet-bonded GFRP-to-concrete Interface.....	147
<i>Wenwei Wang, Kent A. Harries</i>	
2 Structural Control and Disaster Prevention	
Numerical Investigation on the Behaviors of CFST Frame-core Wall Structure with Viscous Dampers.....	155
<i>Ruofan Luo, Fengming. Ren, Guangming Chen</i>	
A Theoretical Model to Study Frequency Bands of Periodic Rails on Elastic Foundations.....	164
<i>Lan Ding, Hongping Zhu</i>	
An Interaction Approach to Predict Fire Resistance of Concrete Filled Steel Tube Columns	177
<i>Yao Yao, Xin xin Hu</i>	
Diaphragm Interface Debonding Detection for a Large-scale Irregular MC-CFST Column with PZT.....	184
<i>Bin Xu, Mengqi Chen</i>	
Anti-metro-vibration Performance-based Design Research on Museum.....	193
<i>Jiaqi Ge, Botao Ma, Weiguo Yang, Nan Zhang, Ling Zhang, Mingzhu Wang, Zhizhong Guan</i>	
Seismic Displacement of a Rolling-based Isolation System	205
<i>Biao Wei, Qingyuan Zeng, Liang Chen</i>	
Experimental Study on Vibration Reduction Performance of Tuned Mass Dampened-buckling Restrained Brace.....	214
<i>Yue Zhang, Xiangyu Gao, Yanglong Li, Caihong Ding</i>	
Ambient Vibration Analsis and Structural Modeling of the High-rise Buildings	228
<i>Yun Zhou, Dexian Tan, Site Mi, Weijian Yi, Liming Xie</i>	
Temperature Distribution of a Super-tall Tube-in-tube Structure in South China.....	236
<i>Yong Xia, Peng Zhang, Yiqing Ni</i>	
Reliability Evaluation of Existing Steel Highway Bridges	247
<i>Yongjie Pan, Xinxin Zhao, Yuling Zhang and Xiaoguang Liu</i>	
Parametric Study on Hysteretic Behavior of Doubler Plate-reinforced Tubular T-joints after Fire Exposure	256
<i>Fei Gao, Xingquan Guan, Hongping Zhu</i>	

Study on the Influence of Residual Stresses and Damage on the Hysteretic Behaviors of Welded-thick-steel-plate Members	265
<i>Fan Bai, Na Yang, Xiaofeng Wang</i>	
Stochastic Optimal Control of Nonlinear Hysteretic Structures with Time-dependent Gain Parameters	276
<i>Yongbo Peng, Jie Li</i>	
Simple Method for Predicting the Fire Resistance of Un-protected FRP-strengthened RC Beams.....	284
<i>Wanyang Gao, Jianguo Dai, J. G. Teng</i>	
Effect of Typical Damages on Vehicle-induced Dynamic Response of Simply Supported Multi-slab Girder Bridges	295
<i>Yan Li, C.S.Cai, Jiafeng Liu</i>	
Research on the Constitutive Relations of Corroded Stirrups	311
<i>Zhaohui Lu, Yibin Ou, Yangang Zhao, Zhiwu Yu, Chunqing Li</i>	
Parametric Study on Fire Resistance of Circular Tubular T-Joints	320
<i>Fei Gao, Xiangnan Liu, Junbo Chen, Zigang Xiao</i>	
MR Damper Nonlinear Restoring Force Identification of MDOF Structures with Double Chebyshev Polynomial Model.....	328
<i>Bin Xu, Ze yu Li, Long fei Li, Jia He</i>	
3 Structural Analysis and Integrity	
Progressive Collapse Analysis of Concrete Filled Steel Tubular Planar Frame Based on Fiber Model	341
<i>Huawei Li, Jingxuan Wang, Wenda Wang</i>	
Numerical Simulation on Plastic Buckling Process of Torispherical Shell under Pulse Pressure	349
<i>Gang Chen, Xicheng Huang, Weizhou Zhong</i>	
Analysis on Load Carrying Capacity of the Corroded Reinforced Concrete Beam after Cyclic Loading with Different Stress Ratio.....	356
<i>Xiaoming Yang, Fuzhai Li, Jianhua Xiao, Miao Liu</i>	
Stability Analysis and Cable Force Measurement of Cross Truss String Structure	367
<i>Mingmin Ding, Bin Luo</i>	
Numerical Simulation on Test of Φ 25mm Projectile Impacting on Concrete Target.....	374
<i>Yixia Yan, Ruoze Xie, Xicheng Huang, Zhifang Deng, Gang Chen, Zhiming Hao</i>	
Low-cyclic Reversed Loading Test for Double-wall Precast Concrete Shear Walls	380
<i>Quandong Xiao, Zhengxing Guo</i>	
Analysis of Mechanical Problems of Tai-he Palace in the Forbidden City before Renovation	389
<i>QianZhou, Weiming Yan, Jinbao Ji</i>	
Dynamic Impact Factors for Simply-supported Bridges with Different Cross Sections.....	399
<i>Wei He, Lu Deng, Fang Wang</i>	

