GEOCHINA 2016

INTERNATIONAL CONFERENCE

Sustainable Civil Infrastructures: Innovative Technologies for Severe Weathers and Climate Changes

CONFERENCE PROGRAM

SHANDONG, CHINA• JULY 25 – 27, 2016

Hosted by

SHANDONG UNIVERSITY

Co-Sponsors

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

G-I GEO-INSTITUTE

TRB

U.S. Department of Transportation Federal Highway Administration

Texas Transportation Institute

SSIGE

DFI

SIMSG ISSMGE

SOUTHERN PLAINS TRANSPORTATION CENTER

SMIG

山东高速 SDHS

JSTI 苏交科

HBRC

ISAP

ILISO

沧州市政 CANGZHOU MUNICIPALITY

GeoChina International Conference

Sustainable Civil Infrastructures: Innovative Technologies for Severe Weathers and Climate Changes
Shandong, China •July 25-26, 2016

Invitation

On behalf of the Organizing Committee, we are pleased to invite you to attend the 4th GeoChina International Conference 2016 to be held in Shandong, China from July 25 to 27, 2016. This Sustainable Civil Infrastructures using Innovative Technologies and Material is endorsed by a number of leading international professional organizations.

This conference will provide a showcase for recent developments and advancements in design, construction, and safety Inspections of transportation Infrastructures and offer a forum to discuss and debate future directions for the 21st century. Conference topics cover a broad array of contemporary issues for professionals involved in bridge, pavement, geotechnical, tunnel, railway, and emerging techniques for safety Inspections. You will have the opportunity to meet colleagues from all over the world for technical, scientific, and commercial discussions.
Shandong, with a history of more than 5,000 years, is considered one of the birthplaces of Chinese civilization. It is being developed into a modern international economic, financial, and trade center. Recent rapid construction in

China has provided great opportunities for bridge, pavement, geotechnical, and tunnel engineers to use their knowledge and talents to solve many challenging problems involving highway bridge structures, pavements, materials, ground improvement, slopes, excavations, and tunnels with innovative solutions and cutting-edge technologies.

Secretary Generals

Dar Hao Chen, Ph.D., P.E.
Dr. Zhanyong Yao Ph.D.
GEOCHINA.ADM@GMAIL.COM

Co-Sponsors

ASCE Geo-Institute, USA
Cangzhou Municipal Engineering, China
Chaoyang University of Technology, Taiwan
ChuHai College of Higher Education, Hong Kong
Colombian Geotechnical Society, Colombia
Deep Foundation Institute, USA
East China Jiaotong University, China
Federal Highway Administration, USA
Housing and Building Natl. Res. Center, Egypt
ILISO (Z) Ltd Consulting Engineers, Zambia
International Grooving & Grinding Association, USA
International Society for Asphalt Pavements (ISAP), USA
Int. Society for Soil Mechanics and Geotechnical Eng. (ISSMGE) TC 202 Transportation Geotechnics Committee. UK
Jiangsu Transportation Institute, China
National United University, Taiwan
Shandong High Speed Group, China
Shandong Transportation Institute, CHina
Sociedad Mexicana de Ingeniería Geotécnica (SMIG), México
Soil-Structure Interaction Group in Egypt (SSIGE), Egypt
South China University of Technology, China
Southern Plains Transportation Center (SPTC), USA
Texas Transportation Institute, USA
Tongji University, China
Transportation Research Board (TRB), USA
University of Oklahoma, College of Engineering, USA

Exhibitors

Campbell Scientific (Beijing) Co., Ltd. 康宝贝莱科技（北京）有限公司
Cangzhou Municipal Engineering 沧州市政工程公司
Geobrugg Chengdu Co. Ltd. 布鲁克（成都）工程有限公司
Crafco, Inc. 科来福（无锡）路面养护设备有限公司
Thrace Nonwovens & Geosynthetics S.A.
Measurand Inc. 北京博安达测控科技有限责任公司
Tiptop China Ltd. 上海卓致力天科技发展有限公司
Taishan Fiberglass Inc. 泰安玻纤股份有限公司

Exhibitors

CAMPBELL SCIENTIFIC WHEN MEASUREMENTS MATTER
GEOBRUGG BRUGG
CRAFCO INC
THRACE GROUP A WORLD OF MATERIALS & SOLUTIONS
北京博安达测控科技有限责任公司 Beijing SAA measure &Control Tech Ltd.
TIPTOP 卓致力天 TIPTOP China Limited (www.tiptoptest.com) 道路测试技术领先者 The Leader In Road & Highway Testing Technology
SINOMA 中国中材 泰山玻璃纤维有限公司
沧州市市政工程公司 CANGZHOU MUNICIPAL ENGINEERING COMPANY

CONFERENCE PROGRAM AT A GLANCE

Time	Day 1 (July 25)			
08:30 AM 10:00 AM	**Opening Ceremony+ Keynote Speech (Moderator – Prof. Behzad Fatahi, University of Technology, Sydney, Australia)**			
10:00 AM 10:20 AM	**BREAK**			
10:20 AM 11:50 AM	**Keynote Speech (Moderator – Prof. Dingxin Cheng, California State University-Chico USA)**			
11:50 AM 13:10 PM	**LUNCH**(Complimentary)			
	Session One (RM#1)	Session Two (RM#2)	Session There (RM#3)	Session Four (RM#4)
13:10 PM 15:00 PM	Behaviour of Geomaterials and Foundations for Civil Infrastructure Applications (6papers)	Emerging Technologies in Tunnel Engineering Modelling, Design, Construction, Repair, and Rehabilitation (6 papers)	Innovative and Sustainable Solutions in Asphalt Pavements (5papers)	Innovative Technologies for Severe Weathers and Climate Changes (6 papers)
15:00 PM 15:30 PM	**BREAK**			
15:30 PM 17:30 PM	Innovative and Sustainable Use of Geomaterials and Geosystems (6 papers)	New Frontiers in Civil Infrastructures (6 papers)	Advances in Pavement Engineering and Ground Improvement (6 papers)	Resilient Railroad Materials & Structures – Innovative Solutions to Mitigate Climate Change (6papers)
18:30 PM 20:30 PM	**RECEPTION BANQUET**			

Time	Day 2 (July 26)		
	Session One (RM#1)	Session Two(RM#2)	Session Three(RM#3)
08:15 AM 09:50 AM	Advances in Numerical and Experimental Analysis of Transportation Geomaterials and Geosystems for Sustainable Infrastructures-1 (5 papers)	Geosynthetic Civil Infrastructure, Disaster Monitoring, and Environmental Geotechnics (5 papers)	Work Shop
09:50 AM 10:20 AM	**BREAK**		
10:20 AM 11:50 PM	Advances in Numerical and Experimental Analysis of Transportation Geomaterials and Geosystems for Sustainable Infrastructures-2 (5 papers)	Material, Design, Construction, Maintenance, and Testing of Pavement -1 (6papers)	Work Shop
11:50 PM 13:20 PM	**LUNCH**(Complimentary)		
13:20 PM 14:50 PM	Advances in Numerical and Experimental Analysis of Transportation Geomaterials and Geosystems for Sustainable Infrastructures-3 (6 papers)	Material, Design, Construction, Maintenance, and Testing of Pavement -2 (6papers)	Sustainable Civil Infrastructures: In-situ and Laboratory Test Methods for Site Characterization, Design, and Quality Control (6 papers)
14:50 PM 15:10 PM	**BREAK**		
15:10 PM 16:40 PM	Miscellaneous topics on Geotechnical Engineering (5 papers)	**Poster Session: RM #4** (31 papers)	
16:40 PM 18:20 PM	**Touring Laboratory at Shandong University**		

Honored Chair

Dr. Qian Qi-Hu is a renowned protection engineering specialist, military engineering specialist, educator, and academician at The Chinese Academy of Engineering in China. He is the first person to apply the finite dynamic element stress analysis on protective doors in China. Applying operations research to determine the failure probablity of protection engineering works, proving and compairing resistance forces. Creating the soft science research in national and civil defense for China. Dr. Qian Qi-Hu established the structure interactional calculation theory for soil with three variances, and the theory for protective structure probabilistic designs. Presided over the implementation of the world's largest multi-dose multi-column Linear Charge cavern blasting - Zhuhai Fortress blasting. Chaired the National Advisory research for "21st Century China Urban Underground Development Strategy and Measures".

Keynote Speech

July 25, 2016, 8:30 AM-11:50 PM

Speech 1: Geotechnical Considerations for Mega Projects in Mexican Infrastructures

Presentation Summary

In Mexico, there are several mega civil infrastructure projects, located in challenging geotechnical conditions. Examples include, a 225 km long subway system, developed between 1969 and 2012 on very soft clay in Mexico City and a project for the New Mexico City Airport, with 6 runways in a site with extremely soft clay, with high water content, low resistance, and poor characteristics in deformability. Additional examples of geotechnically challenging mega projects include high dams, such as the 261-meter-high Chicoasen Dam, constructed in 1980 with rockfill with clay core and the 187-meter-high Aguamilpa Dam, a concrete face rockfill dam (CFRD) constructed in 1997. Both these dams were the highest dams for their types at the time of their construction and were followed by other very important dam constructions, such as the El Cajon and the La Yesca dams, with 188 and 220 meters of height, respectively.

In addition to the challenging soil conditions, each of these projects has a common adverse factor in the form of seismic activities. Mexico City and the East and South regions in Mexico can be under a very strong motion from seismic activities.

Dr. David Yanez is a Mexican Civil Engineer with Ph.D. degree from the Universidad Anahuac, Mexico. Dr. Yanez is Engineering Manager in GRUPO-OMEGA, a Construction firm in Mexico. Dr. Yanez was the President of the Mexican Society of Geotechnical Engineering during 2013-2014. He had published 31 technical papers in various national and international proceedings.

Dr. Yanez has 26 years of professional experience in management and design of mega projects. Dr. Yanez was the Engineering Director for ICA, the largest Construction firm in Mexico. He also participated in analysis and design of projects in Latin America and India.

Speech 2: The Future of Design: The Role of Instrumentation and Feedback in Heavy Civil Engineering

Presentation Summary

Civil Engineering design in the United States has gone through amazing evaluation over the last few decades, going from hand drafting to BIM and 3-D printing and from optical surveying to GIS and remote sensing. At the same time, the design and operating procedures are still very much based in prescriptive code based design. The designers still tend to take a more “design-build-walk away” approach towards their projects, while the clients are focusing more on life cycle implications of design and construction with the development of the Internet of Things and Smart Infrastructure. Large infrastructure managers are beginning to look at their systems holistically; collecting key performance metrics on systems, which in turns has resulted in a doubling of utilization of data acquisition equipment in heavy civil engineering applications in recent years. This is interesting because many of these decisions are being made in response to demands that come from stakeholders who are not engineers—owners and politicians and managers who understand what they want to know so that they can effectively manage their infrastructure inventory, but that do not understand how to get those data.

Civil engineers are the right professionals to be doing the necessary work, but there is a disconnect in the expertise. The focus of this presentation s to help civil engineers understand how instrumentation is evolving, and how to develop the skills and expertise necessary to do this work.

Dr. Shaun Dustin, PE has been a practicing civil engineer for 18 years, with projects ranging from remediation design for 3-Mile Island nuclear waste containment to structural design on the Space Mountain roller coaster at Disneyland, water resource engineering, and energy development, and since joining Campbell Scientific in 2012, instrumentation design for geotechnical and structural projects around the world. He also serves as an adjunct faculty member in the Departments of Civil and Environmental Engineering Utah State University.

Shaun enjoys strategic thinking, leadership, and public service. He has served on technical and leadership committees for the American Society of Civil Engineers and the American Society of Agricultural and Biological Engineers. He currently serves as the Mayor of Nibley, Utah.

