

ISEV2013

6th International Symposium on Environmental Vibration

8-10 November 2013, Shanghai, China



CONFERENCE PROGRAM



Organized by
Tongji University, China

Sponsored by
Natural Science Foundation of China
Zhejiang University, China
University of Illinois at Urbana-Champaign, USA
Southwest Jiaotong University, China
Beijing Jiaotong University, China

Supported by
Shanghai Guanglian Construction Development Co., Ltd., China
GERB (Qingdao) Vibration Control Co., Ltd., Qingdao, China
Earth Products China Ltd.





WELCOME MESSAGE

Dear friends and colleagues,

On behalf of the Sixth International Symposium on Environmental Vibration (ISEV2013) organizing committee, I am delighted to welcome you to participate in ISEV2013. The five previous in the series were successfully held in Hangzhou (2003), Okayama (2005), Taipei (2007), Beijing (2009) and Chengdu (2011). Tongji University is honored to host the ISEV2013.

This symposium aims to provide an open forum for specialists, researchers and engineers from all over the world, in which various ideas and experience will be exchanged, with the purpose of promoting the research on prediction, monitoring, mitigation and evaluation of the environmental vibrations caused mainly due to train/road traffic, construction activities and factory operations.

I firmly believe that during ISEV2013, your great contribution will deepen the research in this field and promote the cooperation between different areas and countries.

Welcome to ISEV2013! Welcome to Shanghai!

Guangyun Gao

Chairman of ISEV2013



CONTENTS

Organization.....	2
General Information.....	4
Program Overview.....	7
Open Ceremony.....	8
Keynote Lectures I	8
Parallel Sessions.....	9
Keynote Lectures II	13
Closing Ceremony	13
University Laboratory Tour.....	14



