EXECUTIVE SUMMARY

Seminar on
Engineering Education for a Global Economy
October 20-24, 2002
Shanghai and Beijing
People's Republic of China

The Seminar on Engineering Education for a Global Economy was held on the campuses of Shanghai Jiao Tong University and Beihang University (BUAA). Beginning with an Opening Ceremony at the Jianguo Hotel in Shanghai on the evening of October 20, 2002, plenary sessions continued at Shanghai Jiao Tong University for the next two days. On the morning of October 23 the delegates adjourned to Beijing where the seminar continued with a Roundtable Policy Meeting on the afternoon of October 23. The seminar concluded on October 24 with plenary sessions all day and a closing ceremony that evening. The National Natural Science Foundation of China (NSFC) and the U.S. National Science Foundation (NSF) provided financial support for the seminar.

PURPOSE

The Seminar on Engineering Education for a Global Economy was the fifth in a decade-long series of bi-lateral dialogues between representatives from the principal sectors of the science and technology enterprises in China and the United States. Its theme was selected to provide opportunities for broad-based, far-ranging discussions centered around the changing demands for engineering education in the knowledge-based global economy. Underlying the selection of this theme is the assumption that a deeper understanding of and appreciation for differing perspectives and approaches to the policy components of these issues is important. Improved understanding in both countries will result in better planning and implementation—nationally, bilaterally, and regionally—for the effective and balanced development of a global workforce.

PROGRAM TOPICAL AREAS

The seminar was organized around three topical areas: I. Globalization of Engineering Education; II. Lifelong Learning & Distance Education; and III. Innovation and Creation in Engineering Education. Elements of all three topics were addressed in Shanghai and in Beijing, as will be reflected in the Technical Program appended to this Executive Summary. This executive summary is organized mainly by topical area, not by geographical or temporal proximity of the presentations. There were also keynotes

addresses presented in Shanghai and Beijing, two each by U.S. and Chinese speakers. These are briefly noted in this executive summary.

Opening Ceremony Remarks

Remarks were presented at the opening ceremony in Shanghai by Xu Kuangdi (President, Chinese Academy of Engineering and former Mayor of Shanghai), Xie Shengwu (President, Shanghai Jiao Tong University), J. Thomas Ratchford (Professor at George Mason University Law School and Director of the China-U.S. S&T Policy Cooperation Program), and Yan Juanqi (Vice Mayor of Shanghai). Several themes recurred in these remarks. First the importance of the China-U.S. bi-lateral relationship to global economic prosperity and world peace was noted. The role of engineers and scientists in maintaining a friendly relationship even in the face of challenging diplomatic problems was lauded. There were mutual concerns about the future of engineering talent because of a trend in both countries for an increasing number of talented students to enter fields such as finance and business. This is turn provides challenges to encourage better public understanding of engineering and science and to reform curricula and teaching methods in engineering.

Shanghai Keynotes

The U.S. co-chair of the seminar, Edward Alton Parrish, was not able to attend for health reasons. His keynote address was presented in print. In it he identified the primary challenges facing engineering education in the years ahead: a thorough grounding in fundamentals with necessary depth in the appropriate discipline consistent with the degree sought and the highest professional competence; effective skills for success in life—the so-called "soft" skills (which include the ability to communicate orally and in writing; leadership and intellectual maturity; understanding of and appreciation for literary and aesthetic arts which enrich lives; ability to work in multicultural, interdisciplinary teams; appreciation for the impact of technology on society, including ethical, economic, political, safety issues); and sustainable lifelong learning skills. He went on to discuss how Worcester Polytechnic Institute is addressing the challenges.

The U.S. keynote in Shanghai was presented by Stephen Director. His theme was globalization of engineering education. The University of Michigan-Shanghai Jiao Tong University bilateral collaboration features several mechanical engineering education courses offered by Michigan faculty on the Shanghai Jiao Tong University campus. The importance of new topics and themes in engineering courses, such as a course on Global Product Development, was also noted. Such courses provide engineering graduate students with hands-on experience in the development of global products as well as the process of global development of products.