Speech 3: Ahead geological prospecting during tunnel construction

Presentation Summary

Ahead prospecting water and mud inrush is an essential part in tunnel construction, which plays an important role in tunnel information construction, disaster prevention and safety guarantee. To solve the prospecting problem with complex environment in tunnel, ahead 3D IP, tunnel seismic prospecting and multi-point array TEM are introduced into tunnel for prospecting adverse geology. For drilling and blasting tunnel, moving same-polarity sources array method (MSSAM) is put forward, and it has the advantages of forward focusing and backward shielding. Through discussing relationship between water volume and IP decaying information, estimating water volume of water-bearing structure method is proposed. For TBM tunnel, MSSAM provide a useful approach for ahead prospecting in TBM tunnel. TBM equipped 3D IP prospecting method is applied for prospecting geology in field engineering. The seismic method and bore-hole GPR are suggested to be chosen for TBM. In order to suppress the multiplicity of inversion result, jointed tunnel seismic prospecting, multi-point array TEM with ahead 3D IP, the four-stage integrated prospecting system for tunnel is established. The joint inversion with prior structural information constraint is introduced to furtherly reduce multiplicity. Field tests show that multiplicity is reduced and detection accuracy is improved by integrated prospecting, it provide a feasible way for prospecting water and mud inrush in tunnel.

Prof. Shucai Li, is the vice president of Shandong University, deputy chairman of Chinese society for rock mechanics and engineering, editor of Journal of Tunneling and Underground Space Technology, associate editor of Chinese Journal of Rock Mechanics and Engineering.

Professor Li's research interests mainly focus on the unfavorable geology forecasting for underground construction, water and mud burst disaster forecasting and treatment. Professor Li developed the forecasting theory, method, and technology for geological hazards including water and mud burst disaster during tunnel construction. Professor Li invented the method and instrument to estimate the amount of water ahead of tunnel. The developed theory, method, and instruments have been successfully and widely used in tunneling construction projects. These applications assured the safety of tunneling construction and avoid the serious geological hazards.

Speech 4: Productivity of The Transportation Infrastructure System

Presentation Summary

Productivity is defined as the state or quality of yielding results or benefits to the satisfaction of wants or the creation of utilities. Combined with transportation infrastructure, the term (Transportation Infrastructure Productivity - TIP) thus contains the idea that said infrastructure should be used to the benefits and satisfaction of that which is being transported, be it people or goods. Provision, operations and maintenance of transportation infrastructure is typically the focus of engineers. However, many issues can cause this infrastructure to be less productive than it should be, and therefore lead to wastage.

This lecture focuses on aspects of the transportation infrastructure lifecycle where improved productivity can be defined, measured and used to the benefit of society. It starts with analysis of construction productivity, with specific reference to the use of appropriate materials to construct sustainable infrastructure. In the maintenance phase the focus is on the effect that road maintenance scheduling can have on road user experiences and productivity, as well as the effect of adequate road maintenance on the cost of transportation of agricultural freight and the potential damage caused to such freight. The operations phase focuses on evaluation of the effect of traffic light synchronization on transportation efficiency and the difference that performance-based standards for trucks can have on road safety and productivity. The concepts are illustrated through reference to data from case studies in South Africa.

Prof. Wynand Steyn is Head of Department (HOD) of the Department of Civil Engineering and full professor (focusing on road pavement related subjects) at the University of Pretoria. He is a professional pavement engineer with a research interest in vehicle-pavement interaction, accelerated pavement testing, pavement engineering, pavement materials and instrumentation. He has authored and co-authored 26 journal papers, 18 book chapters and 86 conference papers. He is Associate Editor of the International Journal for Pavement Engineering and has a B3 National Research Foundation (NRF). He is a Member of the South African Institution of Civil Engineers.

PRELIMINARY TECHNICAL PROGRAMME

TECHNICAL SESSIONS (DAY 1: July 25, 2016, 13:10 PM - 15:00 PM)

Session One (RM#1): ***Behaviour of Geomaterials and Foundations for Civil Infrastructure Applications***
Moderators: Behzad Fatahi, Ph.D. University of Technology Sydney, Australia
Jia-Ruey Chang Ph.D. National Ilan University, Taiwan

233	***Multi-Scale Analysis of Deformation Modes in Granular Material Using a Dynamic Hybrid Polygonal Finite Element-Discrete Element Formulation,*** Brandon Karchewski, Peijun Guo, and Dieter Stolle, ***Canada***
311	***A Novel Model to Simulate Behaviour of Cement Treated Clay Under Compression and Shear,*** Lam Nguyen, Behzad Fatahi, and Hadi Khabbaz, ***Australia***
324	***Chemo-Mechanical Approach to Modelling Expansive Behavior of Sulfate Bearing Soils: The Role of the Crystallization Pressure in Ettringite Formation,***Pawan Sigdel and Liang Bo Hu, ***USA***
334	***Influence of Soft Soil Shear Strength On Seismic Response of Concrete Buildings Considering Soil-Structure Interaction,*** Ruoshi Xu, Behzad Fatahi, and Aslan S. Hokmabadi, ***Australia***
459	***Tunneling Beneath Existing Buildings Supported on Shallow Foundations,*** C. F. Leung, J Yu, Y. K. Chow, Y. S. Ng, H. T. Tan and C. J. Hua, ***Singapore***
998	***Influence Of Shallow Foundation Characteristics On Seismic Response Of Mid-Rise Buildings Subjected To Strong Earthquakes,*** Quoc Van Nguyen, Behzad Fatahi, and Aslan S. Hokmabadi, ***Australia***

Session Two (RM#2): Emerging Technologies in Tunnel Engineering Modelling, Design, Construction, Repair, and Rehabilitation
Moderators: Xu Changjie Ph.D., East China Jiaotong University, China
James C. Ni, Ph.D., P.E. National Taipei University of Technology, Taiwan

154	***The effects of Relative Tunnel Depth and Volume Loss on Vertical Settlements Above Tunnels in Dense Sands,*** Andrea Franza, Bo Zhou and Alec M. Marshall***, United Kingdom***
355	***Plasticity Solutions of Undrained Cavity Contraction for Prediction of Soil Behaviour around Tunnels***, Pin-Qiang Mo and Hai-Sui Yu, ***United Kingdom***
906	***Jet-grouted wall in mitigating tunnelling effects on adjacent structures***, Jinyang Fu, Junsheng Yang, Shuangting Zhu, ***China***
809	***Effectiveness of Buttress and Cross-wall in Deep Excavation,*** Shong-Loong Chen, Cheng-Tao Ho, Chia-Yu Yeh and Meen-Wah Gui,***Taiwan***
840	***A Case Study for Escape Routes Optimization after Water Inrush in a Backward Excavated Karst Tunnel,*** S.C. Li, J. Wu, Z.H. Xu, L.P. Li, X. Huang, Y.G. Xue, Z.C. Wang, ***China***
1007	***Effects of cut-and-cover tunnel construction on adjacent piles of an overpass in Bangkok soft clay,*** Zaw Zaw Aye, Thayanan Boonyarak,***Thailand***

Session Three (RM#3): Innovative and Sustainable Solutions in Asphalt Pavements
Moderators:Dharamveer Singh, Ph.D. Indian Institute of Technology Bombay, India
Chichun Hu, Ph.D.South China University of Technology, China

482	***Moisture Susceptibility of Crumb Rubber Modified Binder Containing WMA Additives Using Surface Free Energy Approach,*** Ayyanna Habal and Dharamveer Singh,***India***
751	***A New Method for Characterizing Coarse Aggregate Morphology through MATLAB Program,***Fanyuan Gong, Shun Yao, Yu Liu, Hainian Wang,***China***
752	***Development of Performance Models for Rubberized Asphalt Concrete of Local Agencies in California,*** DingXin Cheng, R. Gary Hicks, and Lerose Lane***, USA***
1068	***Innovative System Design for Road Pavement Crack and Joint Maintenance,***Chao Wang, JeeWoong Park, and Yong K. Cho, ***USA***
1077	***Reclaimed Asphalt Pavements and Contaminant Leaching: A Literature Review Study***, Irina Holleran, Douglas J. Wilson, Glynn Holleran, & Lubinda F. Walubita, ***NewZealand***

Session Four (RM#4): Innovative Technologies for Severe Weathers and Climate Changes
Moderators: Sherif El-Badawy, Ph.D.Mansoura University, Egypt
DingXin Cheng, Ph.D., PE.California State University, Chico, USA
Zhi Ge Ph.D. Shandong University, China

321	***Investigation of the Effects of Type of Crusher on Coarse Aggregates Shape Properties Using Three-dimensional Laser Scanning Technique,*** Julius Joseph Komba,***South Africa***
308	***Using Artificial Neural Networks (ANNs) for Hot Mix Asphalt E* Predictions,*** Sherif M. El-Badawy, Ahmed M. Khattab, Al Abbas Al Hazmi, ***Egypt***
481	***A Study on Rheological Performance of Nanoclay Modified AsphaltBinder using Brookfield Viscometer and Dynamic Shear Rheometer,*** Prabin Kumar Ashish, Dharamveer Singh, Siva Bohm,***India***
490	***Geotechnical characterisation of soft clay treated with bottom & fly ash mixture,*** Ranga Swamy K***, India***
502	***Accelerated Damage Testing Method for Evaluating Service Performance of Asphalt Pavement Affected by Acid Rain,*** Liang Xue, Kwok-leungPun, Gang Li, Sizeng You, ***Hong Kong***
731	***Measuring Thermal Properties of Pavement Materials,*** Wei Geng, Michael Heitzman,***China***

TECHNICAL SESSIONS (DAY 1: July 25, 2016, 15:30 PM – 17:30 PM)

Session One (RM#1): ***Innovative and Sustainable Use of Geomaterials and Geosystems***
Moderators: Wen-Chieh Cheng, Ph.D. Ove Arup & Partners HK LTD, Hong Kong
Jason Y. Wu, Ph.D., P.E.Chung Hua University, Taiwan

514	***NOx reactive concrete mortar with TiO2 in wet condition***, Dawa Seo, Tae Sup Yun, ***South Korea***
736	***Influence of Pore size Distribution on Properties of Stabilized Soil Cement System,***Bishwajit Bhattacharjee, ***India***
744	***Influence Factors for Microbial Induced Calcite Precipitation in Sands,*** Naga Venkata P Velpuri, Xinbao Yu, Hae-In Lee, Woo-Suk Chang, ***USA***
115	***Using the Micropiles Technique as a Settlement Control Tool in the Underpinning of Limited Headroom Cases,*** Rami Bakr,***Egypt***
847	***Application of Coal Fly Ash to Replace Lime in Management of Reactive Mine Tailings,***Julie Q. Shang, ***Canada***
1003	***Seismic Soil Liquefaction Potential Assessment Using Multi Gene Entropy Analysis,*** S.R. Pathak, A.N. Dalvi, ***India***

Session Two (RM#2): ***New Frontiers in Civil Infrastructures***
Moderators: David Yanez, Ph.D.GRUPO-OMEGA, Mexico
Zhen Leng, Ph.D. Hong Kong Polytechnic University. Hong Kong