Organization

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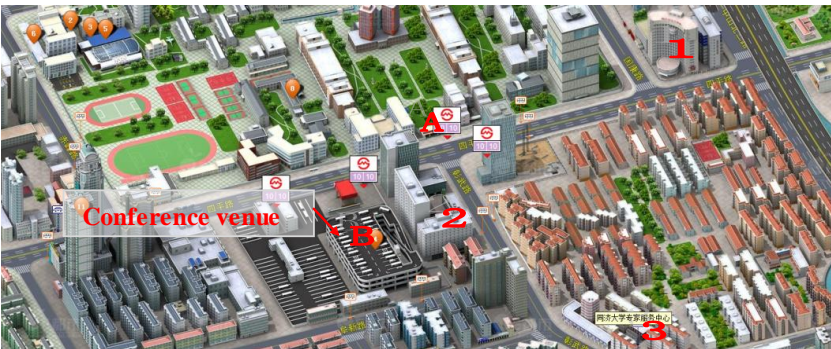
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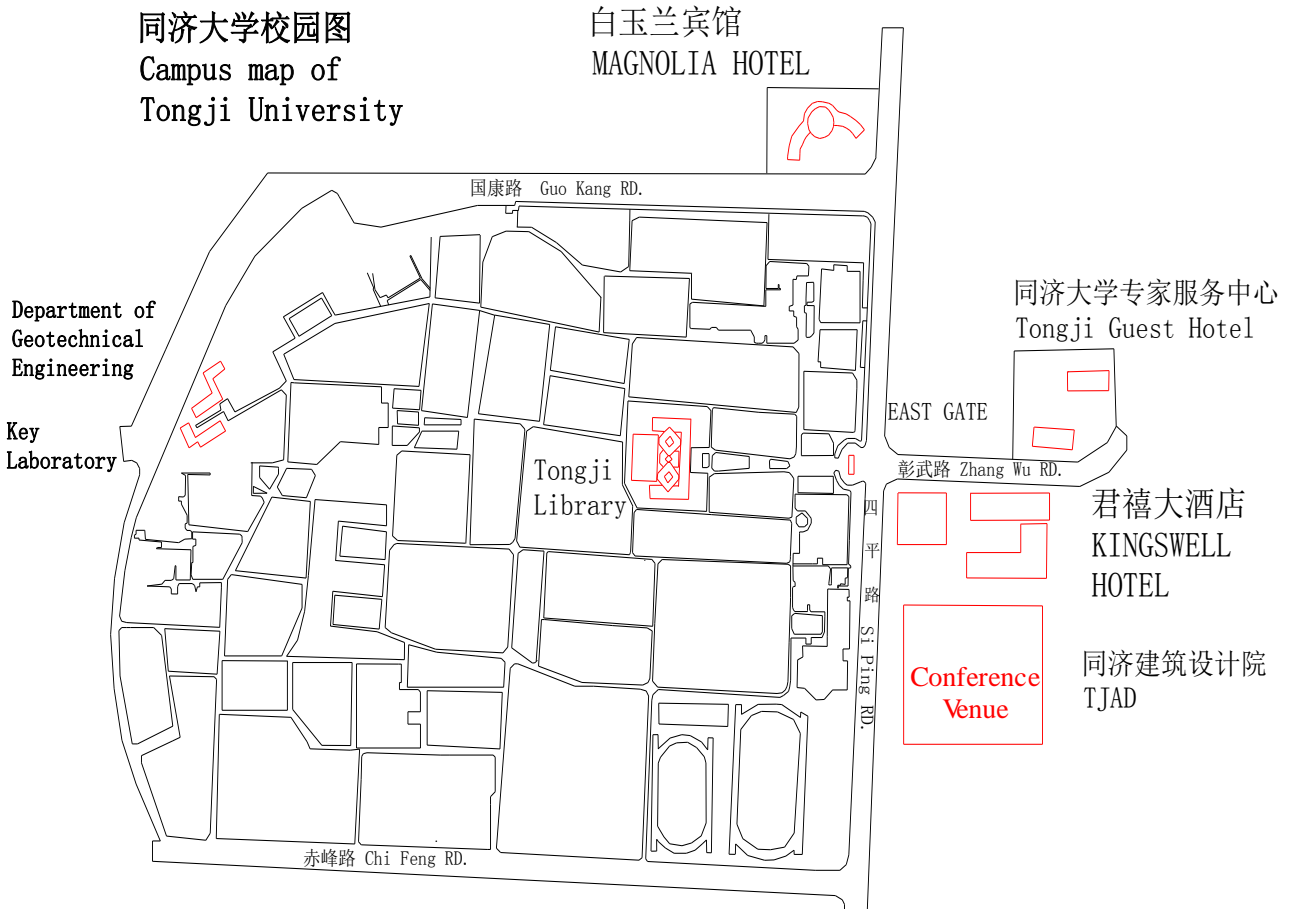
General Information

Venue

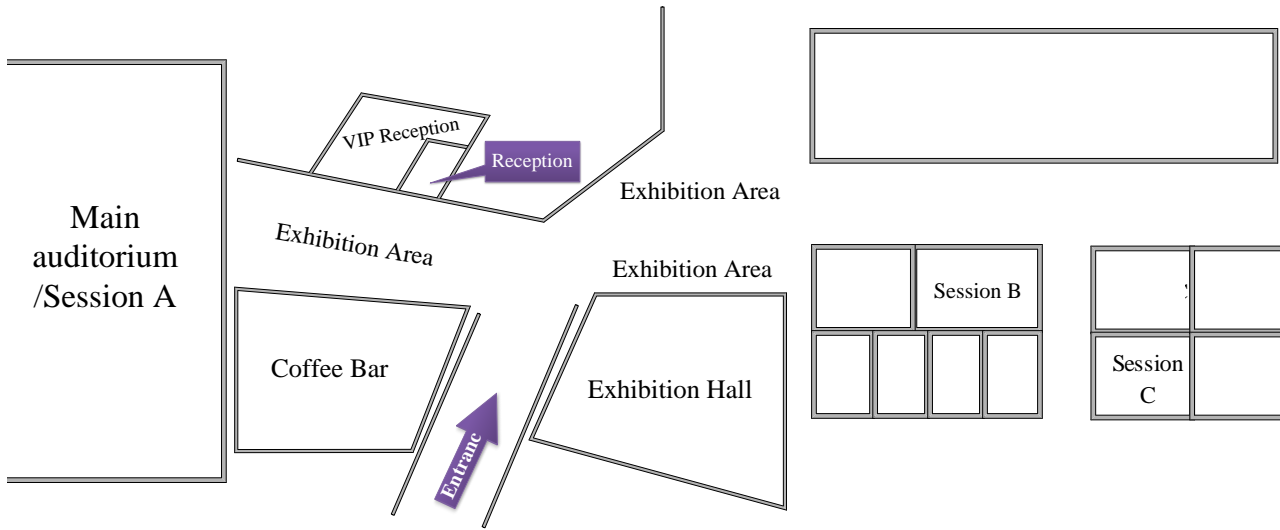
Tongji Architecture Design (Group) Co., Ltd. (TJAD) of Tongji University
1230, Siping Road, Shanghai, China