Dynamic Performance of a Cable-stayed Concrete-filled Steel Tube Arch Bridge under Vehicular Loading	408
<i>Wei Wang, Lu Deng, Houjun Kang</i>	
Dynamic Responses of Bridges due to Vehicle Braking and Acceleration	416
<i>Fang Wang, Lu Deng, Wei He</i>	
Three-dimensional Finite Element Analysis of Reinforced Concrete Tubular Cored Slab	423
<i>Zhenhao Zhang, Yikui Tang, Leijun Wei</i>	
Vibration Responses Analysis of Long-span Floors under Stochastic Walking Load	430
<i>Jun Chen, Guo Ding, Ruotian Xu</i>	
Stress-strain Behaviour of FRP-confined Concrete Subjected to Eccentric Compression	441
<i>Tao Jiang, Xingqiang Zhang, Jian Yao, Yaozhi Luo</i>	
The Influence of Overlap Regions on Axial Behaviour of Concrete-filled FRP Tubes	450
<i>Thomas Vincent, Togay Ozbakkaloglu</i>	
Numerical Study of Prefabricated Plastic Hinge Thin Cylindrical Tube's Energy Absorbing Ability	458
<i>Weifang Xu, Jiaqiao Jiang, Yong Xu</i>	
Mechanical Behavior Analysis of Prestressed Concrete Composite Slab	464
<i>Zhangfeng Zhu</i>	
Research of Pressure Changes on Over-line Bridge Due to High-speed Train Passage	471
<i>Xiukai Zheng, Na Yang, Jian Zhang, Dongyu Teng, Shuai Zhang</i>	
Progressive Collapse Mechanism Analysis on Spatial Composite Frame with CFST Columns Based on Abaqus Parametric Modeling	481
<i>Jingxuan Wang, Huawei Li, Zilong Song, Wenda Wang</i>	
Numerical Simulation of Concrete-filled Steel Columns under Static Loads	490
<i>Fangrui Zhang, Chengqing Wu, Hongwei Wang</i>	
Static and Dynamic Performance of ULTRA High Performance Reinforced Concrete Columns	499
<i>Juechun Xu, Chengqing Wu</i>	
Study on Area-based Intensity Measure of Frames for Incremental Dynamic Analysis	506
<i>Ying Zhou, Mengjie Li</i>	
Vibration Response Analysis of Long -span Floors under Human-Induced Loads	517
<i>Min Wang, Na Yang, Qingshan Yang</i>	
Dynamic Characteristics Analysis of a Reinforced Concrete Silo Supported by Columns Using ODE Method	524
<i>Ye Jun Li, Bin Huang, Fei hong Xu, Roohollah Fallahi Seresh</i>	
Bingham Model of MR Damper and Simulink Analysis	530
<i>Shengnan Wang, Hui Luo, Hongping Zhu</i>	