580	***Pseudostatic Analysis of Coupled Building-Foundation-Slope System for Seismic and Gravity Actions,*** Dhiraj Raj and Yogendra Singh, ***India***
720	***Development of the ground movements due to tunneling prediction model using random forests,*** Jian Zhou, Xiuzhi Shi, Kun Du, Xianyang Qiu, Xibing Li, and Hani S. Mitri, ***China***
369	***Installation Effect of Controlled Modulus Columns on Nearby Existing Structures ,*** Huu Hung Nguyen, Hadi Khabbaz, Behzad Fatahi, Roger Santos, Michael Marix-Evans, and Philippe Vincent,**Australia**
725	***Dynamic Distribution of Voidage in Longwall Coal Mining-disturbed Strata,*** ShaoFeng Wang and XiBing Li, ***China***
748	***Instability of Moni Pile in Flexural and Buckling modes due to Lateral Spreading,*** P Ravi Prakash and Amit Prashant, ***India***
884	***Choice criteria for bridge foundation type on variable soil strata,*** Elzain M.I.Y., and Dafalla M, ***Saudi Arabia***

Session Three (RM#3): Advances in Pavement Engineering and Ground Improvement
Moderators: Hadi Khabbaz, Ph.D.University of Technology Sydney, Australia
BooHyun Nam, Ph.D. University of Central Florida, USA

262	***On the Response of Ibese Shale to Coconut and Rice Husk Ash Treatment,*** Oyediran Ibrahim Adewuyi and Fadamoro Oluwafemi Festus, ***Nigeria***
793	***Evaluating Rutting Performance of Polymer Modified Binder Containing WMA,***Aniket V. Kataware and Dharamveer Singh, ***India***
701	***Compaction and Strength Characteristics of Modified Waste Expanded Polystyrene (EPS) Mixed With a Standard Sand,***Oluwapelumi O. Ojuri and Salami A. Ademola, ***Nigeria***
859	***Downdrag Behavior of Piled Foundation Caused by Deep Water Pumping - A Forensic Study of a Damaged HSR Viaduct,***Jin Hung Hwang, Yuan Chang Deng, Teng Ruei You and Hao Shiang Hsu, ***Taiwan***
896	***Different Approaches to Develop Permeability Specifications of Asphalt,*** Rafiqul A. Tarefder and Mohiuddin Ahmad, ***USA***
973	***An Investigation on the Soil-groundwater Behaviors to Understand the Cover-collapse Sinkhole Mechanism,*** Heejung Youn, ***South Korea***

Session Four (RM#4): ***Resilient Railroad Materials & Structures – Innovative Solutions to Mitigate Climate Change***
Moderators: Jeffrey Lee Ph.D, PE. ARRB, Australia
Irina HolleranPh.D. University of Auckland, New Zealand

353	***Influence of moisture on the thermomechanical behaviour of asphalt concrete used for railway trackbeds,*** Diego Ramirez, ***France***
604	***Long-Term Performance of Recycled Concrete Aggregate as Drainage Materials,*** Boo Hyun Nam, ***USA***
261	***Study on the Mechanic Properties and Piezoresistivity of Graphite PET-based Composite,*** *Zhang Xiaomeng,* ***China***
626	***Finite Element Analysis of Laterally Loaded Piles in Clays,*** *Fath Elrahman E. Nur Eldayem and Yahia. E-A. Mohamedzein,* ***Sudan***
1058	***Clogging of drainage devices in railway infrastructures: Site Instrumentation and water system***, Tassin Bruno, Deneele Dimitri, Koscielny Mathilde, Prevot Francois, Calon Nicolas, ***France***
1070	***Impact of Dual Gauge Railway Tracks on Traffic Load Induced Permanent Deformation of Low Embankments***, Aaron D. Mwanza, Peiwen Hao, Mundia Muya, Zhang Haiwei, ***China***

TECHNICAL SESSIONS (DAY 2: July 26, 2016, 8:15 AM – 09:50 AM)

Session One (RM#1): ***Advances in Numerical and Experimental Analysis of Transportation Geomaterials and Geosystems for Sustainable Infrastructures-1***
Moderators: Zhongxuan Yang, Ph.D. Zhejiang University, China
Aaron D. Mwanza, Ph.D. University of Zambia. Zambia

180	***Variation of slurry pipe jacking force in coarse and fine soils,***Wen-Chieh Cheng, ***Taiwan***
191	***Microstructural damage induced localized fracturing of brittle rocks,***Tao Xu, Shengqi Yang, Mike Heap, Chongfeng Chen, and Tianhong Yang, ***China***
226	***Reliability analysis of strain-softening slopes using the first order reliability method (FORM),*** Subhadeep Metya, Gautam Bhattacharya, and Robin Chowdhury, ***India***
263	***Rainfall-induced failure of volcanic embankments subjected to cyclic loadings in cold regions,*** Shima Kawamura, Seiichi Miura, Hieu Minh Dao, and Ryoichi Yamada, ***Japan***
937	***Characterization of Pavement Crack Statistics Using Computer-Vision Methods,*** Hae-Bum Yun, ***USA***

Session Two (RM#2): ***Geosynthetic Civil Infrastructure, Disaster Monitoring, and Environmental Geotechnics***
Moderators: Sao-Jeng Chao, Ph.D. National I-Lan University, Taiwan.
Jan Valentin, Ph.D. Czech Technical University, Czech

337	***Efficacy of Lime Treatment on the Mercury Retention Characteristics of Semi Arid Soils,*** Arif Ali Baig Moghal, Krishna R Reddy, Mohammed S.A.S, Mosleh Ali Al Shamrani, and Waleed M Zahid, ***Saudi Arabia***
303	***Development and calibration of sensor-enabled geosynthetics ,*** Xinzhuang Cui, ***China***
611	***Experiment On Seismic Failure Mode Of PHC Pipe-Piles In Liquefiable Soil Under Shaking Table,*** Xingwu Wen, Jiesheng Zheng, Fuyun Huang, Haimin Qian, ***China***
669	***Consolidation-Induced Contaminant Transport in Multi-layer Soils,*** Hefu Pu and Patrick J. Fox, ***China***
863	***Evaluating the Performance of Geotextile Wrapped/Layered Soil: A Comparative Study Using the DEM,*** Hongyang Cheng and Haruyuki Yamamoto, ***Japan***
874	***EPS Resistance Factors and Applications on Flexible Walls,*** Sherif S. AbdelSalam and Salem A. Azzam, ***Egypt***

Session Three (RM#3): ***WorkShop***
Moderators: Shanzhi Shu Ph.D. PE. Kiewit Corp. USA
Xianhua CHEN, Ph.D. South East University, China

TECHNICAL SESSIONS (DAY 2: July 26, 2016, 10:20 AM – 11:50 PM)

Session One (RM#1): ***Advances in Numerical and Experimental Analysis of Transportation Geomaterials and Geosystems for Sustainable Infrastructures-2***
Moderators: Mounir Bouassida, Ph.D.Tunis El Manar University, Tunisia
Xinbao Yu, Ph.D.UT Arlington, USA

329 ***Semi-Analytical Solutions for Axially and Laterally Loaded Piles Considering Elastoplastic Behavior of Multilayered Soil,*** Mingxing Zhu, ***China***
624 ***Sustainable mitigation of slope failure by compacted soil-cement fill,*** Jason Y. Wu, Kaiming Huang, and Munira Sungkar, ***Taiwan***
647 ***A numerical approach to solve 3D geotechnical problems with 2D codes,*** Guangxian Hou and Shanzhi Shu, ***USA***
704 ***Reliability assessment of wedge failure in rock slopes by random sets theory,*** Rodrigo Hernández-Carrillo and Gloria Inés Beltrán, ***Colombia***
860 ***Probabilistic assessment of fill slope stability,*** Kelvin Lim, Alexander Schmid, and An-Jui Li, ***Australia***

Session Two (RM#2): ***Material, Design, Construction, Maintenance, and Testing of Pavement-1***
Moderators: Don Chen, Ph.D. University of North Carolina at Charlotte, USA
Julius Joseph Komba, Ph.D. CSIR Built Environment, South Africa

396 ***Experimental Study on the Shear Strength between Steel Bridge Deck and Asphalt Overlay,*** Bo Yao, ***China***
481 ***A Study on Rheological Performance of Nanoclay Modified Asphalt Binder Using Brookfield Viscometer and Dynamic Shear Rheometer,*** Prabin Kumar Ashish and Dharamveer Singh, ***India***
628 ***Exploratory Study to Use Traffic Speed Deflectometer (TSD) for Project-Level Pavement Evaluation,*** Jeffrey L. Lee, Michael Moffatt, and Jothi M. Ramanujam, ***Australia***
761 ***Reliability based Mechanistic Empirical Design Method for Asphaltic Overlay from Falling Weight Reflectometer,*** Avijit Maji, Dharamveer Singh, Hitesh Chawla, ***India***
852 ***Impacts of Aggregate Morphological Characteristics on Asphalt Mixture Performance Based on Experimental Tests,*** Xinhong Yang, Yanqiu Bi, Jiupeng Zhang, and Shenglin Liu, ***China***
858 ***Effect of aggregate gradation on volumetric parameters and high temperature performance of asphalt mixture,*** *Weidong Cao, Shutang Liu, Yingyong Li, and Zhichao Xue,* ***China***

Session Three (RM#3): ***WorkShop***
Moderators: Liping Li, Ph.D. Shandong University, China

TECHNICAL SESSIONS (DAY 2: July 26, 2016, 13:20 PM – 14:50 PM)

Session One (RM#1): ***Advances in Numerical and Experimental Analysis of Transportation Geomaterials and Geosystems for Sustainable Infrastructures-3***
Moderators: Hany Farouk Shehata, Ph.D. Soil Structure Interaction Group.Egypt
Kwok-Leung Pun, Ph.D.ChuHai College of Higher Education, Hong Kong
Shu-Rong Yang Ph.D. National Pingtung Uni. Sci &Tech, Taiwan

408 ***Dynamic Characteristics of Pervious Concrete Pile Composite Foundations under Earthquake Loads,*** Jiong Zhang, ***China***
700 ***Numerical Behavior of Reinforced Soil by Rigid Inclusion,*** Samia Boussetta, Mounir Bouassida, and Mondher Zouabi, ***Tunisia***
759 ***Analysis on Three-Dimensional Diffusion Mechanism of Multiple Grouting in Fault,*** Peng Li, Qingsong Zhang, Shucai Li, Xianghui Li, Jinxin Zuo, ***China***
703 ***Hydraulic Conductivity of Partially Saturated Semi-Arid Tropical Black Clay from Consolidation Tests,*** Joseph B Adeyeri, Oluwapelumi O. Ojuri and Micheal A. Uduebor,***Nigeria***
375 ***A Study of Innovative Material Application for Installing Tilt Monitoring Units on Bridge Pier,*** Po Lin Chen, Dave Ta Teh Chang, Kai Chun Yang, and Jia Feng Lin,***Taiwan***
767 ***Simulated Grouting Diffusion Test in Fault Medium by Single Injection Pipe,*** Xiao Zhang, Haiyang Yu, Peng Li, Wensheng Yu, Jianguo Liu, ***China***

Session Two (RM#2):): ***Material, Design, Construction, Maintenance, and Testing of Pavement-2***
Moderators: Dave Chang, Ph.D. Chung Yuan University, Taiwan
Zahid Hossain, Ph.D.Arkansas State University, USA

179 ***Morphological and Nanomechanical Analyses of Ground Tire Rubber Modified Asphalts***, A M Feroze Rashid, Zahid Hossain, ***USA***
184 ***Evaluation of Optimal Compaction Frequencies for Granular Materials, Wynand Steyn and Reynolds Greg, SouthAfrica***
599 ***Influence of Fine Content and Water Content on the Permanent Mechanical Behavior of a Granular Material Used in Low Traffic Pavements,*** Peng Jing, Hossein Nowamooz, and Cyrille Chazallon, ***France***
644 ***Effect of Additived Bituminous Binders on New Generation of High Modulus Asphalt Mixes,*** Pavla Vacková, Jan Valentin, Petr Mondschein, Lucie Soukupová, ***Czech Republic***
1019 ***Surface Energy and Hydrophilicity of Limestone Aggregate,*** Qingyan Tian, Musharraf Zaman, and Rouzbeh Ghabchi, ***China***