- 1—Jinjiang Magnolia Hotel
- 2—Kingswell Hotel
- 3—Tongji Guest House
- A—Main gate of campus
- B—TJAD(conference venue)



The Venue Layout



Transportation from airport or railway station to Tongji University

Pudong International Airport	Metro Line 2	70min	(RMB 7) East Nanjing Rd	Metro Line 10	20min	Tongji University
Pudong International Airport	By taxi		(RMB 150)		90min	
Hongqiao International Airport	Metro Line 10		(RMB 5)		60min	
Hongqiao International Airport	By taxi		(RMB 90)		70min	
Shanghai Railway Station	No.115 817 515 Bus		(RMB 2)		45min	
Shanghai Railway Station	By taxi		(RMB 40)		30min	
Shanghai South Railway Station	Metro Line 3	50min	(RMB 7) Chifeng Rd	No.115 817 515 Bus	20min	
Shanghai South Railway Station	By taxi		(RMB 70)		60min	

Registration & Information Desk

The registration point is at the entrance of *Tongji Guest House*.
 Address: 69 zhangwu Road, Yangpu District, Shanghai.



Badges/tickets

Badges, meal and banquet can be collected from registration point.

Lunch & coffee breaks

Coffee, lunches, reception and banquet for November 9th to 10th are all included in the participant's registration fees. The lunch service is from 12:00 to 13:30 at the canteen of Tongji Guest House.

Banquet & Dinner

Banquet & Dinner are all included in the participant's registration fees. The services are from 19:00 to 21:00 at the canteen of Tongji Guest House.

Post office/ATM

The Post Office which is located opposite the Kingswell Hotel is open from 09:00-18:00. And you will find cash dispensing machines (ATM) near the post office.

Liability

The Organizing Committee cannot accept any responsibility for personal accidents or loss/damage of participants' private property. Participants are advised to take out insurance as they consider necessary.

Useful Number

Police: 110/ Fire Emergency: 119/ Hospital: 120.

Emergency contacts

Dr. Xiaoqiang Gu	+86-139-1824-7471
Mr. Zhou Jiang	+86-188-1759-8439
Dr. Shijin Feng	+86-139-1721-4293
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Program Overview

	Friday November 8	Saturday November 9	Sunday November 10	Monday November 11
ISEV2013: 6th International Symposium on Environmental Vibration: Prediction, Monitoring, Mitigation and Evaluation November 8-10, 2013, Shanghai, China	All day registration	08:00–17:30 Registration	08:30–10:10 Parallel Sessions Session S3 Session S4	09:30–11:00 University Laboratory Tour
		08:00–08:30 Opening Ceremony		
		08:30–10:00 Keynote Lectures		
		10:00–10:30 Coffee Break	10:10–10:30 Coffee Break	
		10:30–12:00 Keynote Lectures	10:30–12:20 Parallel Sessions Session S3 Session S4	
		12:00–14:00 Lunch	12:20–14:00 Lunch	
		14:00–15:35 Parallel Sessions Session S1 Session S2	14:00–15:30 Keynote Lectures	
		15:35–16:00 Coffee Break	15:30–15:45 Coffee Break	
		16:00–18:05 Parallel Sessions Session S1 Session S2	15:45–17:45 Keynote Lectures	
				17:45–18:00 Closing Ceremony
19:00–21:00 Dinner	19:00–21:00 Banquet	19:00–21:00 Dinner		