A Numerical Study on the Dynamic Responses of Preloaded Structures with Bolts under Impulsive Loadings.....	540
<i>Zhang QP, Zhou Q, Mao YJ</i>	
Research on Plastic Hinge Length of Concrete-filled Rectangular Steel Tubular Frames	545
<i>Li Bin, Xiaoyun Yang, Chunyan Gao</i>	
Stochastic Response of Nonlinear Systems under Combined Non-Zero Mean Gaussian and Poisson White Noises	552
<i>Haitao Zhu, Yang Ding, Zhongxian Li</i>	
Nonlinear Behaviors of Super-columns: a Three-dimensional Numerical Study	562
<i>Xiaodan Ren, Tiancan Huang, Jie Li</i>	
Influence of Concrete and Frp Tubes Properties on Behavior of FRP-concrete-steel double-skin Tubular Columns Subjected to Cyclic Axial Compression.....	572
<i>Butje Alfonsius Louk Fanggi and Togay Ozbakkaloglu</i>	
Nonlinear Finite-element Analysis on Flexural Behavior of PRE-stressed Steel I-beam with External Tendon.....	581
<i>Hazem Samih Mohamed, Gao Fei</i>	
Web Buckling in Shear Stubs Clustered Distribution Steel-concrete Composite Girder	593
<i>Qifeng Chen, Muyu Liu</i>	
Creep Effect of a Composite Continuous Box-girder Bridge Based on Three Kinds of Concrete Creep Models.....	599
<i>Muyu Liu, Qian Li</i>	
Research of Mechanical Properties of Thin-walled Steel Lightweight Concrete Composite Slab	606
<i>Xintang Wang, Zhengjue Huang and Wanzhen Wang</i>	
Load Carrying Capacity Uncertainty Analysis Based on Augmented Compactly Supported Radial Basis Functions	614
<i>Changfu Hu and Weixin Ren</i>	
Stability and Load Capacity Analyses of Fastener Steel Tube Full-hall Framework Support Systems.....	624
<i>Mingzhi Zhuang, Shengen Fang</i>	
Shear Model Substructure Test Interface Simulation Research	632
<i>Zaixian Chen, Guang Han, Huanding Wang, Bin Wu</i>	
Fracture Parameter Calculation of Stationary Cracks with Extended Finite Element Method.....	645
<i>Ernian Zhao, Weilian Qu</i>	
Load Factor Calibration for Steel Girder Bridges Considering Random Differential Settlement.....	652
<i>Zuocai Wang, Genda Chen, Weixin Ren, Xian Wang</i>	
Study on the Lateral Load Capacity of Dry-stack Infill Frame by Considering the Influence of Rigidity of Beam-Column Connections	662
<i>Peng Liu, Hong-Jun Liu, Kun Lin and Chuan Zhang</i>	

Toward the Design Load Characterization: Applicability of the Aashto Design Live Load on Long-span Cable-stayed Bridges.....	677
<i>Yufen Zhou, Suren Chen</i>	