The Chinese keynote in Shanghai addressed the concepts of talents and education in the structure and reform of the educational system. Weng Shilie identified five major trends for education in the 21st century: integrating education, research and manufacturing; synthesizing science and technology; rationalizing social development; globalizing the

economy; and realizing lifelong education. Good education requires knowledge, competence and quality. Engineering education has unique demands on the educational system because of the need to transmit knowledge of experimental practice. In engineering "Genuine knowledge comes from practice." In China efforts are being made to strengthen experimental practice through provision of better research facilities and experimental bases.

Beijing Keynotes

The Chinese Keynote in Beijing was presented by Wei Yu. The multidisciplinary requirements of modern life, and by extension the engineering professions, was emphasized in his address. Engineering education has to adapt to this trend just like other elements of everyday life. Within engineering this means that students in one specialty (such as mechanical engineering) need to become expert in other fields (such as computer science). In addition to changes in course content there are also revolutionary changes occurring in the way engineering knowledge is learned. Web-based learning is of special attraction, since it provides an opportunity to design courses (from kindergarten through university) that are carefully balanced between range and depth in the subjects offered. The concept of "learning by doing" was applied to these diverse educational challenges and attention given both to principles and application. He went on to address the relevance some general educational reforms have for engineering education reform.

Public policy impacts of globalizing engineering education was the topic of the U.S. keynote, presented by J. Thomas Ratchford. He pointed out that producing technology is only one element of the societal role of engineering. Transmitting engineering knowledge, both explicit and tacit, is just as important. After reviewing basic global trends in science and technology, such as investments in technology, value of technology, a more technology intensive economy, global convergence in technology and education, and the decreasing role of governments in technology development, this keynote went on to examine best practices for obtaining and utilizing knowledge. Finally, the interactions between policies specifically for engineering education and more general policies that broadly affect education were outlined and delegates were challenged to integrate technical and policy considerations in their own work.

Concluding Ceremony Remarks

The seminar officially closed on the evening of October 24. The concluding ceremony featured remarks by Zhou Bingkun (Vice President of NSFC); Li Wei, (President of Beihang University); Winfred Phillips (Vice President, University of Florida); Mrs. Wei Yu (Ministry of Education of China); and Shen Shituan (Former President, Beihang University). These distinguished educational leaders of China and the U.S. noted the opportunities for continued cooperation that were identified in the seminar sessions and agreed to proceed to implement at least some of those opportunities in coming months and years. These remarks are reflected in the conclusions and recommendations sections noted below in this executive summary.

Topic I. Globalization of Engineering Education

The development of the global economy has produced more companies with multi-national bases. International cooperation and collaboration for engineering is becoming a common phenomenon in companies as well as universities and other organizations. Countries are establishing supportive public policy agendas, and mutual recognition of professional credentials is of growing importance because engineers are more frequently moving from one place to another across national boundaries. Further, engineering designs need to take account of both local and global cultural perspectives. All these concerns have increased demands for educating new engineers with international perspectives.

The seminar addressed questions of what influence should globalization have in shaping policies related to engineering education and in the process of policy making at national and international levels. How should engineering education curricula and programs be adapted to match this changing environment? How should accreditation (and reciprocal recognition of credentials) in different countries be handled?

Speakers focused on the many challenges facing higher education, especially engineering education. Roberts Jones, for example, noted the need for substantial restructuring of the traditional institutional roles in preparing engineers. This theme of reform in engineering education was continued by Wang Sunyu, who emphasized its importance in enhancing industrial competition and enhancing the professional stature of engineers. Gretchen Kalonji emphasized the importance of international experiences for engineering students at both the undergraduate as well as the graduate levels. The successful Sichuan University-University of Washington joint program was cited for its contributions to enhanced educational and research experiences and to better understanding of cross-cultural education in engineering.