Session Three (RM#3): ***Sustainable Civil Infrastructures: In-situ and Laboratory Test Methods for Site Characterization, Design, and Quality Control***
Moderators: Chao Wang, Ph.D. Louisiana State University, USA
Tatsuya ISHIKAWA Ph.D, Hokkaido University, Japan

256 ***Characterization, experimental investigation and application of a sliding controlled spherical bearing,*** HaolinYang, Shijia Liu and Wancheng Yuan, ***China***
280 ***Effect of Density on Pore Size and Pore Volume of Expansive Clays,*** Bhaskar Chittoori, Arif Ali Baig Moghal, Aravind Pedarla, Al-Mahbashi A M, Dayakar Babu Ravi, ***USA***
434 ***Damage Monitoring in Saturated Rocks Using Electro-Mechanical Impedance (EMI) Technique,*** Prateek Negi, ***India***
448 ***Effects of different binders on strength and stiffness of paste fills,*** Naguleswaran Niroshan, Nagaratnam Sivakugan, and Ryan Veenstra, ***Australia***
732 ***Undrained Soil Behavior under Bidirectional Shear,*** Yao Li, Yunming Yang, Hai-Sui Yu, Gethin Roberts, ***China***
941 ***Variation in shear modulus of enzyme treated soil under cyclic loading.*** Ansu Thomas, R. K. Tripathi, L. K. Yadu, ***India***

TECHNICAL SESSIONS (DAY 2: July 26, 2016, 15:10 PM – 16:40 PM)

Session One (RM#1): ***Miscellaneous Topics on Geotechnical Engineering***
Moderators: Tamer Sorour, Ph.D.Ain Shams University, Egypt.
Xinzhuang Cui, Ph.D.Shandong University, China

374	***Vibration Spectrum Effect Evaluation of the Foundation Underpinned by the Pile Foundation in Taiwan Railway***, Po-Lin Chen, Dave Ta-Teh Chang, Nuan-Hsuan Ho, Li-Lun Guo, ***Taiwan***
450	***Tilting of Large Apartment Building in Bogota Colombia Due to Foundation Failure and Recuperation of its Verticality,*** Armando Palomino Infante, Francisco Salazar Ferro, Luis F Orozco, Marcela Salcedo***, Colombia***
474	***Bearing capacity and settlements of foundations using Menard pressuremeter test results,*** Nassima Alimrina, Lynda Djerbal and Ramdane Bahar***, Algeria***
886	***Theoretical and experimental study on mechanical properties of confined concrete arch in complicated deep underground engineering conditions***，Shucai Li, Qi Wang, Bei Jiang, Manchao He, Xing Shao, Qian Qin, Huibin Sun, Hengchang Yu, ***China***
1014	***Study of the behavior of Tunis soft clay,*** Mnaouar Klai and Mounir Bouassida, ***Tunisia***

POSTER SESSIONS (DAY 2: July 26, 2016, 15:10 PM – 16:40 PM)

Moderators: **Junsheng Yang, Ph.D. Central South University, China** **Liping Li, Ph.D. Shandong University, China**
Weizhong Chen, Ph.D. Shandong University, China **Qingsong Zhang, Ph.D. Shandong University, China**

196	***Energy Characteristics of Micro-seismic Events Associated with Immediate Rockbursts in Deep Tunnels,*** Yang Yu, Bing-rui Chen, Chang-jie Xu, Xin-hong Diao, Li-hong Tong, Yu-feng Shi, ***China***
220	***Using Continuous Wavelet Transform to Construct the Dispersion Image for Soil Layers,*** Pei-Hsun Tsai, ***Taiwan***
702	***Hydro-Mechanical Properties of Some Potential Clay Liner Materials in Southwestern Nigeria,*** Oluwapelumi O. Ojuri and Micheal A. Uduebor, ***Nigeria***
449	***Rapid deterioration of Pavements due to flooding events in Australia,****Masuda Sultana*,**Australia**
231	***A Correlation Study of the Existing Bridges for Failure Analysis by Logistic Regression,*** Tung-Tsan Chen, ***Taiwan***
249	***Feasibility Analysis for the Ecological Sustainability of Engineering Construction of Expressway,***Tung-Tsan Chen, Yao T. Hsu, Yin-Chun Hung, ***Taiwan***
237	***Performance of Long Pipe Roof for Large Span Shallow Tunnel Below Existing Highway,*** SHI Yu-feng, Geng Da-xin, XU Chang-jie, YANG Jun-sheng, FU Jin-yang, ***China***
387	***Effects Of Sample Preparation Method On The Properties of A Cohesive Soil,*** BoHuan Yang, Jiunnren Lai, ChiLing Pan, and ChunJung Wei,***Taiwan***
282	***Numerical Study on the Tunnel Instability in Fault Zone: A Case Study of Wuzhuling Tunnel in China,*** Yingchao Wang, Hongwen Jing, Haijian Su, Jiangyue Xie, ***China***
285	***Analysis of CMC-Supported Embankments Considering Soil Arching,*** Balaka Ghosh, Behzad Fatahi, Hadi Khabbaz, and A. H. M. Kamruzzaman, ***Australia***
1100	***Performance Evaluation of Portland Cement Concrete Pervious Pavement: A Case Study in Puli Office Building Project,*** Ming-Gin Lee, ***Taiwan***
625	***The Performance Of Strip Footing Resting On Geogrids-Reinforced Dune Sand,*** Yahia. E-A. Mohamedzein, andMohammed Al Aghbari, ***Oman***
363	***Evaluating the Factors Influencing Limestone Dissolution Characteristics in Karst Regions of Quizhou, China,*** Zhongmei Wang, ***China***
982	***GIS-based Landslide Susceptibility Mapping Using Remote Sensing Techniques,*** Shu-Rong Yang, ***Taiwan***
718	***Design of Sand Based Landfill Liners as Waste Containment Barriers in Coastal Areas,*** Oluwapelumi O. Ojuri and Jude E. Ojemen, ***Nigeria***
386	***Laboratory Testing of Enhancing the Bearing Capacity of Strip Footing with Woven Geotextile,*** Shengmin Wu, Jiunnren Lai, Chiung-Fen Cheng, Guo-Hao Lai, Chun-Jung Wei,***Taiwan***
502	***Accelerated Damage Testing Method for Evaluating Service Performance of Asphalt Pavement Affected by Acid Rain,*** Liang Xue, Kwok-leung Pun, Gang Li, Sizeng You, ***Hong Kong***
551	***Using PIV to Analyze Landslide Movement on a Large Landslide,*** Tai Seong Quah, Sung-Chi Hsu, Ya Suan Huang, Y. J. Ye, Chih-Hung Chiang, Tao-Min Cheng, ***Taiwan***
630	***Maximising the Use of Rubber from End-of-life Tyres in Road Construction in Queensland,*** Jeffrey Lee, Erik Denneman, Young Choi, Christopher Raymond, ***Australia***
760	***Influence of Freeze-thaw on Mechanical Behavior of Granular Base and Fatigue Life of Pavement Structures in Japan,*** Tatsuya Ishikawa, Shinichiro Kawabata, ***Japan***
799	***The Evolution of Axial P-Wave Velocity of Rock in Uniaxial Compressive Test,*** Xiang Chen, ***China***
835	***On TEC anomalies before M6.0+ earthquake in the southwest seismic zone of China, 2001-2014,*** Jinyun Guo, ***China***
878	***Utilization of selected chemical or nanochemical additives (combined with cement) and alternative hydraulic binders for treatment of local soils,*** Jakub Å edina, ***Czech Republic***
889	***Global Warming Potential Analysis of BSSF Slag used on Dense Grade Asphalt Concrete,*** Shih-Huang Chen, ***Taiwan***
913	***DWT-based Application of SVD and SVM Techniques to Seismic Signal Classification,*** Xueyi Shang, Kang Peng, Zhenyu Zhang, Yongliang Zhang, ***China***
966	***Preparation and Failure Mode of Simulated Transversely Isotropic Rock,*** X.M. Zhang, X.F. Ou, D. Yang, J.S. Yang, J.Y. Fu, ***China***
989	***The Excavation Damage Zone of Subway Tunnel Considering Stress Release,*** Feng Huang, Hehua Zhu, Shuping Jiang, Bo Liang, ***China***
1015	***Prediction of plastic strain in subgrade soils under repeated loading,*** Shu-Rong Yang***,*** Jia-Ruey Chang, ***Taiwan***
1016	***Experimental Study on Drained Shear Strength of the Unsaturated Clayey Sand,*** Qian Nigui，Wang Duanyi，Tian Qingyan, ***China***
1053	***Mechanical Test and Application of Steel Grille instead of Metal Mesh in Underground Support Engineering,*** Qing-Biao Wang, ***China***
1063	***Three-dimensional Elastoplastic Analysis on the Stability of Tunnel Anchorage in Soft Rock,*** Dongliang Li, Xinrong Liu, Xiangchao Wu, Weishu Li, ***China***

Laboratory Visiting (DAY 2: July 26, 2016, 16:40 PM – 18:20 PM)

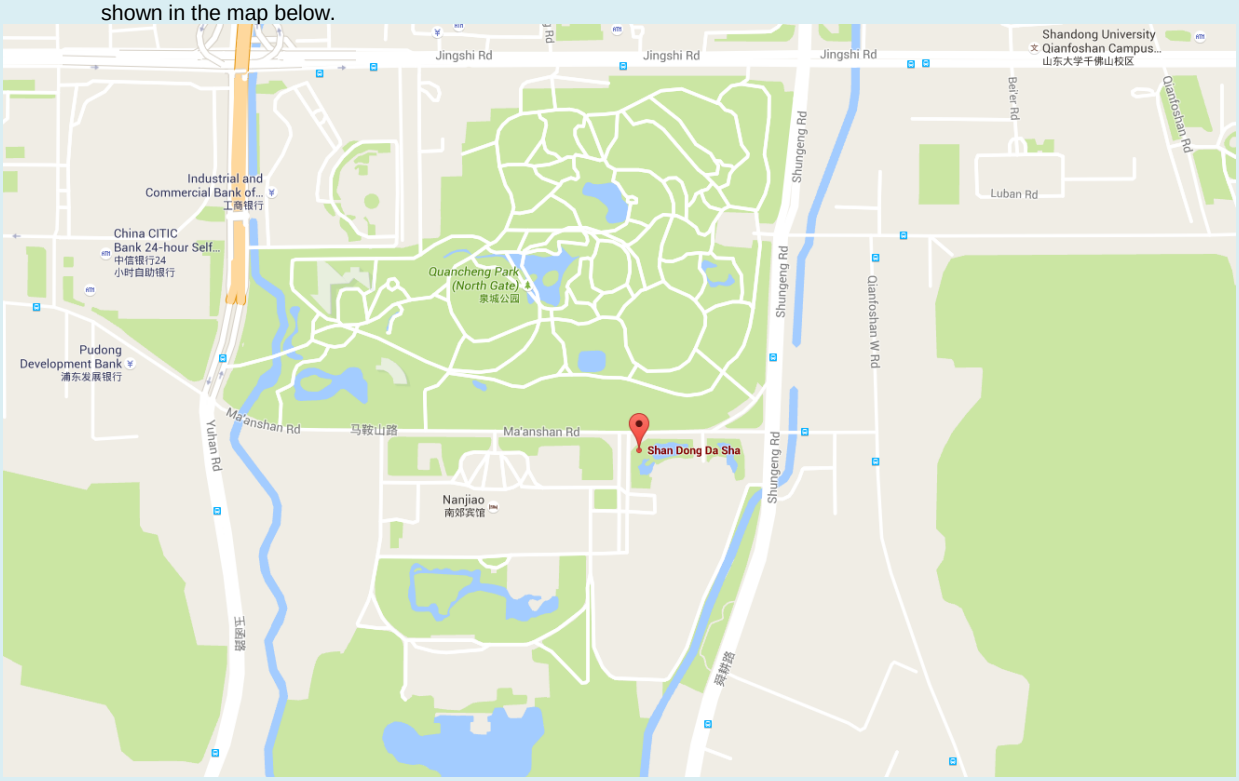
Moderators: ***Yong Li, Ph.D. Shandong University, China***

DAY 3 (July 27, Wednesday)

Technical Tour: Jiaozhou Bay Bridge, is listed in the Guinness World Records as the world's longest bridge over water.
(Meet at Hotel Lobby at 6:30 am and expect to return arrive at Qingdao Liuting International Airport at around 6:00pm)

Conference Hotel Info

The GeoChina2016 International Conference will be held at Shandong Hotel (山东大厦) (5 Stars Hotel) as shown in the map below.



