



**The SECOND US-Asia Workshop on
Research and Education Collaboration in
Transportation Infrastructure**

**Development of Infrastructure Engineering in Asia
and North America**

**Legacy, Opportunities, and
Sustainable Future**

**Time & Date: 8:00 am to 12:00 pm,
January 22, 2012**

Location: Marriott, Washington B1

2660 Woodley Road NW · Washington, District Of

Columbia 20008 USA

www.iacip.org



Welcome Speech



Welcome to the 2nd US-Asia Workshop on Research and Education Collaboration in Transportation Infrastructure Forum on Development of Infrastructure Engineering in Asia and North America

Good morning, ladies and gentlemen,

Once again, we are gathered here today in Washington DC for The Second US-China Workshop in Research and Education Collaboration on Transportation Infrastructure. I am glad to take this opportunity to welcome our friends, colleagues, and counterparts from US, China, and other parts of the world to attend this annual event at the TRB conference. This year's workshop is jointly sponsored by the Department of Civil and Ecological Engineering of I-Shou University, Research Institute of Highway (RIOH), and International Association of Chinese Infrastructure Professionals (IACIP). As you can see from the workshop agenda, our organization committee has done excellent work and has brought in distinguished guests from different countries to share their achievements and experience with us.

The past year was very exciting. As a new organization, IACIP held several workshops and conferences jointly with other institutes and universities in both the US and China. We have met with many old friends and made many new friends. Our members have also obtained numerous achievements in their professional careers. With the leadership of IACIP and strong support of its members, IACIP has and will continue becoming an excellent platform and forum for members and friends to foster cooperation and collaboration among various organizations, institutions, and universities in the respective disciplinary and professional areas.

This organization started with the vision of being one of the leading professional organizations in Civil Infrastructural Engineering. We continue to facilitate the advancement of knowledge and technology in the areas of Civil Infrastructure and Systems through education, technology transfer, and research at an international level. Let us work together under the IACIP umbrella to promote the mutual support among IACIP members and friends. I wish the year 2012 to be more prosperous for IACIP members, friends, and IACIP as an organization. Thanks again for this opportunity.

Sincerely,
Zhongjie Zhang
President of IACIP

Through decades of exploration and efforts of several generations, highway and railway systems in Asia, especially in China, have entered a new era that is full of great accomplishments. Let's gather and recall this glorious and challenging history!

The Second US-Asia Workshop on Research and Education Collaboration in Transportation Infrastructure, to be held on January 22, 2012, during the 91st Transportation Research Board Annual Meeting, has the following objectives:

- To review the history and showcase the great strides in the development of China's highway system during the last three decades and foresee the future trends;
- To review the development of Taiwan's expressway system;
- To understand recent changes in the US Federal Highway Administration; and
- To foster US-China collaborations on highway and railway research and education.

This workshop is jointly organized by the International Association of Chinese Infrastructure Professionals (IACIP), the Highway Research Institute of Ministry of Transportation of China, and I-Shou University of Taiwan. Renowned experts in highway, railway, and other infrastructure areas from China, Taiwan, and North America will be invited to deliver the workshop keynote speeches and technical presentations.



The International Association of Chinese Infrastructure Professionals (IACIP) is a registered non-profit professional organization with its members working or studying in the fields of Civil Infrastructure and Systems (CIS) and related areas who are interested in CIS development and related issues. The vision of IACIP is to be a leading professional organization in Civil Infrastructural Engineering worldwide. IACIP aims to facilitate the advancement of knowledge and technology in the areas of Civil Infrastructure and Systems through education, research, and technology transfer at an international level. IACIP promotes the cooperation among members and professional organizations by hosting, sponsoring, and supporting activities and events that meet organization goals and objectives.



The Research Institute of Highway, Ministry of Transportation, PRC is the sole national level research institute in the transportation area. The mission of this institute is to lead the research and development in the areas of pavements, bridges, transportation engineering, intelligent transportation system, highway transportation, public transportation, transportation environment preservation, freight transportation, etc. The institute owns and oversees the operation of one of the best experimental facilities in Asia for comprehensive transportation-related experiments. In the past few decades, the Institute has been leading the design and research on asphalt pavement technologies in China, including the development of relevant pavement design specifications. The accomplishments of the Institute are remarkable.