Ed Yang addressed university-industry issues and opportunities. He noted the growing importance of industry partnerships with universities in this age of globalization and new internet technologies. Globalization implies collaborations and mobility of the engineering workforce, trends that have accelerated in recent years. These trends across international borders in turn raises questions of equivalence in educational content and standards, professional qualifications and accreditation (of both institutions and individuals), as well as holistic education for more efficient global collaboration. New internet technologies provide opportunities for enhanced instructional efficiency. Industry and educational institutes should also strive to contribute toward improved productivity, innovative new business models and enhanced quality of life around the world. Winfred M. Phillips and Wu Qidi both raised relevant aspects of this complicated set of technical, policy and educational issues. This family of topics related to accreditation was perhaps the most strongly discussed at the seminar and is expected to lead to additional cooperative efforts in the future. One aspect of this set of topics was discussed by Yu Shouwen, specifically the internationalization of engineering education and the changes that have taken place in China's educational system as a consequence. Alexander DeAngelis noted this internationalization trend is consistent with an overall, rapidly

increasing globalization of science and engineering research and education; NSF international programs reflect this trend. Chen Huai provided similar insights on the evolution of Chinese science and engineering toward a global structure.

Topic II. Lifelong Learning & Distance Education

The rapid pace of technological change requires engineers to learn continuously throughout their careers. It is important to know how they can best achieve life-long learning, and how universities and companies can best provide opportunities for such learning. The seminar addressed this issue as well as questions such as what role universities should play in retraining engineers for career changes later in life.

Lifelong learning (continuing education) has emerged as one of the highest priorities for engineering educators around the world. Speakers at the seminar addressed both the pedagogy of lifelong learning and its implementation. For example, Xie Qihua emphasized the importance of continuing education in facilitating technological innovation in a leading Chinese company, Baosteel. Pedagogy and implementing technology came together in the presentation by Huang Jin on e-learning and software engineering education. She outlined the interdependencies of various components of the "educational platform" to successful distance learning. Eric Hamilton pointed out three frontiers in e-learning: technological change, learning in distributed settings, and pedagogical developments at the intersections of these. Jane Prey noted the work of the Digital Library Initiative, an NSF effort to support development of excellent educational materials fo students, teachers and the general public. Keh Tung described how a major U.S. company, General Motors, applies a variety of technologies and approaches to develop competitive talent. "Training the trainers" is an important element of this strategy. Jack Wilson reviewed how computing, communication and cognitive science advances have driven changes in engineering education. He described how new formats, such as computer based courses, have in turn led to changes in content of curricula.

Topic III. Innovation and Creation in Engineering Education

The soul of engineering is innovation and creation. The rapid advancement of science and technology has made this issue even more crucial for engineering education. Increasingly, knowledge management systems and industry-university partnerships, as well as incubators and technology transfer offices, are playing significant roles.

Explicit knowledge is generally taught well and transferred easily. Implicit or tacit knowledge, frequently referred as "know-how," is not taught well and becomes an even more difficult objective to implement in the global science and engineering environment. The seminar addressed questions like: how can the principles of knowledge management be applied to strengthen engineering education in the global economy? How can the community of engineering educators strengthen students' identity, encourage critical thinking and empower students with the capability of innovation and creation? What role can research parks play? What about the role of partnerships between universities and companies in preparing students to be future innovators?

Incorporating innovation in the engineering education curriculum has been an important element in the success of Shanghai Jiao Tong University. University President Shi Shengwu set the tone for seminar discussion of this topic by noting the roles of widening the teaching platform, hands-on experience, and a new credit system in fostering creativity among students. Jun Ke highlighted the role of engineering education in the development of China during the remainder of this century, and described a very exciting pilot program emphasizing undergraduate research undertaken at the University of Science and Technology, Beijing. The need for quality assurance in engineering education was the important theme addressed by Richard Anderson. By comparing the U.S. and European models he was able to provide analysis relevant to China's interests in the globalization of engineering education.

Innovation and creation in engineering education was the theme of remarks by Zhou Zhewei. He addressed the needs of local companies as well as broader needs for continuing education. The need for engineers to identify social needs and to develop innovative products and services to address those needs is the heart of engineering entrepreneurship according to Frank Huband. This is reflected in trends for engineers to learn "soft skills" such as negotiation, finance and marketing. Knowing what to learn is only part of the challenge, however. How students should be taught innovation and creativity is just as important. It is this question of "how" that was addressed by Xie Youbai, who concluded that students must master knowledge acquirement, integration and utilization, not just benefit from knowledge transfer. James Melsa noted that for this process to succeed, and for the "global skills" of students to be fully developed, a network of institutions (including companies) and individuals must be involved. He offered the Global Academic Industrial Network (GA"IN?) as one successful example.