	<h1>ISEV2013 PROGRAMME</h1>
	<p><i>November 8-10, 2013, Shanghai, China</i></p>
<p><i>November 8, Friday</i></p>	
<p>All day</p>	<p>Registration (Dinner is offered by the organizing committee)</p>
<p><i>November 9, Saturday</i></p>	
<p>08:00–17:30</p>	<p>Registration</p>
<p>Keynote Lectures I <i>08:00–12:00, November 9</i></p>	
<p>ROOM A</p>	<p>Chairman: A. Metrikine and J. Yang</p>
<p>08:00–08:30</p>	<p>Opening Ceremony</p>
<p>08:30–09:00</p>	<p>Identification of bridge dynamic properties by moving test vehicle Keynote Speaker: <i>Y.B. Yang</i></p>
<p>09:00–9:30</p>	<p>Numerical simulation of high-speed train induced ground vibration for non-ballasted railway on embankment Keynote Speaker: <i>W.M. Zhai</i></p>
<p>9:30–10:00</p>	<p>Deformation behavior of ballasted track substructure layers serving high speed passenger traffic Keynote Speaker: <i>E. Tutumluer</i></p>
<p>10:00–10:30</p>	<p>Coffee Break</p>
<p>ROOM A</p>	<p>Chairman: G. Degrande and H.L. Liu</p>
<p>10:30–11:00</p>	<p>Dynamic soil-structure interaction: the role of soil nonlinearity Keynote Speaker: <i>J. Yang</i></p>
<p>11:00–11:30</p>	<p>The transition radiation of waves in the ground by a train passing over a ground inhomogeneity Keynote Speaker: <i>A. Metrikine</i></p>
<p>11:30–12:00</p>	<p>Analysis of vibration reduction effect of steel spring floating slab track with finite elements Keynote Speaker: <i>X.Y. Lei</i></p>
<p>12:00–14:00</p>	<p>Lunch</p>

Parallel Sessions

14:00–18:05, November 9

Parallel Sessions 14:00–18:05, November 9	
ROOM B	Session S1: Fundamental Theory and Simulation Method
14:00–15:35	Chairman: K. Hayakawa and W.Q. Ding
14:00–14:20 (Invited)	Influenced factor of site information on the environmental ground vibration Invited Authors: K. Hayakawa, K. Tanaka, S. Honda
14:20–14:35	Analysis of scattering wave field around a cavity with circular cross-section embedded in saturated soil // Authors: B. Xu, M.Q. Xu, Z.F. Xia
14:35–14:50	Optimal time-frequency distribution for analyzing non-stationary signal of ground vibration induced by subway // Authors: B. Zhang, G. Zong, W.B. Li and T.T. Shan
14:50–15:05	Grasp of vibration transfer characteristics from ground to residential house inside by using the developed exciting system for examination of environmental vibration Authors: S. Kunimatsu, Y. Kitamura, Y. Hirao and K. Ohta
15:05–15:20	Harmonic wave diminution and energy scatter in a planar domain with randomly inhomogeneous material density // Authors: J. Nájprstek, C. Fischer, J.D. Yau
15:20–15:35	Surface response analysis excited by an embedded moving load // Authors: T. Qian, M. Mao
15:35–16:00	Coffee Break
16:00–18:05	Chairman: P.A. Costa and X.Y. Xie
16:00–16:20 (Invited)	An efficient numerical model for the simulation of vibrations induced by railway traffic in tunnels // Invited Authors: P. Lopes, P.A. Costa, R. Calçada, and A.S. Cardoso
16:20–16:35	Study of vibration impact on historic buildings induced by subway trains in spatial overlapping tunnels // Authors: M. Ma, W.N. Liu, Y. Yuan, C.Y. Qian and G.H. Deng
16:35–16:50	Study on comparison of ground vibrations induced by metro in curved and straight sections // Authors: Y. Yuan, W.N. Liu, W. F. Liu, Z.Z. Wu and L.X. Ma
16:50–17:05	The influence of train load position on panel contribution to acoustic radiation of viaduct box-beam in high speed railway // Authors: X.A. Zhang, X.W. Yang, G.T. Shi and H.T. Sun
17:05–17:20	Theoretical solution for free vibration of simple-supported girder bridge with continuous deck slab // Authors: C.W. Zhan, Y. Ding, Q. Huang and X.F. Lin
17:20–17:35	Simulation of vibration of the track-embankment on rigid foundation due to moving load by using 2.5D finite element method // Authors: Q.S. Feng, L. Zhang
17:35–17:50	Three dimensional vibration effects of foundation induced by high-speed moving loads // Authors: F.C. Xue, J.M. Zhang
17:50–18:05	Numerical analysis of impact forces between a light truck and high-speed railway bridge pier // Authors: K.P Cui, H. Xia, S. Liu, Z.M. Hou
19:00–21:00	Banquet