I-Shou University is located in Taiwan, with all of the academic programs established based on the principle of "respecting both theories and practices; balancing between teaching and research". In 2009, the Webmetrics Ranking of World Universities ranked I-Shou University 371th in the world, 11th out of 163 accredited universities in Taiwan, and the 2nd among private universities in Taiwan. The department offers classes in three general areas: Structural and Geotechnical Engineering, Ecological Engineering, and Engineering Management. Areas of research include structure engineering, geotechnical engineering, transportation engineering, construction management, construction materials, and environmental and ecological engineering.

The SECOND US-Asia Workshop on Research and Education

Collaboration in Transportation Infrastructure:

Development of Infrastructure Engineering in Asia and North America

Workshop Agenda

Time & Date: 8:00 am to 12:00 pm, Sunday, January 22, 2012

Location: Marriott, Washington B1

TIME SESSION

8:00 – 8:05 Opening Session

Dr. Chung Wu (Virginia Department of Transportation)

8:05 – 8:15 Welcome Speech

Dr. Zhongjie (Doc) Zhang (Louisiana Transportation Research Center)

8:15 – 9:30 Keynote Speech (Moderators: Dr. Yingwu Fang and Dr. Linbing Wang)

8:15 – 8:40 *Development of the Expressway Network in Taiwan*, Dr. Wei-Hsing Huang (National Central University in Taiwan)

8:40 – 9:05 *The Changes in Federal Highway Administration*, Mr. Michael Moravec (Federal Highway Administration, USA)

9:05 – 9:30 *The Information Technology for Tunneling Construction*, Dr. Hehua Zhu (Tongji University)

9:30 – 9:40 Break

9:40 – 10:40 Session 1: (Moderators: Dr. Shihui Shen and Dr. Bill Yu)

9:40 – 10:00: *Soil Properties after Freezing-Thawing Cycles, State of the Art; a Specific Recent Research on Modified Soil for High-Speed Railway Harbin-Dalian*, Dr. Jiankun Liu (Beijing Jiaotong University)

10:00 – 10:20: *Noise Reduction Pavement Research at NCAT Test Track*, Dr. Gongyun Liao (Southeast University)

10:20 – 10:30 Break

10:30 – 11:30 Session 2: (Moderators: Dr. Ming Xiao and Dr. Mingjiang Tao)

10:30 – 10:50: *Riding Waves: Wave-Based Technologies for Engineering Decision-Making*, Dr. Xiong (Bill) Yu (Case Western Reserve University)

10:50 – 11:10: *Current Development of Concrete Pavement Construction in China*, Dr. Bo Tian (Research Institute of Highway Ministry of Transportation, China)

11:10 – 11:30 *Bridge Crack Measurement Based on Image Processing*, Prof. Hong Zhang and

The 2nd US-Asia Workshop on Research and Education Collaboration in Transportation Infrastructure Forum
Development of Infrastructure Engineering in Asia and North America

Prof. Guansheng Yin, (School of Science, Chang'an University)

11:30 – 12:00 Discussions and Closing Remarks (Moderators: Dr. Jie Han and Mr. Guanhua Fu)

12:00 Adjourn

18:30 Dinner at Tony Cheng Seafood (中国城海鲜大酒楼), 619 H St. NW, Washington, DC 20001, 202-842-8669 (Take Metro Red line to Gallery PL-China Town).

Introduction of Speakers



Dr. Wei-Hsing Huang,

Professor of National Central University in Taiwan; Editor-in-Chief, IJPR

Major Research Direction: Pavement analysis and design, use of waste materials in highway construction, and engineered barrier for containment of radioactive wastes

Title of presentation: *Development of the Expressway Network in Taiwan*



Mr. Mr. Michael Moravec

Senior Highway Engineer, Federal Highway Administration

Major Research Direction: Technology transfer and marketing, Computer-based training (CBT), Weigh-in-Motion Traffic Data Collection. And high friction surfacing

Title of presentation: *The Changes in Federal Highway Administration*



Dr. Hehua Zhu

Professor, Tongji University; Director of Engineering Research Center of Information Technology in Civil Engineering of Ministry of Education, China.