CONCLUSIONS AND RECOMMENDATIONS

The U.S. and Chinese participants learned a great deal from the formal presentations and, to an even greater degree, from the discussions and personal interactions. All in attendance thanked the U.S. National Science Foundation and the National Natural Science Foundation of China for making this possible.

Conclusions

The participants learned that:

1. China and the U.S. share many objectives. The major interests and goals of the Chinese and U.S. engineering educators are mutual ones.

2. The major topics addressed at this seminar provide appropriate challenges for engineering educators in both communities. These include:

    A. Globalization (Markets)
    B. Education Reform (Innovation, Creation)

C. Continuing Education and e-Learning
D. Quality Assessment and Accreditation

An integrating theme of the globalization focus is economic opportunity. There is a clear indication that a continuing China-U.S. bilateral conversation on engineering education is important, and that it can be mutually beneficial and serve as an introduction to broader opportunities for reform of policies and practices. Both sides believe that technology is a critical resource for increasing economic opportunity, and that engineering education is a cornerstone of the structure of polices and practices that will assure the opportunity becomes a reality. As Beijing keynote speaker Tom Ratchford noted, (this was) "... a precedent setting bilateral conference on engineering education."

Unfinished Business and Recommendations

[These sections are still being edited by the seminar participants and will be added later]

Technical Program

Sunday, October 20, 2002 (Shanghai).

8:00 AM–6:00 PM	Registration	
6:00 – 9:00 PM	Opening Ceremony and Banquet	Chairmen: Shilie WENG J. T. Ratchford

Monday, October 21, 2002 (Shanghai). Chairmen: Shilie WENG and W. M. Phillips

Time	Session	Speaker
8:30 – 9:00 AM	Coffee Social	
9:00 – 10:00 AM	US Keynote ***Globalization and Engineering Education***	S. W. Director
10:00 – 10:30 AM	Break	
10:30 – 11:15 AM	Globalization of Engineering Education ***Challenges Facing Higher Education***	R. Jones
11:15 – 12:00 PM	Globalization of Engineering Education ***Engineering Education and Internationalization of Engineering Education***	Shouwen YU
12:00 – 1:30 PM	Lunch	
1:30 – 2:15 PM	Globalization of Engineering Education ***Accreditation and Mobility of Engineers in the Global Marketplace***	W. M. Phillips
2:15 – 3:00 PM	Globalization of Engineering Education ***Specialty Assessment and Professional Qualification Accreditation: How Engineering Education in China Match International Practices***	Qidi WU
3:00 – 3:30 PM	Break	
3:30 – 4:15 PM	Globalization of Engineering Education ***Reinventing the Partnership with Higher Educational Institutes in the Globalization Age***	Ed Yang
4:15 – 5:00 PM	Lifelong Learning and Distance Education ***Continuing Engineering Education Facilitates Enterprise's Technological Innovation***	Qihua XIE

Tuesday, October 22, 2002 (Shanghai). Chairmen: W. M. Phillips and Shilie WENG

Time	Session	Speaker
8:30 – 9:15 AM	China Keynote ***The Concept of Talent and the Concept of Education***	Shilie WENG
9:15 – 10:00 AM	***Reform and Development in Engineering Education in China in the Twenty-first Century***	Gaofeng ZHU
10:00 – 10:30 AM	Break	
10:30 – 11:15 AM	Innovation and Creation in Engineering Education ***Innovation & Creativity in Engineering Education***	Shengwu XIE
11:15 – 12:00 PM	Lifelong Learning and Distance Education ***eLearning in Engineering: the Interplay of Technology and Pedagogy***	J. Wilson
12:00 – 1:30 PM	Lunch	
1:30 – 2:15 PM	Innovation and Creation in Engineering Education ***Engineering Education for Developing China in the Twenty-First Century***	Jun KE
2:15 – 3:00 PM	Innovation and Creation in Engineering Education ***International Accreditation Activities for Engineering Education***	R. O. Anderson
3:00 – 3:30 PM	Break	
3:30 – 4:15 PM	Innovation and Creation in Engineering Education ***Innovation And Creation In Engineering Education***	Zhewei ZHOU
4:15 – 5:00 PM	Innovation and Creation in Engineering Education ***Preparing Engineers for Creativity***	F. L. Huband

Wednesday, October 23, 2002 (Beijing).