Address: 2-1 Ma'anshan Road, Jinan, Shandong 250002, China. (中国山东济南马鞍山路 2-1 号)
Tel: 86-531-82958888
For more information, please visit http://www.sdhotel.com.cn/.

Organizing Committee

Dr. Qihu Qian, Chair
Dr. Shucai Li, Chair
Dr. Dar Hao Chen, Co-Chair
Dr. Hany Farouk Shehata, Co-Chair
Prof. Jian Liu, Co-Chair
Prof. Zhanyong Yao, Co-Chair
Prof. Musharraf Zaman, Co-Chair

International Advisory Committee

Prof. Khalied M. A. El Zahaby, HBRC, Egypt
Prof. Abdullah M. Al-Amri, King Saud University, Saudi Arabia
Prof. Hisham K. Ameen, HBRC, Egypt
Prof. Mohamed A. Abdel-Motaal, Ain Shams University, Egypt
Dr. Raúl Aguilar Becerril, SMIG, México
Prof. Antonio Bobet, Purdue University, USA
Prof. Jean-Louis Briaud, Texas A&M University, USA
Dr. Rongji Cao, Jiangsu Transportation Institute, China
Prof. Kenneth Carper, Washington State University, USA
Prof. Borliang Chen, National United University, Taiwan
Dr. Tao-ming Cheng, Chaoyang Uni. of Technology, Taiwan
Prof. Braja Das, California State University, USA
Prof. Herve Di Benedetto, University of Lyon/ENTPE, France
Dr. Xiating Feng, Insti.of Rock and Soil Mechanics, Chinese Acade. of Sci.
Prof. Patrick J. Fox, Uni. of California - San Diego, USA
Prof. Farouk I. K. El-Kadi, Ain Shams University, Egypt
Dr. Hany Farouk Shehata, Soil-Structure Interaction Group, Egypt
Mr. Victor Gallivan, Federal Highway Administration, USA
Mr. Charley Grady, Crafco, USA
Prof. António Gomes Correia, University of Minho, Portugal
Dr. Shin-Che Huang, Western Research Institute, USA
Mr. Yu Jia, Jiangsu Transportation Institute, China
Dr. Sooahn Kwon, Korea Insti. of Const. & Technology, Korea
Prof. Shucai Li, Shandong University, China
Prof. Jyh-Dong Lin, National Central University, Taiwan
Dr. Martin Mgangira, Council for Sci. and Ind.l Res., South Africa
Mr. Mumba Mususeni, ILISO (Z) Ltd Consulting Engineers, Zambia
Prof. Mundia Muya, University of Zambia, Zambia
Eng Colin Raman, ILISO Consulting (Pty), South Africa
Prof. Samuel Paikowsky, University of Massachusetts, USA
Prof. Kwok-Leung Pun, ChuHai College of Higher Education, Hong Kong
Prof. Qihu Qian, Shandong University, China
Prof. Pramono Rahardjo, Parahyangan Catholic Uni., Indonesia
Prof. Krishna R. Reddy, University of Illinois at Chicago, USA
Mr. John Roberts, International Grooving & Grinding Assoc, USA
Prof. Rodrigo Salgado, Purdue University, USA
Mr. Luis Enrique Sanabria, Corasfaltos, Colombia
Dr. David Yá?ez Santillán, SMIG, México
Prof. Tom Scullion, Texas A&M University, USA
Prof. A.P.S. Selvadurai, McGill University, Canada
Prof. Aimin Sha, Chang'an University, China
Dr. Mohamed Farouk Shehata, EHE-Consult Group, Egypt, UAE
Dr. Ramesh P. Singh, Chapman University, USA
Dr. Mansour Solaimanian, Pennsylvania State University, USA
Prof. Ramzi Taha, Qatar University, Qatar
Prof. Ikuo Towhata, University of Tokyo, Japan
Prof. Erol Tutumluer, University of Illinois at Urbana-Champaign, USA
Prof. Songgen Wang, Shandong Highway Bureau, China
Dr. Mike Winter, Transport Research Laboratory, UK
Prof. Musharraf Zaman, University of Oklahoma, USA
Prof. Minghua Zhao, Hunan University, China

Local Organizing Committee

Prof. Zhanyong Yao, Shandong University, China
Prof. Zhi Ge, Shandong University, China
Prof.Xinzhuang Cui, Shandong University, China

Technical Organizing Committee

Dr. Dar Hao Chen, Texas Department of Transportation, USA (Chair)
Prof. Changjie Xu, East China Jiaotong University, China (Co-Chair)
Prof. Wynand JvdM Steyn, University of Pretoria, South Africa (Co-Chair)
Prof.Xinzhuang Cui, Shandong University, China (Co-Chair)
Dr. Tarek T. Abdel-Fattah, HBRC, Egypt
Prof. Adil K. Al-Tamimi, American University of Sharjah, UAE
Prof. Mingzhou Bai, Beijing Jiaotong University, China
Dr. Rifat Bulut, Oklahoma State University, USA
Dr. Jia-Ruey Chang, National Ilan University, Taiwan
Prof. Don Chen, University of North Carolina at Charlotte, USA
Dr. Shen-En Chen, University of North Carolina, USA
Prof. DingXin Cheng, California State University, USA
Dr. Sao-Jeng Chao, National Ilan University, Taiwan
Prof. Li-Chi Chiang, National United University, Taiwan
Dr. Muawia Dafalla, King Saud University, Saudi Arabia
Prof. Behzad Fatahi, University of Technology Sydney, Australia
Dr. Wissem Frikha, University Tunis EL Manar/ENIT, Tunisia
Mr. Abu N. M. Faruk, Texas A&M University, USA
Prof. Louis Ge, National Taiwan University, Taiwan
Prof. Peiwen Hao, Chang'An University, China
Prof. Chuan He, Southwest Jiaotong University, China
Dr. Amr A. Hemada, HBRC, Egypt
Prof. Ivo Herle, Technische Universität Dresden, Germany
Prof. Chichun Hu, South China University of Technology, China
Dr. Sheng Hu, Texas A&M University, USA
Prof. Likui Huang, Hunan University, China
Prof. Xiaoning Huang, Southeast University, China
Prof. Tatsuya Ishikawa, Hokkaido University, Japan
Dr. Hongguang Jiang, Shandong University, China
Dr. David Jones, University of California, Davis, USA
Prof. Hadi Khabbaz, University of Technology Sydney, Australia
Dr. Jeffrey L. Lee, ARRB Group Ltd., Australia
Prof. Jian Liu, Shandong University, China
Prof. Jenny Liu, University of Alaska, USA
Prof. Jinyuan Liu, Ryerson University, Canada
Prof. Andreas Loizos, NTUA, Greece
Mr. Mutaz El-Amin Mahmoud, Swiss Boring Co. Oman
Prof. James Ni, National Taipei University of Technology, Taiwan
Dr. Tamer M. Sorour, Ain Shams University, Egypt
Prof. Maher Omar, University of Sharjah, UAE
Prof. Chi-Ling Pan, Chaoyang Uni. of Technology, Taiwan
Prof. Dae-Wook Park, Kunsan National University, Korea
Dr. Sathaporn Pokpong, Phranakhon Rajabhat Uni., Thailand
Prof. Tong Qiu, Pennsylvania State Uni, USA
Prof. Ruibo Ren, Shandong Jianzhu University, China
Prof. Aykut Senol, Istanbul Technical University, Turkey
Prof. Aimin Sha, Changan University, China
Mr. John Siekmeier, Minnesota Dept. of Transportation, USA
Prof. Dharamveer Singh, Indian Institute of Technology, Bombay, India
Prof. Lijun Sun, Tongji University, China
Prof. Yong Tang, Shandong Jiaotong University, China
Prof. Yiqiu Tan, Harbin Institute of Technology, China
Prof. Rafi Tarefder, University of New Mexico, USA
Dr. Bo Tian, Highway Research Institute, MOC, China
Prof. Jan Valentin, Czech Technical University, Czech Republic
Prof. Chao Wang, Louisiana State University, USA
Mr. Lin Wang, Shandong Comm. Sci. Research Insti. China
Prof. Jin Feng Wang, Zhejiang University, China
Prof. Yuhong Wang, Hong Kong Polytechnic University,
Dr. Lubinda F. Walubita, Texas A&M University, USA
Prof. Jason Y. Wu, Chung Hua University, Taiwan
Prof. Caichu Xia, Tongji University, China
Mr. Kong Xiangfu, Shandong Design Institute, China
Prof. Linon, Xia, Changsha University, China
Prof. Junsheng Yang, Central South University, China
Prof. Shu-Rong Yang, National Pingtung Uni. Sci &Tech. Taiwan
Prof. Xiaoli Yang, Central South University, China
Prof. Zhanyong Yao, Shandong University, China
Prof. Dingli Zhang, Beijing Jiaotong University, China
Dr. Hongbo Zhang, Shandong University, China

Workshop 1
Resilient Infrastructures for Extreme Weather and Climate Changes

Presiding Officers

Prof. Musharraf Zaman, The University of Oklahoma, USA
Dr. Hany Farouk, Soil-Structure Interaction Group in Egypt (SSIGE), Egypt
Prof. Shucai Li, Shandong University, China

Sponsored by

Southern Plains Transportation Center (SPTC), USA
National Science Foundation, China
Shandong University, China
Sociedad Mexicana de Ingeniería Geotécnica (SMIG), Mexico
Soil-Structure Interaction Group in Egypt (SSIGE), Egypt
Jiangsu Transportation Institute, China
GeoChina Civil Infrastructure Association, USA

Invitation:

Numerous government and transportation agencies are taking a proactive role on identifying how to prioritize asset management and operations options to improve infrastructure resilience under climate extremes and severe weather environments. Agencies are working out the methodologies and leveraging benefits across infrastructures, modes and geographic boundaries. Presentations at this workshop will address innovative materials and designs, cost–benefit analysis and incorporation of climate extremes and severe weather on assessment of risk in infrastructure asset management and operations planning with a multimodal perspective.

This workshop will be held in China during the 4th GeoChina 2016 Conference that will be held in Shandong on July 25-27, 2016. The workshop aims to share knowledge and lessons learned from various parts of the world on developing climate-resilient infrastructures to adapt extreme events.