Major Research Direction: Numerical Methods in Geo-mechanics and Geo-engineering, Life-cycle Design Theory of Tunnel and Underground Engineering, Digital Underground Space and Engineering(DUSE), Fire Disaster Reduction for Underground Space

Title of presentation: *The Information Technology for Tunneling Construction*



Dr. Jiankun Liu

Professor, Beijing Jiaotong University

Major Research Direction: frost action in soil and railroad subgrade engineering

Title of presentation: *Soil Properties after Freezing-Thawing Cycles, State of the Art; a Specific Recent Research on Modified Soil for High-Speed Railway Harbin-Dalian*



Dr. Gongyun Liao

Associate Professor, Southeast University

Major Research Direction: numerical simulation of pavement response under vehicle load and noise generation mechanism, design and analysis of low noise asphalt and concrete pavement

Title of presentation: *Noise Reduction Pavement Research at NCAT Test Track.*



Dr. Xiong (Bill) Yu

Associated Professor, Case Western Reserve University

Major Research Direction: interdisciplinary aspects of sensor technology, materials and simulation-assisted engineering

Title of presentation: *Riding Waves: Wave-Based Technologies for Engineering Decision-Making*



Dr. Bo Tian

Deputy Director, Concrete Pavement Branch, Research Institute of Highway, China

Major Research Direction: long life concrete pavements, functional concrete pavement structures, and new technology and materials

Title of presentation: *Current Development of Concrete Pavement Construction in China*



Dr. Hong Zhang

Associate Professor, Chang'an University

Major Research Direction: structural engineering mechanical calculation and analysis, structure engineering detection and evaluation

Title of presentation: *Bridge Crack Measurement Based on Image Processing*

Introduction of Organizing Committee



Dr. Chung Wu is the District Materials Engineer at Virginia Department of Transportation, overseeing the quality control/quality assurance program of Hampton Roads District. Graduated from University of Florida, Dr. Wu has been actively in many professional societies, including ASCE, TRB, ISCP, ASTM, and others. He is currently serving as the Co-Editor-in-Chief of International Journal of Pavement Research and Technology (IJPRT). (Co-Chair of the Organizing Committee)



Dr. Yingwu Fang is Vice-President of IACIP, a professional engineer and contractor administrator for Virginia Department of Transportation. He has extensive research and work experience on many subjects in pavement, highway, airport, land development, work zone safety, transportation planning, etc. In addition, Dr. Fang is also an expert on relational database with four Oracle Certified Professional certificates. Over the years, Dr. Fang has been serving on various professional organizations and technical committees as journal editor, peer paper reviewer, committee member, and consulting expert for private industry, government agencies, and academic area. (Co-Chair of the Organizing Committee)



Dr. Zhen Feng has been providing Civil Engineering Consulting services for clients from both public and private sectors. His professional experience covers from highway transportation, civil infrastructures, airport and major industrial facilities, land development, to large transit design-build projects. Currently, Dr. Feng is working for the Virginia Department of Transportation (VDOT) as a General Engineering Consultant on the Northern Virginia Megaprojects - Roadway Lead Engineer on both Dulles Metrorail Extension and I-95 HOV/HOT Lanes projects.



Dr. Jie Han Vice-President of IACIP, is a professional engineer and professor in civil engineering at the University of Kansas. He has served as technical co-chairs for major international geotechnical engineering conferences including ASCE GeoFrontiers 2011 and GeoShanghai 2006, a guest editor, associate editor, or editorial board member for seven international and Chinese journals, a member for several international technical and conference committees. Prof. Han's research and practical experiences have dealt with

geosynthetics-reinforced earth structures, ground improvement, pile foundations, and pavement applications. He has published more than 200 peer-reviewed journal and conference papers.



Dr. Deng-Fong Lin is a professor at the Department of Civil and Ecological Engineering of I-Shou University in Taiwan. His areas of expertise are in pavement engineering, materials recycling and reuse, sustainable development in transportation, etc. Dr. Lin has published over 250 peer-reviewed journal and conference papers, including 38 SCI/Ei indexed papers. He has been selected as the Most Outstanding Engineering Professor Award recipient by the Chinese Society of Pavement Engineering. He was the founding Co-Editor-in-Chief of International Journal of Pavement Research and Technology (IJPRT).