Time	Session	Speaker
3:00 – 4:30 PM	China-US Roundtable*	Shituan SHEN Eric Hamilton Jane Prey
4:30 – 5:00 PM	Break	
5:00 – 6:00 PM	China-US Roundtable* The Roundtable is intended as a forum for a moderated discussion of the main issues raised during the various sessions.	

Thursday, October 24, 2002 (Beijing). Chairmen: J. T. Ratchford and Shituan SHEN

Time	Session	Speaker
8:30 – 9:15 AM	China Keynote ***Web-Based "Learning by Doing" Inquiry Learning***	Yu WEI
9:15 – 10:00 AM	US Keynote ***Public Policy Impact***	J. T. Ratchford
10:00 – 10:30 AM	Break	
10:30 – 11:15 AM	Globalization of Engineering Education ***Reform in Engineering Education and Enhancing Industrial Competition***	Sunyu WANG
11:15 – 12:00 PM	Globalization of Engineering Education ***Multinational Project-Based Approaches to Integrating Engineering Education and Research***	G. Kalonji
12:00 – 1:30 PM	Lunch	
1:30 – 2:15 PM	Innovation and Creation in Engineering Education ***How to Educate Students with the Ability of Innovation and Creation***	Youbai XIE
2:15 – 3:00 PM	Innovation and Creation in Engineering Education ***Achieving a Global Academic Industrial Network for Students and Faculty***	J. L. Melsa

3:00 – 3:30 PM	Break	
3:30 – 4:15 PM	Lifelong Learning and Distance Education ***E-learning and software engineering education***	Jin HUANG
4:15 – 5:00 PM	Lifelong Learning and Distance Education ***General Motors China Engineering Education***	K. H. Tung
6:50 – 9:30 PM	Closing Ceremony and Banquet	Chairmen: W. M. Phillips Shituan SHEN

Additional speakers: US: A. P. DeAngelis, E. R. Hamilton, J. C. Prey China: Weijiang ZHANG, Yantong ZHANG, Niancai LIU

US Delegation

China-US Bilateral Seminar on Engineering Education

Shanghai-Beijing, PRC, October 20-24, 2002

Richard O. Anderson, P.E. (Organizing Committee)
President
SOMAT Engineering, Inc.
26445 Northline
Taylor, MI 48180
734-946-4966
734-946-1147 Fax
roape1@aol.com

Alexander P. DeAngelis (Organizing Committee)
Program Coordinator, East Asia and Pacific, Office of International Science and Engineering
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
703-292-8704
703-292-9175 Fax
adeangel@nsf.gov

Dr. Stephen W. Director (Shanghai only)
Dean of Engineering
Robert H. Lurie Engineering Center
University of Michigan
1221 Beal Avenue
Ann Arbor, MI 48109
734-647-7010
734-647-7009 Fax
director@umich.edu

Dr. Eric R. Hamilton
Director, Division of Research, Evaluation and Communication
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
703-292-8650
703-292-9046 Fax
ehamilto@nsf.gov

Dr. Frank L. Huband (Organizing Committee)
Executive Director
American Society for Engineering Education

1818 N Street, N.W., Suite 600
Washington, DC 20036
202-331-3500
202-265-8504 Fax
f.huband@asee.org

Mr. Roberts T. Jones
President and CEO
National Alliance of Business
1201 New York Ave., NW
Suite 700
Washington, D.C. 20005
202-289-2888
202-289-1303 Fax
JonesR@nab.com