4 Strcutral Design, Construction and Management

Research and Applications of a Plane Beam Element Model with One is Free and Another is Embedded.....	693
<i>Gang Li, Qinqin Qiao, Lixia Song, Xuemei Zhou</i>	
Method for Tension- shear Strength (Bond Strength) Testing of Anchorage Used Fast Cure Adhesives	699
<i>Qin Wang, Ying Li</i>	
The Synergetic Mesh-free Method.....	706
<i>Bingzhi Xiang, Ling Zhang</i>	
Design and Analysis of Bearing Behaviors of Uplift Piles During Deep Excavation	713
<i>Yibin Wu</i>	
Research on Kiewitt Reticulated Shells of Different Planar Configurations.....	724
<i>Dongzhi Guan, Bin Luo, Mingliang Zhu</i>	
Design of Safety Monitoring System for Banqiao Reservoir Reinforcement Project.....	731
<i>Xuan Zhu</i>	
Research on Mechanical Model of Lead-filled Steel Tube Damper	736
<i>Dehui Lu, Yun Zhou, Chao Zhang, Jingya Hu</i>	
Low Cost and High Quality Project Management.....	746
<i>Lixia Song, Lijun Song, Guizhen Ji</i>	
Numerical Study of Stainless Steel Circular Hollow Section Tubular T-joints	754
<i>Ran Feng, Linlin Liu</i>	
Modified Softened Strut-and-tie Model for RC Exterior Beam-column Joints	763
<i>Guolin Wang</i>	
Out-of-plane Behaviour of Unreinforced Masonry Walls with Topological Interlocking Brick.....	769
<i>Kun Lin, Hongjun Liu, Peng Liu, Yonghong Huang</i>	
State of the Art Bond Behavior between Concrete and Reinforcing Bars Under Dynamic Loads.....	778
<i>Xiangling Gao, Yaoxian Xiang</i>	
Study of Structural Design and Analysis of Deepwater Truss Spars	788
<i>Shisheng Wang, Bin Xie</i>	
Reliability Analysis on Bearing Capacity of Frame Structures with Recycled Aggregate Concrete	795
<i>Jianzhuang Xiao, Kaijian Zhang, Tao Ding, Hongda Zhang</i>	
A Unified Stress-strain Model for Unconfined and Actively Confined Concrete	808
<i>Jian Chin Lim, Togay Ozbakkaloglu</i>	

Research on Static Performance of Sandwich Composite Shear Wall Combined with Cement Formwork and Concrete	817
<i>Xiaoruan Song, Yongmeng Wang, Xiaoyun Zhang</i> <i>Xiao Zhu, Songbing Xu, Chao Yan</i>	
Behavior and Design of Pre-pressed Spring Self-centering Energy Dissipation Brace	826
<i>Longhe Xu, Dengcheng Lu, Zhongxian Li</i>	
Comparison Study of Design Strength in Steel Design Codes of Different Countries	836
<i>Gang Shi, Xi Zhu</i>	
Study on Application of Wooden Frameworks Construction in Course Design of Architecture Major	846
<i>Xueqiang Wang, Lei Cao</i>	
The Potential Application of Contour Crafting in Low Income Housing in China	851
<i>Jun Xiao, Yuzhou Jiang</i>	
Impact Analysis on the Flutter Stability of a Long-span Suspension Bridge during Erection	856
<i>Yan Han, Shuqian Liu, C. S. Cai, Chunguang Li</i>	
Experimental and Numerical Studies on Radial Spherical Plain Bearing Based Articulated Joint Subjected to Radial Loading	870
<i>Weijian Wu, Tao Chen, Xianglin Gu,</i> <i>Jianqiang Ding, Wenping Wu, Lihui Wu</i>	
A CFD Simulation Method for Bridge Scour Development Using Dynamic Mesh Updating Technique	878
<i>Wen Xiong, C.S. Cai</i>	
5 Structural Identification, Condition Assessment and Field Test	
Safety Assessment Method of a Reinforce Long Span Continuous Rigid-frame Bridge	889
<i>Xueyang Huang, Zhanghua Xia</i>	
Mechanical Impedance-based Embedded PZT Sensors for Concrete Structural Damage Detection	898
<i>Demi Ai, Hongping Zhu, Hui Luo, Jingwen Yang</i>	
Research of Structural Damage Identification Method Based on the Substructure Analysis	908
<i>Youliang Fang, Zhuoneng Mao, Zewen Zhu, Shan Wang, Shihui Zhang</i>	
Experimental Study on Damage Identification of Beam Structure Based on Energy Dissipation	914
<i>Chongge Wang, Gang Xue</i>	
Simulation and Parametric Analysis of Critical Temperature of a Single Frame of a Beam String Structure under Fire Conditions	920
<i>Fangfang Wei, Hui Shen, Kun Sun, Huang Zhang, Yang Xu, Benwei Zou</i>	
Seismic Damage Assessment Study on Existing Concrete Frames	931
<i>Xinxiao Chen, Wanjiang Gao, Shuguang Zhou</i>	