Topics and Themes:

1. Innovative Materials, Designs, Constructions and Maintenance to Improve Infrastructure Resilience Under Climate Extremes and Severe Weather
2. Using Network Criticality and Propagating Impacts to Guide Infrastructure Adaptation
3. Cost-Benefit Analysis of Adaptation and Resiliency Measures & Quantification of Costs and Benefits
4. Climate-Adaptive Technologies
5. Economic and Financial Modeling to Address Gaps and Build Alternative Solutions to Assist Recovery and Continuity of Government and Operations for Transportation
6. Transportation System Resiliency, Incorporating Cost-Effectiveness and Sustainability
7. High Value Adaptation Measures at Transportation Agencies
8. Case Studies on Climate-Adaptive Transportation Infrastructure including Bridges, Pavements, and Other Structures
9. Education, Training and Workforce Development Issues

Workshop 2
Innovative Technologies for Instrumentation and Monitoring of Geotechnical Projects and Civil Infrastructures

Presiding Officers

Prof. Shen-En Chen, University of North Carolina [schen12@uncc.edu]
Prof. Ramzi Taha, Qatar University [ramzitaha@qu.edu.qa]
Dr. Mohamed Farouk Shehata, EHE-Consulting Group, Egypt [Mohamed_farouks@yahoo.com]
Dr. Wissem Frikha, University Tunis EL Manar/ENIT, Tunisia [frikha_wissem@yahoo.fr]

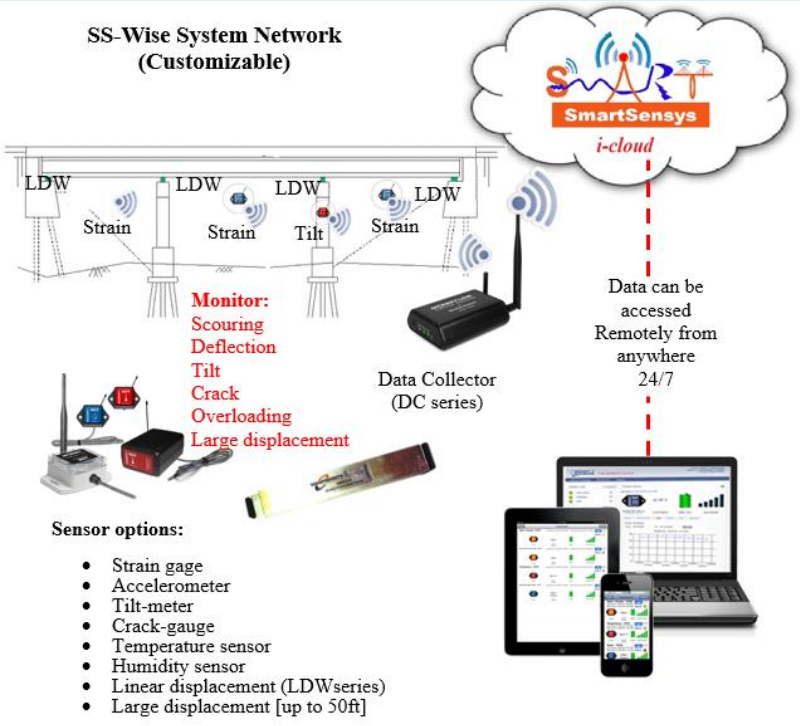
Sponsored by

Qatar University, Qatar
National Science Foundation, China
University of North Carolina, USA
Housing and Building Research Center (HBRC), Egypt
Shandong University, China
The International Society of Soil Mechanics and Geotechnical Engineering - ISSMGE
South China University of Technology, China

Background:

Increased awareness of the economic and social effects of aging, deterioration and extreme events on civil infrastructure has been accompanied by a recognition of the need for advanced structural health monitoring and damage detection technologies. Structural health monitoring (SHM) has been a fast-developing domain in engineering disciplines especially in the civil engineering field. Use of field instrumentation to validate structural designs and to characterize performance is increasingly becoming a part of civil infrastructure projects. Soil-structure interaction and the geotechnical measurements play important roles for the overall assessment of the structural health. Instrumentation and monitoring technologies have been used successfully in challenging geotechnical projects to assist in the quantification of retrofit measures, seismic risks, construction progress, in-situ loading and emergency risks.

This workshop aims to share knowledge and lesson learned from various parts of the world for research and applications of innovative technologies for instrumentation and monitoring of geotechnical engineering and civil infrastructures. Two keynote speakers will share different monitoring technologies that have been developed for civil infrastructure monitoring: Professor Shi Bin from Nanjing University will share about different developments in embedded fiber optic (FO) sensing technologies for geo-monitoring in China and Dr. Paul Sumitro from Smartsensys, LLC, USA, will present various SHM technologies including wireless MEMS-based sensors, scour detection sensors, video optical imaging and UAV (unmanned aerial vehicle) technologies for structural and geo condition monitoring.



Topics and Themes:

1. Laboratory and Field Instrumentations
2. Mega Construction Projects
3. Case Studies
4. State of the Art
5. State of the Practice
6. Measurement Technologies
7. Planning, Administration, Funding, and Management

Workshop 3
Catastrophe Mechanism and Forecast Technology to Control Water Inrushing and Mud Gushing in Deep Tunnels

Presiding Officers

Prof. Shu-Cai Li, Shandong University [lishucai@sdu.edu.cn]
Prof. Xiaoli Yang, Central South University [yangxl@csu.edu.cn]
Prof. Xiaozhao Li, Nanjing University [lixz@nju.edu.cn]
Prof. Shi-Hang Zhong, China Academy of Railway Sciences [zhongshh@vip.sina.com]
Associate Prof. Li-Ping Li, Shandong University [yuliyangfan@163.com]

Sponsored by

The Office of Key Project of Chinese National Programs for Fundamental Research and Development (973 Program, No. 2013CB036000), China
Shandong University, China
Underground Engineering Branch of Chinese Institute of Rock Mechanics and Engineering, China
Nanjing University, China
Chang'an University, China
China University of Mining and Technology, China
Central South University, China
PLA University of Science and Technology, China
Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China

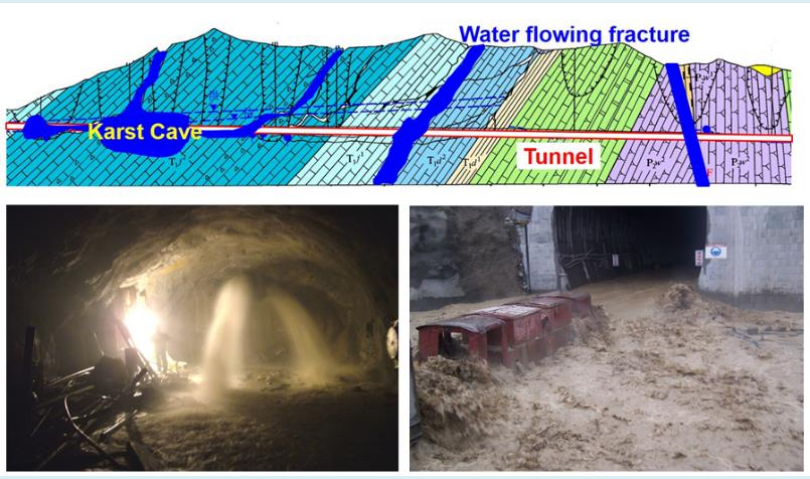
Background:

More and more major infrastructural projects are being built in the western mountains and karst region with extremely complex geological conditions. China becomes one of the largest scale nations with most challenging projects in tunnel construction. In China, a large number of high-risk deep and long tunnel are being or to be built, where water inrush and mud gushing can easily occur during the construction. Due to extremely complex geological conditions and lack of effective theory and controlling technologies, water inrush and mud gushing are difficult to manage in practice. Therefore, to enhance safety, preserve construction investment and protect the regional ecological environment and maintain social stability during the construction of tunnels and underground engineering, there is a critical need to improve the understanding of the catastrophe mechanism and enhance forecast and prediction technologies. This will promote the development of disaster prevention and mitigation of major construction projects.

This workshop will be held in China during the 4th GeoChina 2016 Conference (held in Shandong on July 25-27, 2016). This workshop aims to share knowledge and lesson learned from various parts of the world for their researches on catastrophe mechanism and forecast controlling theory of water inrush and mud gushing in deep large tunnel.

Topics and Themes:

1. Analytical methods for geological characterization of water inrush and mud gusing in tunneling;
2. Advanced prediction methods and quantitative identification theory of water inrush and mud gusing in tunneling;
3. Catastrophic evolution and instability mechanism of water inrush and mud gusing;
4. Multivariate information characteristics and comprehensive prediction theory of water inrush and mud gusing;
5. Risk evaluation and early warning theory of water inrush and mud gusing;
6. Control on disaster of water inrush and mud gusing;
7. Case Studies



Workshop Speakers

July 26, 2016 8:00 AM-11:50 PM

Speech 1:

Presentation Summary

Structural health monitoring (SHM) is an important technology that integrates mechanics, advanced opto-acousto-electronics, mechatronics and computer applications for the purposes of ensuring physical structure stability and functionalities. This presentation will introduce several new sensing technologies for SHM including terrestrial 3D LiDAR scanners, laser Doppler vibrometer, piezo-electric skin sensor, wireless MEMS based accelerometers, GPS-based cameras and aerial photography. For large Civil system monitoring, SHM technology goes beyond sensors and may require system-level monitoring strategy design. This presentation will example of multiple sensor integrated monitoring systems and actual application to tunnel monitoring.

Paul Sumitro, Ph.D., MBA, P.E., S.E., President, Smartsensys LLC.

Dr. Sumitro earned his PhD from Yokohama University, Japan. Prior to forming Smartsensys, Dr. Paul Sumitro was the chief engineer at Keisoku Research Consultants (KRC), Japan, and President of Smart Structures, LLC, USA. Dr. S. Paul Sumitro has earned a reputation as one of the active minds in the field of Structural Health Monitoring and Non Destructive Evaluation. He regularly collaborated with universities including University of Illinois at Urbana-Champaign, Drexel University and University of North Carolina at Charlotte, USA, Hiroshima University and Yokohama University, Japan. Dr. Sumitro has developed several advanced SHM technologies including, wireless MEMS-based transducers, UAV imaging systems, tunnel visualization systems, etc. Several of which have been successfully implemented worldwide including projects in Singapore, Indonesia, Japan and China.

Speech 2:

Presentation Summary

With ultra-high resolutions, fiber optic sensing technology has significant potential for application in the Geotechnical and Geoenvironmental domains. Characterized by linearity and long length and scale, transportation engineering, in particular, can benefit from fiber optic sensors, which have several advantages over conventional monitoring technologies such as non-point monitoring, good anti-interference, good durability and stability. For the past fifteen years, several technologies have been developed including point measurement systems using Michelson and Fibry-Perot, quasi-distributed systems using Fiber Bragg Grating and fully distributed systems using OTDR, ROTDR and BOTDR/A. This presentation will give a brief history of fiber optic sensor and account for several practical applications of the sensors in actual case studies.

Shi Bin, Ph.D., Professor of Geological Engineering and Environmental Geotechnology, Nanjing University of China, Director of Center for Engineering Monitoring with Opto-Electronic Sensing (CEMOES), Executive Director of Advanced Computational Engineering Institute for Earth Environment (ACEI) and Director of Geological Engineering Faculty, Nanjing University, China.

Professor Bin Shi received his doctor of science degrees in Geotechnical Engineering and Engineering Geology from Nanjing University, Nanjing, China. Professor Shi is an internationally recognized expert in geodynamics and geohazard mitigation. He leads an expert team in fiber optical sensing technologies at Nanjing University, which has developed several different sensor configurations and applications. Professor Bin has extensive geotechnical experiences in many parts of China. His current research includes performance monitoring of geological and geotechnical engineering using distributed fiber optic sensors; micro-fabric and strength of engineering soil; engineering improvement of engineering soils; GIS applications etc. Dr. Shi is the principal investigator of more than 30 projects, respectively funded by the Chinese government, the National Natural Science Foundation of China, the Education Ministry of China, the Japanese International Science and Technology Agency, the Japanese Academic Promotion Committee, local governments, enterprises, and companies. Dr. Shi has authored and co-authored more than 150 technical publications in journals and various conference proceedings. Dr. Shi is the winner of the 2002 National Science Fund for Distinguished Young Scholars of China among more than 20 different awards.