Dr. Gretchen Kalonji
Kyocera Professor of Materials Science
Department of Materials Science and Engineering
Roberts Hall, Box 352120
Seattle, WA 98195
206-543-1115
206-543-3100 Fax
kalonji@u.washington.edu

Dr. James L. Melsa
Dean of Engineering
College of Engineering
Iowa State University
104 Marston Hall
Ames, IA 50011
515-294-5933
515-294-9273 Fax
melsa@iastate.edu

Dr. Edward Alton Parrish, P.E., Chair (Organizing Committee)
President and Professor of Electrical and Computer Engineering
Office of the President
Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609
508-831-5200
508-831-5980 Fax
eap@wpi.edu

Dr. Winfred M. Phillips

Vice President for Research and Dean of the Graduate School
Research and Graduate Programs
223 Grinter Hall P.O. Box 115500
University of Florida
Gainesville, FL 32611
352-392-9271
352-846-0491 Fax
wphil@engnet.ufl.edu

Dr. Jane Chu Prey
Program Director
Division of Undergraduate Education
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
703/292-4629
703/292-9015 Fax
jprey@nsf.gov

Dr. J. Thomas Ratchford (Organizing Committee)
Distinguished Visiting Professor
National Center for Technology & Law
George Mason University School of Law
3401 North Fairfax Drive, MS 1E5
Arlington, VA 22201
703-993-8205
703-993-8211 Fax
jratchfo@gmu.edu

Mr. Keh. H. Tung
Training and Development Director for China
General Motors University
Shanghai GM Training Center
Shanghai, PRC
86-21-68975-8833 x 7611
86-21-6281-3336 Fax
keh.tung@gm.com.cn

Dr. Jack Wilson
Chief Executive Officer
UmassOnline
One Beacon Street
Boston, MA 02108
617-287-7160
617-287-7044 Fax
jwilson@umassonline.net

Ed. Yang
Vice President of Strategic Architecture
Hewlett-Packard Company
ed_yang@hp.com

China Delegation

China-US Bilateral Seminar on Engineering Education

Shanghai-Beijing, PRC, October 20-24, 2002

Ms. CHEN, Huai (Organizing Committee)
Division Director
Bureau of International Cooperation
National Natural Science Foundation of China
Tel: +86 10 6232 7017
Fax: +86 10 6232 7004
Email: chenhuai@mail.nsfc.gov.cn

Dr. HAN, Yu (Organizing Committee)
Division Director
Bureau of Policy
National Natural Science Foundation of China
Tel: +86 10 6232 6990
Fax: + 86 10 6232 7004
Email: hanyu@mail.nsfc.gov.cn

Dr. HUANG, Jin
Ambow Corporation
5201 Great America Parkway
Santa Clara, CA 95054
Tel: 408-562-6357
Fax: 408-562-6364
Email: jinhuang@usa.net / jin.huang@ambow.com.cn

Dr. KE, Jun
Senior Member, Chinese Academy of Sciences
Adviser to the President
Beijing University of Science & Technology
No. 30 Xueyuan Road, Haidian District, Beijing, 100083 China
Tel: 0086-10-62332490
Fax:0086-10-86231020
tko@public.bta.net.cn

Dr. LI, Ming (Organizing Committee)
Deputy Director General
Dept. Engineering and Materials Sciences
National Natural Science Foundation of China
Tel: +86 10 6232 7100
Fax: +86 10 6232 7004
Email: lim@mail.nsfc.gov.cn

Dr. LIU, Niancai
Professor, Dean for Undergraduate Education
Shanghai Jiao Tong University
Shanghai, 200240, China
Tel: 0086-21-54742563
Fax: 0086-21-54742477
ncliu@sjtu.edu.cn

Dr. REN, Xiaomin
Vice President, Professor
Beijing University of Posts and Telecommunications
No.10 Xitucheng Road, Haidian District, Beijing, 100876 China
Tel: 0086-10-62282615
Fax: 0086-10-62285008
xmren@bupt.edu.cn