Damage Analysis of RC Columns under Close-in Explosions.....	939
<i>Yanchao Shi, Jian Cui</i>	
The Residual Wavelet Force to the Damage Identification.....	949
<i>Yang Chen, Shun Weng, Hongping Zhu, Mingyan Li</i>	
Evaluation of Plastic Energy Dissipation Capacity of RC Beams in Flexure under Variable Amplitude Loading Histories	958
<i>Zhefeng Liu , Haojian Yuan, Mingsheng Duan, Haoran Liu</i>	
Multiple Model Identification of the Structure for Rational Model Selection Method.....	970
<i>Yun Zhou, Liming Xie, Yunzhong Jiang and Weijian Yi</i>	
A Metallic Constitutive Model Considering Damage Evolution and Bilinear Mixed Hardening.....	978
<i>Chao Su, Na Yang, Xiaofeng Wang, Fan Bai</i>	
Force Identification by Kalman Filter Based on Explicit Form of Newmark- β Method.....	986
<i>Mengning Lyu, Siuseong Law, Qingshan Yang</i>	
The Modal Parameter Identification and Crowd-induced Vibration Analysis of Floor of Large-span Waiting Hall	997
<i>Xue Qiu, Na Yang</i>	
Study on a Harmonic Piecewise Linearization-wavelet Transform Method for Identification of Nonlinear Vibration Systems.....	1007
<i>Dongmei Hang, Weixin Ren</i>	
Experimental Research on Detecting Loosened Bolts of a CFSST Frame Based on Modal Analysis	1024
<i>Chengxiang Xu, Bing Yang, Tiequan Ni, Jingjin Xu</i>	
Structural Damage Identification Based on the Anti-resonant Frequency and Least Square Algorithm	1033
<i>Dansheng Wang, Pin Zhou, Wentao Zheng, Hongping Zhu</i>	
Research Review on Mechanical Properties of Critical Joints of Ancient Timber Structure	1041
<i>Qingshan Yang, Juan Wang and Junxiao He</i>	
Experimental Study on the Interactive Buckling of Welded Section Steel Columns under Axial Compression	1062
<i>Gang Shi, Wenjing Zhou</i>	
Research on Resistance Model Uncertainty of High Strength Steel Axial Compression Members	1072
<i>Gang Shi, Xi Zhu</i>	
Numerical Study of the Influences of Prestress Levels on Responses of RC Beams to Blast Loads	1081
<i>Hong Hao, Wensu Chen and Shuyang Chen</i>	
Experimental Research on Composite L-shaped Concrete-filled Steel Tube Short Columns.....	1090
<i>Guofeng. Du, Shuzhen Xu, Xinsong and Chengxiang Xu</i>	
Data Driven Identification of Nonlinear Structural Systems with Partial Response Measurements.....	1098

Sujuan Luo, Ying Lei and Mingyu He

A Two Stage Identification Algorithm for Parametric of Highly Nonlinear Structures with Incomplete Measurements	1104
<i>Ying Lei, Mingyu He and Lijun Liu</i>	

Parametric Identification of Piecewise Linear Systems with Partial Response Measurements: Approach and Validation	1112
<i>Wei Hua and Ying Lei</i>	

A Survey on Damage Detection Methods: Advantages and Shortages	1121
<i>Hadi Kordestani, Yiqiang Xiang, and Xiaowei Ye</i>	

Applications of Synchronous Strain Hammer for Multi-scale Response Reconstruction	1136
<i>Xiaohua Zhang, Youlin Xu, Sheng Zhan, and Songye Zhu</i>	

Damage Assessment Based on Improved Constraint Satisfaction Method and Analytical Redundancy Relations	1144
<i>Bao Zhang, Shengen Fang</i>	