Dr. Shihui Shen received her PhD degree from the University of Illinois at Urbana – Champaign in 2006 and joined Washington State University as an assistant professor in 2007. She also serves as the director of the Washington Center for Asphalt Technology (WCAT), an AASHTO accredited lab through AMRL. Dr. Shen has been working on a number of research projects on pavements and paving materials for better durability, energy efficiency, and sustainability, and has published the findings in journals, conference proceedings, and research reports. She is currently the Principal Investigator of the NCHRP 9-49A project working on the long-term field performance of WMA pavements. She is a member of the TRB AFK30 committee and the ASCE Geo-Institute Pavement committee.



Dr. Mingjiang Tao is an assistant professor in the Department of Civil and Environmental Engineering at Worcester Polytechnic Institute. His research interest is in developing sustainable civil infrastructure materials by utilizing natural and waste materials. Dr. Tao has published over 20 papers and co-edited one GSP. He is a member of ASCE and TRB.



Dr. Linbing Wang Vice-President of IACIP, is a professional engineer and professor in civil engineering at Virginia Tech. He is the Director for the Center for Smart Infrastructure and Sensing Technology at Virginia Tech Transportation Institute. Dr. Wang is the founding chair for the Committee for Mechanics of Pavements of the Engineering Mechanics Institute of ASCE and is involved in many research activities of FHWA, NSF, and the national Academies. Dr. Wang's research areas include smart and sustainable technologies, energy harvest, health monitoring, innovative infrastructure assessment and performance predictions; high performance materials; multiple-scale

characterization, modeling and simulation; pavement testing and mechanistic pavement design, infrastructure preservation and management; and application of remote sensing and imaging techniques. Dr. Wang has organized several symposiums and workshops sponsored by NSF.



Dr. Ming Xiao is an Associate Professor of Geotechnical Engineering in the Department of Civil and Geomatics Engineering at California State University, Fresno. Dr. Xiao's research involves soil-water-interaction (including surface and subsurface erosion), particle transport and multi-phase flow and distribution in porous media, geo-environmental engineering, and geotechnical earthquake engineering. He has published fifteen peer-reviewed journal papers, twenty-three peer-reviewed conference papers, and one book, and a second book is in writing. Dr. Xiao has participated in many funded research projects, funded by Caltrans, National Science Foundation, and NASA. Dr. Xiao is a registered professional engineer in California and Ohio. He is a member of the ASCE, secretary of the Geo-Institute Technical Committee on Embankments, Dams, and Slopes, and Chair of the G-I Technical Committee on Geotechnics of Soil Erosion.



Dr. Xiong (Bill) Yu is an associate professor at the Department of Civil Engineering, Case Western Reserve University. His research interest is in the broad area of civil engineering with emphasis on embracing innovative sensors and materials to improve sustainability and intelligence of the civil infrastructure system. He is the PI of over 20 research projects sponsored by various agencies and private industry. Dr. Yu is a member of ASCE, ISSMGE, IEEE, ASME, SPIE, ASTM and TRB. He serves on SHRP and NCHRP project panels. He is a member of editorial board of three ASCE and ASTM journals. Dr. Yu is a recipient of the NSF CAREER award in 2009. He has published over 120 papers and co-edited three GSPs. He holds 2 patents, 1 pending patent application, 1 provisional patents and 1 additional invention disclosure.



Dr. Zhongjie Zhang, President of IACIP, is a registered professional engineer and the Research Administrator of Louisiana Transportation Research Center, USA. He managed and supervised more than 60 research programs and projects with more than 25 years of experience in the highway infrastructure area that include its design, construction, operation, and maintenance. He served as a member in many national committees and expert panels in those areas and also served as an executive production editor for the International Journal of Pavement Research and Technology. He received his B.S., M.S., and Ph.D. from Chang An University, Tongji University, and Louisiana State University, respectively. He is also a guest professor at Tongji University.



Development of Infrastructure Engineering in Asia and North Am