Dr. SHEN, Shituan, Chairman (Organizing Committee)
Former President of Beijing University of Aeronautics and Astronautics
Senior Member of Educational Committee of Chinese Academy of Engineering
Beijing University of Aeronautics and Astronautics
No.37 Xueyuan Road, Haidian District, Beijing 100083, China
Tel: 0086-10-82317552
Fax: 0086-10-82328058

Dr. WANG, Sunyu
Professor, Director
Institute of Education Research of Tsinghua University
Tsinghua University, Beijing, 10084, China
Tel: 0086-10-62784663, 13910186279
Fax: 0086-10-62792450
sunyu-eri@mail.tsinghua.edu.cn

Mrs. WEI, Yu
Vice Minister, Ministry of Education of China
Vice President, China Association for Science and technology
Academician of Chinese Academy of Engineering
Ministry of Education, PRC
37 Da Mu Cang Hu Tong Xidan, Beijing, 100816
Tel: 0086-10-66096339
Fax: 0086-10-66413281
yw.rcls@163.net
weiyu@moe.edu.cn

Dr. WENG, Shilie, Chairman (Organizing Committee)
Academician of Chinese Academy of Engineering
Former President, Professor

Shanghai Jiao Tong University
Shanghai Jiao Tong University, Shanghai, 200240, China
Tel: 0086-21-62933456
slweng@mail.sjtu.edu.cn

Mrs. WU, Qidi
President, Professor
Tongji University
1239 Siping Road, Shanghai, 200092, China
Tel: 0086-21-65983300
Fax: 0086-21-65983703

Ms. XIE, Bingyu (Organizing Committee)
Executive Officer
Division of Civil, Hydraulic & Architecture Engineering
Chinese Academy of Engineering
Tel\Fax: +86 10 6852 6072
Email: xieby@mail.cae.ac.cn

Dr. XIE, Qihua
Manager General
Shanghai Baosteel Group Corporation
Tel: 0086-21-68404057
Fax:0086-21-68403088
cdqin@baosteel.com

Dr. XIE, Shengwu
President, Professor
Shanghai Jiao Tong University
Shanghai Jiao Tong University, Shanghai, 200240, China
Tel: 0086-21-62932448
swxie@mail.sjtu.edu.cn

Dr. XIE, Youbai
Professor of Xi'an Jiaotong University and Shanghai Jiao Tong University
Director of Internet-Based Research Centre on Modern Design and Manufacturing of Ministry of Education of China
School of Mechanical Engineering Xi'an Jiaotong University
28 Xianning West Road Xi'an 710049, CHINA
Tel: 0086-29-2669162
Fax: 0086-29-2668552
ybxie@mail.xjtu.edu.cn

Dr. YE, Quyuan
Vice President, Professor
Shanghai Jiao Tong University

Shanghai Jiao Tong University, Shanghai, 200240, China
Tel: 0086-21-62932448
qyye@sjtu.edu.cn

Dr. YU, Shouwen
Professor
Vice-chair of Academic Degree Committee
Member of the Education Committee of the Chinese Academy of Engineering
Presidential Office, Tsinghua University, Beijing, 100084 China
Tel: 0086-10-62772926
Fax: 0086-10-62770349
yusw@mail.tsinghua.edu.cn

Dr. ZHANG, Renbiao
Professor
Tongji University
1239 Siping Road, Shanghai, 200092, China
Tel: 0086-21-65983300
Fax: 0086-21-65983703
rbz@tongji.edu.cn

Dr. ZHANG, Yantong
Professor
Beijing University of Aeronautics and Astronautics
No.37 Xueyuan Road, Haidian District, Beijing 100083 China
Tel: 0086-10-82317562
Fax: 0086-10-82328058
zhangyt@buaa.edu.cn

Dr. ZHU, Gaofeng
Pre-Vice Director General, Academician
Chinese Academy of Engineering
Tel: 0086-10-66016606
Fax: 0086-10-62016362
zhugf@mail.cae.ac.cn

Dr. ZHOU, Zhewei
Professor, Vice President
Shanghai University
99 Shangda Road, Shanghai 200436, China.
Tel: 0086-21-66134661, 66132345
Fax: 0086-21-56333011
zhwzhou@shu.edu.cn