Cause Analysis and Reinforcement Treatment of Floor Crack in a Certain Residential Building.....	1150
<i>Yang Yanmin, Qu Bo, Zhang Runtao and Sun Jianping</i>	

Damage Localization of Long-span Bridges by Integration of Stress Influence Lines and Information Fusion Technique.....	1155
<i>Zhiwei Chen, Qinlin CAI, Songye Zhu, Ying LEI</i>	

Assessment of Pile Capacity of a Super High-rise Dual-tower Building Structure Through Field Testing.....	1169
<i>Yongxin Ji, Zhiyu Xiao, Xingang Li and Jun Chen</i>	

Damage Identification Method of Beam Structures Based on Element Modal Strain Energy Sensitivity Analysis.....	1176
<i>Zhouhong Zong, Longhua Wang, Rumian Zhong, and Peijuan Zheng</i>	

Modal Parameter Identification of a Girder Bridge by Fast Bayesian FFT Method under Ambient Excitation	1190
<i>Peijuan Zheng, Zhouhong Zong, Jianping Han, Rumian Zhong</i>	

On the Assessment of Structural Robustness.....	1204
<i>Yong Lu, Colin Brett, Guoqiang Li, Suwen Chen</i>	

Time-domain Structural Damage Identification: from a Dictionary Learning Perspective	1215
<i>Ying Wang, Tong Zhang and Hong Hao</i>	

Volume II

6 Seismic Analysis and Vibration Mitigation

Numerical Parametric Study of Exposed Column Base Plate Connections	1225
<i>Yao Cui, Satoshi Yamada, Fengzhi Wang</i>	

Analysis of Seismic Response on High-rise Building with Cantilever-toggle-brace Viscous Energy-dissipation Story	1232
<i>Yun Zhou, Shaoming Lin, Xuesong Deng, Chen Gong, Dehui Lu</i>	

Pushover Analysis of the Special-shaped CFST Edge-frame	1240
<i>Wu Kai, Zhang Li, Zhang He, Yu Yi, Wang Rui</i>	
Seismic Fragility Analysis of Adjacent Inelastic Structures Connected with Viscous Fluid Dampers	1247
<i>Qiaoyun Wu, Hongping Zhu, Xuyong Chen</i>	
Reliability Assessment on Progressive Collapse Resistance of RC Frame Structures	1260
<i>Weijian Yi, Jin Zhao, Lei Chen</i>	
Seismic Performances Evaluation of Steel Reinforced Concrete Transfer Structure with Energy Dissipation Haunch Brace	1266
<i>Mingji He, Yi Wu, Vincent W. Lee, Chun Yang, Chunmei Zhang, Lin Chen</i>	
Aseismic Performances of Tai-he Palace in The Forbidden City by Finite Element Analysis	1273
<i>Qian Zhou, Weiming Yan, Jinbao Ji</i>	
Experimental Study on Seismic Behaviors of Reinforced Concrete Frame Structure with Frictionally Damped Infill Wall	1281
<i>Yun Zhou, Yangzhao Guo, Yifa Liao, Guannan Yang</i>	
Research on Natural Vibration Characteristics and Seismic Response of Long-span Prestressed Truss String Structure	1289
<i>Kang Ma, Weibin Li</i>	
Seismic Fragility Analysis of rc Frame under Mainshock-aftershock Seismic Sequences Using Incremental Dynamic Analysis	1297
<i>Junfei Xu, Jun Chen and Guo Ding</i>	
Experimental Study on Seismic Behavior of a New Precast Concrete Beam to Column Connection	1305
<i>Jianbing Yu, Zhengxing Guo, Dongzhi Guan</i>	
Analysis on Seismic Performance of Double Skin Composite Walls Based on Opensees	1313
<i>Lin Chen, Shimin Tong, Shanhu Wu, Yun Zhou</i>	
Response of Base-isolated Nuclear Power Plants under Long Period Ground Motions	1320
<i>Wenguang Liu, Chuan Qin, Wenfu He, Qiaorong Yang</i>	
The Non-linear Analysis of a Tall Building with Large Cantilevered Steel Truss under Expected Rare Earthquake Through Abaqus	1327
<i>Qi Hu, Chen Xiaoming, Duan Jin, Li Yungui, Sun Jianyun</i>	
Study on the Earthquake Control of Coal Gasification High-rise Industrial Structure Complex System with MR Dampers	1334
<i>Yunjia Xu, Xianbing Xu, Longshou Ma, Wenchong Li</i>	
Holistic Seismic Design of Structures Including the Surrounding Effect	1343
<i>Nawawi Choww</i>	
Effects of Ground Motion Characteristics on Structural Response with Primary-secondary Structure Interaction	1353
<i>E. Lim, N. Choww</i>	
The Effects of Supporting Elements on Pounding Response of Adjacent Buildings	1362
<i>Sushil Khatiwada, Nawawi Choww, Tam Larkin</i>	