Parallel Sessions

14:00–18:05, November 9

Parallel Sessions	
14:00–18:05, November 9	
ROOM C	Session S2: Field Measurement and Evaluation of Environmental Vibrations
14:00–15:35	Chairman: H. Huang and Y. Huang
14:00–14:20 (Invited)	An integrated approach to dynamic analysis of railroad track transitions behavior Invited Authors: <i>D. Mishra, Y. Qian, E. Tutumluer and H. Huang</i>
14:20–14:35	Field tests and analysis of vibration isolation on typical railway ground barriers Authors: <i>C.L. Sun, L. Gao, C.L. Sun</i>
14:35–14:50	Train-induced subgrade vibration level by field experiments Authors: <i>Z.Y. Wang, X.Z. Ling, L.H. Tian, L. Geng, B.H. Maula and Z.Y. Zhu</i>
14:50–15:05	Model test of subgrade's fatigue damage and rheological damage under high speed railway load Authors: <i>J. S. Zhang, X. B. Chen</i>
15:05–15:20	Test and evaluation of vibration environment in low-lying waiting hall of high-speed railway Authors: <i>J. Yin, Y.Q. Yang, P.H. Liu</i>
15:20–15:35	Study on the characteristics of rail corrugation of Beijing Metro based on in-situ dynamic tests Authors: <i>Z.Z. Wu, W.N. Liu, H.G. Zhang and L.L. Du</i>
15:35–16:00	Coffee Break
16:00–18:05	Chairman: R.P. Chen and X.F. Ma
16:00–16:20 (Invited)	Dynamic soil pressure and velocity of slab track-subgrade in high-speed railway Invited Authors: <i>R.P. Chen, X. Zhao, X.C. Bian and Y.M. Chen</i>
16:20–16:35	Study on the vibration caused by subway train and its effect on existing masonry building Authors: <i>Q. Xia, W.J. Qu</i>
16:35–16:50	Cementitiously stabilized materials using ultrasonic testing // Authors: <i>Z.P. Su</i>
16:50–17:05	The research on the dynamic test of the double track channel beam // Authors: <i>G.J. Sun, C. Li</i>
17:05–17:20	Vibration test and analysis of a high-tech electronics plant in Suzhou Authors: <i>Z. Jiang, G.Y. Gao, J. Song and L. Zeng</i>
17:20–17:35	Dynamic response of cylindrical lining in poroelastic saturated half-space soil induced by internal loading // Authors: <i>Y. Wang, G.Y. Gao, J. Lin, M. Gao</i>
17:35–17:50	Field testing research on the vibration influence on the historic and old buildings induced by metro shield construction // Authors: <i>X. Wang, X. Han</i>
17:50–18:05	Seismic response of geosynthetic-reinforced and pile-supported embankment due to oblique incidence of seismic waves Authors: <i>F. Wang, G.Y. Gao, F. Liu, X.J. Gao, G. Shi and T.H. Zhou</i>
19:00–21:00	Banquet



