

*The 2019 International Workshop on  
Intelligentized Welding Manufacturing*

# *IWIWM 2019*

**The 2019 International Workshop on  
Intelligentized Welding Manufacturing  
(IWIWM2019)**

*Shanghai, China*

*Nov. 6-8, 2019*

## **Conference Program**



# *The 2019 International Workshop on Intelligentized Welding Manufacturing*

*IWIWM 2019-SH*

## *Conference Program*

*Nov. 6-8, 2019*

*Shanghai, China*

### **Host**

Shanghai Jiao Tong University

### **Sponsors**

Robotics & Automation Committee of CWS

Melted Welding & Equipments Committee of CWS

Editorial Board of Transactions on Intelligent Welding Manufacturing (TIWM)

### **Co-sponsors**

Chinese Welding Society (CWS)

Chinese Mechanical Engineering Society (CMES)

State Key Laboratory of AWJ, HIT

State Key Laboratory of APRNM, LUT

Shanghai Key Laboratory of MLPM, SJTU

Guangzhou Risong Intelligent Technology Holding Co.,Ltd(RISONG)

Guangdong Robotics Innovation Center

OMETBAM Laboratory, BIPT

FRONIUS Intelligent Equipment CHINA CO., LTD.

SHANGHAI-FANUC Robotics CO., LTD.

## ***Welcome Remarks***

In recent years, the intelligent manufacturing has become a widely concerned trend of development. The intelligentized welding technology has naturally become one of the highly active research directions of intelligent manufacturing. The intelligentized welding manufacturing (IWM) deals with complex information, networking and intelligent technology during the whole process of welding products manufacturing, including a wide range of welding materials, structures, techniques, processes, equipment and systems, products and market. Therefore, it is imperative to research and develop intelligentized manufacturing welding technology. Intelligent welding manufacturing would play an important role in research, development, and application of the emerging additive manufacturing technology.

At present, according to the research and development of intelligent manufacturing, the Robotics & Automation Committee of CWS and other academic institutions have agreed to jointly sponsor the 2017 International Workshop on Intelligentized Welding Manufacturing (IWIWM'2017), Jun. 23-24, 2017, Shanghai, P. R. China. The IWIWM will be planned as a serial International Conference to occur each another year.

The 2019 International Workshop on Intelligentized Welding Manufacturing (IWIWM'2019) is the second conference of IWIWM, which will be held in Shanghai, China, on Nov. 6-8, 2019, hosted by Shanghai Jiao Tong University of China, and the IWIWM' 2019-LEX conference, hosted by Kentucky University in the United States and held in Lexington, Kentucky, on Nov. 8-10, 2019. Delegates can attend the 2019 annual conference of the AWS in the United States by the way after the IWIWM '2019-LEX.

Another important topic at the IWIWM '2019 is the discussion about the operating mechanism and strategy of a new publication "TRANSACTIONS ON OF INTELLIGENT WELDING MANUFACTURING", to be published by Springer

Verlag, aimed at further enhancing the international communications and collaboration of intelligentized welding manufacturing technology community.

Wish you all promote friendships and gain something during IWIWM '2019!



Honorary Chair  
Prof. Jiluan PAN



General Chair  
Prof. Shanben CHEN



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## 1. IWIWM 2019 Organization

Honorary Chair		Academic Steering Committee	
Jiluan PAN	Tsinghua Univ., Academician, CAS, China	<b>Chair</b>	
<b>Honorary Scientific Advisors: (sort by the initial letter of family name)</b>		Zhili FENG	Oak Ridge National Laboratory, ORNL, USA
George Cook	Pro. Vanderbilt Univ., USA	<b>Co-Chairs</b>	
Stan A. David	Fellow, ORNL, USA	Jicai FENG	HIT, China
Yoshinori Hirata	Pro., Osaka Univ., Japan	Alvin Strauss	Vanderbilt Univ, USA
Thomas Liener	LANL, USA	Yanmin ZHANG	CMES, China
Ren C LUO	NTU, Taiwan	Tianmiao WANG	Beihang Univ, China
Kevin L. Moore	CSM, USA	Xiaoqi CHEN	SUT, AUS
Shangyang LIN	HWI Academician, CAE, China	<b>Members (sort by the initial letter of family name)</b>	
Suck-Joo Na	Pro., KIAST, Korea	Wen-jian CAI, Oscar CASTILLO, Anna-Karin Christiansson, Hee-Seok Chang, Heping CHEN, I-Ming Chen, Qiang CHEN, Kai CHENG, Gu Fang, Ingo FRISCHKORN, Shi HE, Don HONG, S. Jack Hu, S. Jack Hu, Wayne HU,	
John Norris	Senior Pro., Univ. of Wollongong, AUS	Ran JIN, Elijah Kannatey-Asibu, Jr. Ngai M. KWOK, Sergey Kononov, Jyrki LATOKARTANO, Huijun Li, Xianzheng LI, Mingbo LI, Sanjay Mohan Sharma, Pedro Neto, Zengxi PAN, D. T. Pham, George Panoutsos, A.B. Rad, Francisco SANDOVAL, Bairan WANG, Linshu WANG, Wei ZHOU, Yuming ZHANG, Quanmin Zhu	
Tianhu SONG	Chief Supervisor, CMES, China		
Tianran WANG	SIA Academician, CAE, China		
Lin WU	Senior Pro., HIT, China		
Bo ZHANG	Tsinghua Univ., Academician, CAS, China		