Experimental Study of Slip-friction Connectors for Controlling the Maximum Seismic Demand of a Liquid Storage Tank	1370
<i>Miguel Ormeño, Tam Larkin, Nawawi Chouw</i>	
Seismic Protection of Building Structure with an Innovative Passive Isolation System	1378
<i>Xi Chen¹, Jiazeng Shan, Weixing Shi</i>	
A New Probabilistic Representation for Non-stationary Ground Motion.....	1387
<i>Zhangjun Liu, Linqiang Wu, Zhou Wang</i>	
Sensitivity of Seismic Fragility of Reinforced Concrete Girder Bridges on the Response Spectrum Mean and Variance of Earthquake Ground Motions.....	1393
<i>Liang Chen, Yueling Jing, Weixin Ren, Min He, Biao Wei, Yifei Zhang</i>	
Numerical Analysis of the Seismic Performance of a Controllable Rocking Reinforced Concrete Frame	1401
<i>Liang Lu, Junjie Chen, Xilin Lu</i>	
Comparative Experimental Study of Vibration Control Effects of Particle Damper and Tuned Mass Damper under Seismic Excitations.....	1412
<i>Zheng Lu, Dianchao Wang, Xilin Lu</i>	
Effects of Fling Step and Forward Directivity on Seismic Response of High-speed Railway Continuous Girder Bridges.....	1419
<i>Chunyu Xia, Qingshan Yang</i>	
A Hybrid Simulation Strategy for the Dynamic Assessment of Long-span Bridges and Moving Traffic Subjected to Seismic Excitations.....	1428
<i>Yufen Zhou and Suren Chen</i>	
Seismic Analysis of R/C Short Column Member with Modified CSMM, FA-STM and RA-STM Theory.....	1442
<i>Ning Li, Zhongxian Li¹, Lili Xie²</i>	
Experimental Study of Seismic Behavior of Pretressed High Concrete Beams.....	1451
<i>Xianguo Ye, Kewei Zhang, Xunchong and Qing Jiang</i>	
The Effect of Traffic Flows on the Vortex-excited Resonance of Bridge	1458
<i>Li C G, Y.Han, D.Tan</i>	
Construction of a Band-variable Filter for Earthquake Records Processing Using Analytical Mode Decomposition Method	1467
<i>Zhixiang Hu, Weixin Ren, Zuocai Wang</i>	
Dynamic Responses and Reliability Analysis of Stochastic Structures under Main Shock-aftershock Seismic Sequences.....	1477
<i>Guo Ding, Jun Chen, Junfei Xu</i>	
Seismic Behaviors of BFRP-retrofitted Earthquake-damaged RC Columns	1488
<i>Gao Ma, Hui Li</i>	
Condition Monitoring of Shear Connection under Ambient Vibrations with Relative Displacements.....	1494
<i>Jun Li, Hong Hao, Weiwei Zhang</i>	
Seismic Performance of RC Buildings with Replaceable Coupling Beams.....	1502
<i>Xilin Lu, Cong Chen, Chen Yun</i>	