Speech 3:Introduction to Crack Treatments

Presentation Summary

This module will explain: crack treatments, crack sealing, crack filling, why crack treatments are beneficial and how they are used as a pre-treatment with other preservation methods. After pavements are constructed and are in use, they will eventually develop cracking due to a range of factors such as; pavement design, construction practices, climate, and traffic loads. Crack treatments are a cost-effective pavement preservation method that extend the life of pavements. Attendees will complete a brief review quiz to ensure understanding of content at the end of this module.

Crack Treatments are methods in which cracks are directly treated through sealing or filling operations. These two methods are called: Crack Sealing and Crack Filling. Crack Treatments are cost effective pavement preservation methods that: extend pavement life, protect your investments, maintain pavement structures, limits deterioration, and prevents potholes.

Tim Morris, has forty years of combined sales and technical experience in the Asphalt Rubber Industry.

As an employee of Crafco for thirty-three of those years, Tim has an expanded knowledge in the sales and technical aspects of the industry. Tim's most recent area of responsibility is as a Regional Sales Manager in Crafco's International Division. Tim is currently responsible for Crafco sales in Asia, the Middle East, Canada, Africa and the US Military installations outside of North America.

提姆先生，在橡胶沥青行业有超过 40 年的销售和技术工作的经历。其中作为科来福雇员已经为科来福公司工作超过 33 年，提姆在这个行业中有着非常宽泛的销售和技术资深背景，提姆目前作为科来福公司国际部的区域销售经理负责科来福公司除北美以外的亚洲，中东，加拿大，非洲的销售业务，同时也参与科来福与美国军方在道路养护方面的业务。

Speech 4:Innovative Applications of AR Glass for Engineering

Presentation Summary

In the past 40 years, AR fiberglass has been widely used as theconcrete reinforcement material in ordinary cement products, like the GRC external panelswhich have been applied in the landmark buildings all over the world. AR fiberglass has been applied for road, bridge, marine engineering and flooring construction in recent years due to its high tensile strength, high modulus, excellent corrosion resistance performance, good dispersity and workability, and with which it can improve the strength, tenacity and workability, and control the cracks and infiltrationof concrete materials. This presentation will focus on the property of AR fiberglass and introduce the innovative applications of AR fiberglass for engineering.

Qi Dehai, Professorate Senior Engineer

Mr. Qi Dehai has been engaged in the researching of composite materials for over 25 years. He has participated in the application development and marketing of AR fiberglass, and he has carried out the researches of applications of AR fiberglass in highway, high speed railway, tunnel engineering, floor mortar and marine engineering, and found the solutions to control concrete cracking and corrosion, and he has participated in drafting related standards.

戚德海 教授级高工

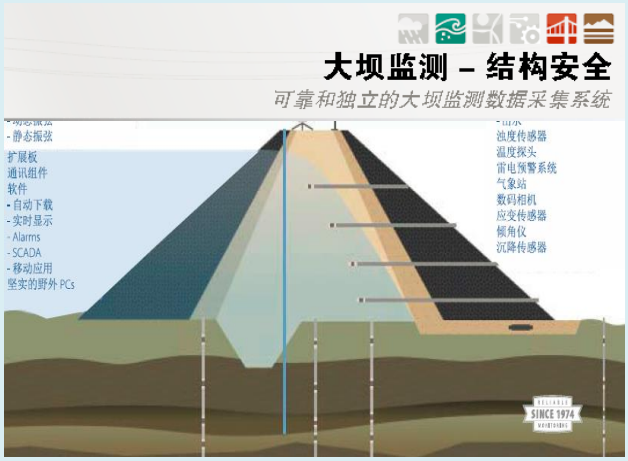
从事复合材料研究工作 25 年。参与耐碱玄纤的开发应用、市场推广工作，先后开展了耐碱玻璃玄纤在公路、高铁、隧道工程、地坪砂浆、海洋工程中的应用研究，有效解决了工程建设中出现的混凝土开裂、腐蚀性问题，参与制定相关标准。

Campbell Scientific

美国坎贝尔科技公司是一家专业设计生产野外恶劣环境条件下高可靠性数据采集器、数据采集系统以及测量和控制产品的科技公司，其产品在全球范围内广为研究院所、科研机构和工业领域所应用。公司成立于 1974 年，总部位于美国犹他州洛根市，拥有集团子公司 8 个，具有独立自主知识产权多项，在岩土工程监测领域、结构健康监测领域以及桥梁、大坝、道路、隧道数据监测与安全监控领域享有盛名。

坎贝尔科学仪器以其灵活性、可靠性和精确的测量而著称 ——其产品专为恶劣和远程环境应用而开发。除了功能强大的数据采集器系列，美国坎贝尔科技公司还提供用于测量领域的各种相关的产品线，包括用于采集、存储和通讯数据的传感器和设备。

坎贝尔数据采集系统可以适应任何大坝结构安全监测，可以测量倾斜、收敛、位移、应变、载荷、振动和覆盖层，解决任何影响大坝结构完整性的监测问题。系统兼容各类传感器和通信外设，产品功耗低，可靠性高，坚固耐用，是野外监测控制系统的首选产品。



坎贝尔产品广泛应用于全球采矿作业中，保护人员安全，监测矿山巷道稳定性。包括：斜坡稳定性分析、天气监测、雷电预警、环境保护（空气质量和水质量）、坝体和尾矿坝监测、矿井通风、设备性能、顶板和竖井稳定性监测等。我们的系统功能多样，可用于无人值守，即便在偏远恶劣环境下系统也可保证正常工作。

沧州市市政工程公司
CANGZHOU MUNICIPAL ENGINEERING COMPANY

沧州市市政工程公司是一家集城市道路、桥梁、路灯、隧道、给排水及污水处理厂等设计施工于一体的施工企业,年施工能力 20 亿元以上。公司以“推动技术创新、建造精品工程、提升城市品位”为使命，坚持实施科技兴企战略，在研究、开发高新绿色环保技术和施工工艺上不断开拓创新，逐步形成了以“建筑垃圾再生利用，沥青路面再生，泡沫沥青温拌、温再生，橡胶沥青及其混合料应用”等为核心的节能减排道路建造技术，获省、市级科技奖项十余项。历年来承建的大型道路、排水、泵站、污水处理厂有二十多项被评为省优工程，其中“经二街道路改造工程”和“沧州市吉林大道道路工程”还被评为国家级市政金杯示范工程。施工足迹遍及东北、华北、华南、西北等地，与社会各界建立了良好的合作关系。

Cangzhou Municipal Engineering Company is a construction company based on design and construction whose job includes urban roads, bridges, street lamps, tunnels, water supply and drainage works and sewage treatment plants. The company’s annual construction capacity is above 2 billion Yuan. Company’s mission is to "promote technological innovation, construct high quality projects, and enhance the taste of the city". We insist on that implement technology strategy, give a research and development on high-tech green technology and make a continuous innovation of environmental friendly construction process. We gradually formed series of core technology about energy saving in road construction ,for example, construction waste recycling, asphalt pavement recycling, foamed asphalt warm mix, warm regeneration, rubber asphalt mixture and application. These technologies receive more than ten provincial and municipal science and technology awards. Over the years, the constructions of large-scale roads, drainage, pumping stations, sewage treatment plants have been awarded two dozen provincial excellent projects. Among them Jing’er street reconstruction project and Cangzhou Jilin avenue road project respectively awarded National Gold Cup Municipal Demonstration Project. We have been going out to the Northeast, North, South, Northwest and other places in China, establish and keep a good working relationship with friends and partners.

GEOBRUGG®

BRUGG

Safety is our nature

布鲁克（成都）工程有限公司 位于成都高新技术开发区西区，是瑞士布鲁克集团（BRUGG GROUP）在华投资成立的独资子公司，与瑞士总部同步享有集团公司的全部知识产权，是一家专业从事柔性防护技术及其相关产品的设计开发、生产配套、销售服务和施工安装，针对地质灾害、安防工程提供科学、安全、经济的专业化柔性防护解决方案的高新技术企业。

布鲁克公司自 1995 年将柔性防护技术引入中国以来，一直致力于该技术在国内的规范化推广应用和新技术开发，通过与相关部门的合作，已先后建立了柔性防护技术的行业暂行办法和技术标准。十多年来，布鲁克人以其求实创新的精神，一直引领着柔性防护技术的不断向前发展，推出了数十种系列化防护产品，获得了二十余项技术专利。针对早期钢丝绳网中十字卡扣防腐能力偏弱、功能受限等缺陷，先后开发出了 TECCO 高强度钢丝网、ROCCO 环形网、SPIDER 和 QUAROX 绞索网，使柔性防护系统面对不同的防护对象有了更强的针对性和更好的防护功能；尤其是近年开发出的 GBE 被动防护系统，不仅使拦石网的能级成功地提高到了 8000kj，同时也极大地提高了产品的性价比。

本着“为顾客提供高质量的产品和尽善尽美的服务”这一不变宗旨，布鲁克公司始终坚持“为顾客提供有针对性的系统化解决方案而不仅仅是销售产品”这一理念，在确保优质高效地提供全系列柔性防护产品和相关技术服务的同时，也客观而负责地建议性价比更优的柔性防护解决方案。迄今，布鲁克柔性防护系统不仅广泛应用于遍布全国的铁路、公路、水电、矿山、市政、自然景区等领域的边坡地质灾害治理，同时也在雪崩防护、泥石流治理、矿山巷道支护、特殊安防等领域得到了应用。我们相信，布鲁克人将继续发扬“不论环境，表现非凡”的开拓精神，一如既往地引领国内柔性防护技术的向前发展，为面对各类灾害威胁的人类生命财产安全提供更加有力的保障。

布鲁克柔性防护系统-GBE防护系统	布鲁克柔性防护系统 全新的支护方案：更快速—更安全—全机械化
布鲁克柔性防护系统-SPIDER®防护系统	布鲁克柔性防护系统-RXE防护系统
布鲁克柔性防护系统-雪崩防护系统	布鲁克柔性防护系统-浅表层滑坡体防护系统

科来福（无锡）路面养护设备有限公司是美国科来福公司在华投资的唯一全资子公司。科来福无锡公司，将秉承美国科来福公司的一贯经营理念，提供持续且可信赖的服务和产品，来满足客户的需求，实现我们公司的目标。美国科来福公司的设备生产基地位于亚利桑那州钱德勒市；密封胶生产工厂分布在亚利桑那州钱德勒市、田纳西州霍尔斯、宾夕法尼亚州的艾伦镇和诺森伯兰县；并在宾夕法尼亚州的艾伦镇和加利福尼亚州的丰塔纳设有两个路面养护服务中心。

美国科来福公司自 1976 年创立以来，一直致力于高品质的路面养护产品的研发和生产，包括路面裂缝密封胶、接缝密封胶、路面坑槽修补料、防水抗裂贴及配套的施工设备。科来福工厂在全美的战略性布局，以及遍布美国和全球的代理商网络，可在第一时间满足您在路面养护方面的各种需求。通过并购美国迪瑞（ Deery ）公司这一战略举措，大大提高了美国科来福公司密封胶的生产能力，阔宽了密封胶的选择范围。位于怀俄明州夏延市和俄亥俄州扬斯敦市的两座工厂，进一步加强了我们的供货能力和服务效率。