Parallel Sessions

08:30–12:20, November 10

Parallel Sessions	
08:30–12:20, November 10	
ROOM B	Session S3: Structural Dynamics Modeling
08:30–10:10	Chairman: X.C. Bian and W.N. Liu
08:30–08:50 (Invited)	3D reconstruction method to analyze and evaluation ballast gravels Invited Authors: <i>X.C. Bian, G.Y. Li</i>
08:50–09:10 (Invited)	Study on the analytical model of coupled vehicle and track with variable speeds Invited Authors: <i>K.F. Li, W.N. Liu, Z.W. Han and V. Markine</i>
09:10–09:25	Ground vibration analysis caused by China Railway High-speed with track geometric irregularities // Authors: <i>G.Q. Chen, G.Y. Gao, Q.S. Chen and C.B. Yang</i>
09:25–09:40	Computer-vision based 3D discrete element modeling of railroad ballast Authors: <i>W. Li, X.C. Bian, E. Tutumluer</i>
09:40–09:55	Dynamic response of vehicle-bridge system considering soil-structure interaction Authors: <i>Z.H. Zhu, B. Guan, Y.L. Zhu and Z.H. Zhu</i>
09:55–10:10	Vibration characteristics of short floating slab track in metro line Authors: <i>X.W. Yang, S.L. Lian</i>
10:10–10:30	Coffee Break
10:30–12:20	Chairman: J. Yang and Y.L. Pi
10:30–10:50 (Invited)	Dynamic buckling analysis of an arch model Invited Authors: <i>Y.L. Pi, M.A. Bradford, Y.L. Guo and C. Dou</i>
10:50–11:05	Study on wheel/rail acoustic radiation of trough Girder Bridge for urban rail transit Authors: <i>K.B. Li, N. Zhang, H. Xia</i>
11:05–11:20	Numerical analysis on reasonable design of physical model of High Speed Railway Authors: <i>C. Cheng, J.Q. Jiang, X.C. Bian</i>
11:20–11:35	Mechanical analysis of rail pad subjected to a moving train load Authors: <i>H.F. Dai, G.Y. Gao, J. Song and L. Zeng</i>
11:35–11:50	A simplified solution for the torsional response of PCC pile in saturated soil Authors: <i>C.J. Zheng, X.M. Ding, H.L. Liu and Q. Fu</i>
11:50–12:05	Vibration analysis for vehicle-bridge interaction by Duhamel integral method Authors: <i>H. Qiao, H. Xia, X.T. Du & Q. Cheng</i>
12:05–12:20	Study on rail corrugation due to train/track dynamic interaction based on in situ tests Authors: <i>H.G. Zhang, W.N. Liu, K.F. Li</i>
12:35–14:00	Lunch

Parallel Sessions

08:30–12:20, November 10

Parallel Sessions 08:30–12:20, November 10	
ROOM C	Session S4: Control and Mitigation Measures of Environmental Vibration
08:30–10:05	Chairman: W.P. Xie and J.G. Qian
08:30–08:50 (Invited)	Numerical simulation of the vibration isolation via a new type of pile structure: the linked pile row // Invited Authors: J.F. Lu, X. Zhang
08:50–09:05	In-situ test and numerical evaluation of active vibration isolation by WIB under horizontal excitations // Authors: G.Y. Gao, N. Li, S.Y. Li and J.G. Zheng
09:05–09:20	Innovative research and application of FST—prefabricated slab Authors: J.L. Wang, G.F. Chen, J. Wang
09:20–09:35	Wave propagation in a concrete filled steel tube due to transient impact load Authors: X.M. Ding, Y.M. Fan, G.Q. Kong, C.J. Zheng
09:35–09:50	Three-dimensional analysis of active isolation by closed square open trenches using grid method Authors: H. Xiong, G.Y. Gao, H.Q. Zhang
09:50–10:05	Experimental study on vibration and sound radiation reduction of ring damping wheels // Authors: J. Han, X.B. Xiao, R.Q. Wang, X.S. Jin, X.J. Yin and X.L. Gao
10:05–10:30	Coffee Break
10:30–12:20	Chairman: J.F. Lu and G. Shi
10:30–10:50 (Invited)	2-D analysis of open trench as active barriers due to point load in saturated soil Invited Authors: G. Shi, G.Y. Gao, Y.C. Guo, T.H. Zhou
10:50–11:05	Study on ground vibration isolation by open trench in layered soils Authors: G.Y. Gao, H. Zhao, J. Song and C.B. Yang
11:05–11:20	Accumulative settlement of saturated silt subgrade under cyclic traffic-loading Authors: X. Xu, H.G. Jiang, X.C. Bian, Y.M. Chen
11:20–11:35	A resonance case of high-rise buildings and industrial machines // Authors: P. Zhao
11:35–11:50	Influence of traffic load-induced principal stress rotation on accumulative deformation and pore water pressure of soft clay // Authors: J.H. Xiao, S.Q. Xu, K. Wei
11:50–12:05	Damage detection of metro tunnel structure through cross correlation analysis Authors: L. Feng, X.Y. Xie
12:05–12:20	Test on rubber isolator of brick masonry rural residence building Authors: X.M. Zhou, S.Z. Shi, P. Xu
12:20–14:00	Lunch