科来福员工专注于产品和服务的每一环节，时刻以最高质量标准回报顾客。全体员工以服务客户为出发点，立足品质，完善服务，满足客户各种服务需要与技术要求。遍布全美和全球的服务网点和代理商网络、训练有素的专业人员和精益求精的服务质量，为您在第一时间获得最佳的养护产品和服务，提供了有力的保障。美国科来福公司仅设计和生产高端、有效的产品，从原料到成品，生产的每个环节均受到严格的质量监控，保证出品的所有产品满足高品质标准。通过遍布全美和全球的代理商网络，您可以购买到所需产品。

作为引领路面养护技术革新的企业，在保护路面、延长路面使用寿命永无止境的努力过程中，科来福积蕴了丰富的知识和经验。我们与美国联邦及各州的公路、机场、城市和县级的道路管理部门保持着长期、密切的合作，针对其具体路面状况提供养护建议、推荐养护产品。 ASTM 、 AASHTO 、 FHWA 及其它组织技术规范的编写和修订，大量参考了科来福的厂家标准。您在使用科来福产品的同时，将会与我们一起分享科来福在路面养护领域丰富的知识和经验！

THRACE GROUP

A WORLD OF MATERIALS & SOLUTIONS

Thrace 集团已有 30 多年的历史，总部位于希腊克桑西，拥有超过 1800 多名雇员。是世界上土工合成材料的领军企业，在英国、美国、希腊等 6 个国家拥有制造工厂，在十几个国家设有分公司。我们的年产量达 10 万吨！销售网络遍布 80 多个国家！

我们的质量控制系统遵守国际标准化组织最全面的质量管理体系 ISO 9001：2008。公司全部流程都遵循此标准，为客户提供更佳的可靠性和更优的质量。我们拥有先进的内部实验室，并在著名的欧洲研究所进行检测，从原料采购到最终成品阶段都由经验丰富的持证人员根据欧洲（EN）、美国（ASTM）、英国（BS）和国际标准化组织（ISO）等进行检验。

我们的产品系列包括无纺布、有纺布、土工格栅、排水网、GCL 衬垫、土工纤维以及其它多种土工合成材料。我们的产品销往世界各地，最早在 2005 年即进入中国市场。现在我们已经在香港成立了 Thrace 亚洲分公司，并在上海成立了 Thrace 中国分公司。相信随着我们更加深入的进入中国市场，能为您提供更周到、更贴心的服务。期望我们能够和大家一起共创更加美好的未来！

北京博安达测控科技有限责任公司

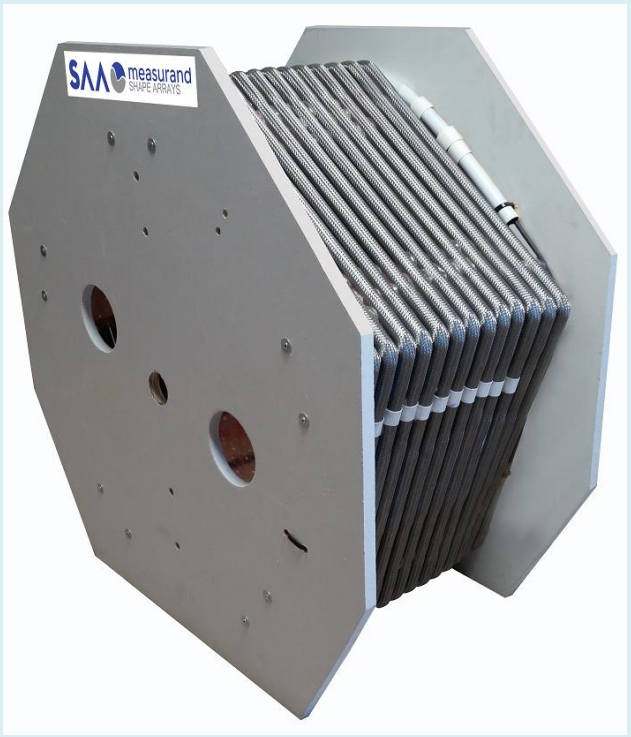
Beijing SAA measure &Control Tech Ltd.

北京博安达测控科技有限责任公司是一家专业提供岩土及结构监测技术的公司。我公司是加拿大 SAA 阵列式位移计在大中国区域的独家代理机构。

SAA 阵列式位移计是一种可以被放置在一个钻孔或嵌入结构内的变形监测传感器。它由多段连续节（segment）串接而成，内部由微电子机械系统（MEMS）加速度计及温度和动态模块组成。

SAA 阵列式位移计是精确、实时、监测 3D 变形的自动测量系统，还可测动态。亚毫米精度、大量程（4 米以上）；安装简单、经济、使用寿命长；安装灵活，可水平、垂直、或任意角度； SAA 实现了实时监测、实时数据采集、实时预警的防灾报警功能；正常情况下，长期免维护。

近年来，我公司为高铁、水电站、坝体、高速公路、深基坑、海床及各种边坡等基础设施提供准确实时的监测服务。为高铁路基沉降、隧道收敛性提供实时监测预警服务，如承揽高铁； 为大型滑坡提供监测设备和测量方案，如云南大华桥电站、河北丰宁电站；此外为多种工程测量盲点提供技术及解决方案。



TIPTOP 卓致力天

TIPTOP China Limited （www.tiptoptest.com）

道路测试技术领先者 The Leader In Road & Highway Testing Technology

十年耕耘，奠定今日道路检测技术行业领先者
展望前路，拓展检测技术科技领域再创新辉煌

十年前的今天，上海卓致力天仪器设备有限公司的创始人秉承着“卓越品质，成就极致”的宗旨，开始了艰难曲折、无畏创新的创业步伐，在道路交通与土木工程检测领域，屡创佳绩。

除了代理英国 PaveTesting、南非 MLS、意大利 MATEST、德国 WILLE Geotechnik 等多个全球著名品牌厂家的产品外，公司目前自主研发生产的产品有：落锤式弯沉仪 FWD、激光路面断面测试仪 LP、路面摩擦系数测试仪 CFT 等。其中落锤式弯沉仪 FWD 通过国际认证，成为国内唯一经过国际认证的 FWD 产品。公司引进世界各国先进的检测技术与设备，结合中国用户的实际需要，为用户提供科学、完善、经济、可靠的技术方案与配套产品；并能根据客户的特殊需求，提供专业先进的个性化服务，最大限度的满足用户要求。公司与诸多国外厂商保持良好的沟通联系，现公司代理近百个世界知名品牌的产品，独家代理数十个世界著名道路交通与土木工程检测设备品牌产品。

卓致力天精心致力于中国道路交通行业，以促进道路交通检测技术发展为己任；在高校设立“卓致力天优秀学生奖学金”，实行校企合作，共同培养人才；赞助或参与各大会议，虚心学习，谋求发展；与外国技术专家互动交流，引进国际先进技术和专利，致力于打造国际化专业团队。所有这些成功，都承载着卓致力天人的辛勤耕耘和不懈追求。在这日新月异的时代，在这更名喜庆的时刻，我们将一如既往地秉承卓致力天的优秀文化，追求科技发展，开创下一个更加灿烂的明天。

欢迎浏览上海卓致力天科技发展有限公司网站了解更多的信息：www.tiptoptest.com

MATEST YOUR PARTNER IN TESTING 意大利

德国WILLE Geotechnik
— 高端土力学及岩石力学试验设备供应商

Wille GEOTECHNIK

Made in 德国 Germany制造

英国PaveTesting道路检测设备
— 路面加速加载测试设备（APT）全球领导者

PAVETESTING

MLS

挪威ViaTech道路与隧道检测设备
— 欧洲领先的道路检测设备制造商

ViaTech

美国Pathway多功能道路检测车
— 全球最大的多功能道路检测车生产商

Pathway Services Inc.
AUTOMATED ROAD AND PAVEMENT CONDITION SURVEYS
美国

泰山玻璃纤维有限公司

Cem-FIL®、Anti-CRAK®耐碱玻纤为混凝土工程建设提供更高的性能保障

泰山玻璃纤维有限公司隶属于中国中材集团有限公司，公司为国家重点高新技术企业。公司拥有无碱 E 玻璃纤维、无硼无氟 TCR 玻璃纤维、耐碱 AR 玻璃纤维和高强 HMG 玻璃纤维、S-1 HMTM 玻璃纤维系列产品。主导产品包括玻璃纤维无捻粗纱、短切原丝毡、电子级纺织纱、电子玻纤布、短切纤维、多轴向织物、缝编织物、方格布等不同规格系列。产品出口美国、欧洲、中东等 70 多个国家和地区。

公司管理科学规范，现已通过 ISO9001 国际质量管理体系、ISO14001 国际环境管理体系、GB/T28001 职业健康安全管理体系认证。

2013 年泰山玻纤与欧文斯科宁达成战略合作，在中国联合生产高性能耐碱玻璃纤维产品。全部生产技术、工艺和质量控制严格满足欧文斯克宁 Cem-FIL®现有标准，双方联手推动该产品的开发、生产和在全球各大市场的销售。泰山玻纤将成为全球最大的耐碱玻纤生产商。

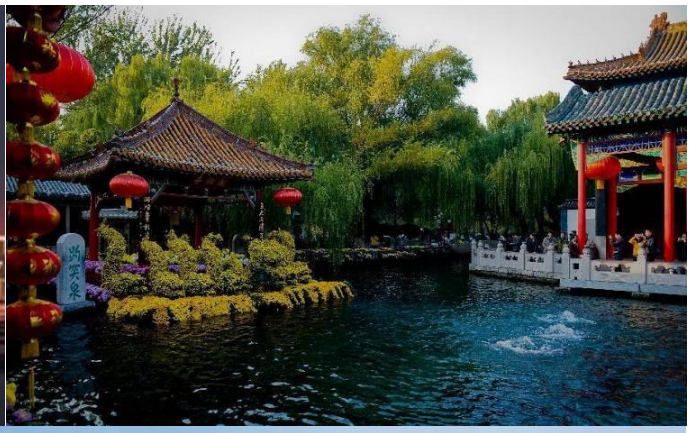
耐碱玻纤是玻璃纤维增强(水泥)混凝土（GRC）、干混砂浆的增强材料，也是应用于高性能增强（水泥）混凝土的新型绿色环保增强材料。泰山玻纤耐碱玻纤系列产品包括水泥基体用直接纱、喷射纱、短切纤维、沥青基体用纤维和树脂基体用纤维。其中，Cem-FIL®高性能耐碱玻纤具有优良的抗碱性，在增强水泥制品和干混砂浆应用上独具优势，可防止混凝土的塑化变形，以及因温度、湿度变化引起的收缩开裂，可增加弯曲强度和延展性，增加混凝土的韧性，已经在 120 多个国家应用。Anti-CRAK®纤维应用至混凝土预拌和预制行业，可控制混凝土的裂纹。此外，耐碱玻纤还是石棉纤维最理想的代用材料。
近年来，耐碱玻璃纤维以其优异的耐腐蚀性能，易分散、优异的施工工艺性，被逐步推广应用于道路、桥梁、海洋工程、厂房地坪等工程建设中。

未来，公司将秉承可持续发展的理念，不断推动国内玻纤行业向前发展，为客户提供优质的产品和服务，致力于成为全球知名的玻璃纤维生产商。

☆ Tunnel panels,
Heathrow Airport, London

☆ Sprayed Concrete
Chengdu-Lanzhou Expressway, China

☆ Sea Barrier Walls
Island R/M, Hawaii



GeoChina International Conference 2016

Shandong, China, July 25 -27, 2016

http://geochina2016.geoconf.org/

geochina.adm@gmail.com