<i>November 10, Sunday</i>	
Keynote Lectures II	
<i>14:00–17:45, November 10</i>	
ROOM A	Chairman: Y.J. Cui and M.S. Huang
14:00–14:30	Mitigation of railway induced vibrations using stiff wave barriers Keynote Speaker: <i>G. Degrande</i>
14:30–15:00	Dynamic performance of ballastless high-speed railways from a full-scale accelerated railway testing (ART) Keynote Speaker: <i>Y.M. Chen</i>
15:00–15:30	Ambient vibration testing of a large truss bridge with optimal sensor placement Keynote Speaker: <i>G. De Roeck</i>
15:30–15:45	Coffee Break
ROOM A	Chairman: E. Tutumluer and R.P. Chen
15:45–16:15	Field investigation of interlayer soil behavior in ancient railway track substructures Keynote Speaker: <i>Y.J. Cui</i>
16:15–16:45	Dynamic analysis of train-bridge system and its application to bridge design for high-speed railways in China Keynote Speaker: <i>N. Zhang</i>
16:45–17:15	Vibrations of a saturated poroelastic half-space generated by high-speed trains and the countermeasures Keynote Speaker: <i>Y.Q. Cai</i>
17:15–17:45	Analysis of traffic-load-induced permanent settlements in soft clay ground Keynote Speaker: <i>M.S. Huang, J.G. Qian</i>
Closing Ceremony	
<i>17:45–18:00, November 10</i>	
19:00–21:00	Dinner



University Laboratory Tour

Gathering Place

We provide university laboratory tours for our participants at 9:30-11:00 on November 11. If you are interested, please gather at 09:00 at the gate of Tongji Guest House. The students will bring you to the laboratories and the staffs will provide brief introductions.

Schedule

Time	Sites	Coordinator
09:30 –10:00	Shaking Table Laboratory	Dr. GU Xiaoqiang 20437601@qq.com
10:00 –10:30	Geotechnical Centrifuge	Dr. GU Xiaoqiang 20437601@qq.com
10:30 –11:00	Laboratory of Soil Dynamic	Dr. GU Xiaoqiang 20437601@qq.com

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哪里有 振动噪声干扰, 哪里就需隔而固



● 英国 曼彻斯特Bridgewater音乐厅
(2400座) 1996年竣工



● 英国曼彻斯特 支承在3.5Hz隔振系统上的Bridgewater音乐厅

隔而固(青岛)振动控制有限公司

哪里有 振动噪声干扰, 哪里就需隔而固

- 澳大利亚悉尼 2幢弹性支承的个人演唱厅, 1999年竣工, 设计载荷为14000KN, 弹簧隔振器安装在凹形柱顶上, 图示为隔振器上面的模板施工。



- 中国香港 葵青文化中心, 900个座位, 设计承重300,000KN。



Dynamic Triaxial Systems

动三轴测试系统



品牌：英国GDS
型号：DYNTTS

研究型动态三轴系统，
动态频率最大10Hz；

荷载最大可选60kN；

适合试样尺寸38-150mm，
可定制；

正弦波、半正弦波、
三角波和方波；

可自定义波形。



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