<b>General Chair</b>	
Shanben CHEN	SJTU, China
<b>General Co-Chair</b>	
Yuming ZHANG	Univ. of Kentucky, USA

Organizing Committee		Program Committee	
Chairs		Chairs	
Dong DU	Tsinghua University, China	Xiangdong JIAO	BIPT, China
Heping Chen	Texas State University, USA	John Steele	Colorado Mines, USA
Co-Chairs		Co-Chairs	
Xueming HUA	SJTU, China	Ding FAN	LUT, China
Erbin LIU	RSTC, China	Zhuguo LI	SJTU, China
Su WANG	BHHU, China	Jiaxiang XUE	SCUT, China
Min WANG	SJTU, China	Liming LIU	DLUT, China
Long XUE	BIPT, China	Shujun CHEN	BJUT, China
Tao LIN	JSBRR, China	Zhen LUO	TJU, China
Members (sort by the initial letter of family name)		Members (sort by the initial letter of family name)	
Yuxi CHEN; Wenjie CHEN; Chongjian FAN; Meng KONG; Laiping LI; Hongbo MA; Hongyuan SHEN; Jianjun WANG; Jifeng WANG; Chengdong YANG; Lihong YAN; Konggeng ZENG; Pinchao ZHU; Zhenyou ZHU; Lv ZHOU; Huajun ZHANG; Tao ZHANG		Jian CAO; Bo CHEN; Xizhang CHEN; Baohua CHANG; Zhiqiang FENG; Hongming GAO; Yu HAN; Hao LU; Wen LI; Wenhong LI; Guohong MA; Yu SHI; De XU; Jun XIAO; Xuewu WANG; Xinhua YANG; Hua ZHANG; Lixia ZHANG; Wenzeng ZHANG; Yanzheng ZHAO; Zhifen ZHANG	

Secretariat	
<b>General Secretary</b>	
Huabin CHEN	SJTU, China
<b>Vice-General Secretaries</b>	
Yanglin XU	SJTU, China
Na LV	SJTU, China

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School of Materials Science and Engineering, Shanghai Jiaotong University  
Dongchuan Road No.800, Shanghai, 200240, P. R. China  
Phone: +86-21-3420-2740 Ext.805,801,  
Email: [rwlab@sjtu.edu.cn](mailto:rwlab@sjtu.edu.cn)  
Website: <http://rwlab.sjtu.edu.cn/IWIWM2019/>



## 2. Conference Venue

The conference will take place at the **Royal International Hotel Shanghai**

**Address:** 998, XiuChuanRoad, Pudong, Shanghai

**Tel.:** +86-21-50509500



### ✧ Conference Onsite Registration

Date	November 6 <sup>th</sup> , 2019
时间	8:00 – 20:00
地点	Hotel lobby

### ✧ Opening Ceremony

日期	November 7 <sup>th</sup> , 2019
时间	9:10 – 9:30
地点	Crystal hall

## ✧ Social Events Schedule

### **November 7<sup>th</sup>, 2019**

Lunch: 12:00 – 13:10

Place: Hotel restaurant on 1F

Banquet: 18:30 – 20:00

Place: Royal International Hotel Shanghai Hall

## ✧ Venue Equipments

An LED screen and a laptop provided

### 3. Conference Procedure

Time		Activity	Speaker	Topic	Host	Add
11.6	8:00-20:00	Conference registration : Royal International Hotel Shanghai <a href="http://rwlab.sjtu.edu.cn/IWIWM2019/Hotel/Index">http://rwlab.sjtu.edu.cn/IWIWM2019/Hotel/Index</a>			Huabin CHEN	Hotel lobby
	19:30	The meeting of Advisor Committee, Organization Committee and Program Committee			Shan-Ben CHEN	
11.7	9:10-9:30	Opening ceremony	Introducing guests		Shan-Ben CHEN	Crystal hall
			Speech by the chairman, consultant, society and host	Consultant: Lin WU CWS: Shi HE SJTU: Min WANG		
	9:30-10:00	Plenary Invited Keynote Speech	Prof. Suck-Joo NA, KAIST, Korea	Participatory design of welding processes using CFD- based coupled simulation of thermal, metallurgical and mechanical behavior,	Erbin LIU	Crystal hall
	10:00-10:30	Plenary Invited Keynote Speech	Prof. Wei ZHOU, Nanyang Technological University, SG	Precision Micro-Welding with Pulsed Lasers		
	10:30-10:50	Coffee Break				
	10:50 - 12:00	Invited Keynote Speech	Prof. Yuming ZHANG, University of Kentucky, USA	Human-Robot Collaborative Welding	Ding FAN Guangjun ZHANG	Crystal hall
Keynote Speech (20min/p)		Invited Speech	Baicun WANG, University of Michigan &CAE	Intelligent manufacturing and human cyber-physical systems		
Invited Speech (15min/p)		Invited Keynote Speech	Xinguo MING, SJTU	Recent Development and Future Perspectives of Smart Manufacturing in China		

		Invited Speech	Wayne HU Springer in Shanghai	Development of Transactions on Intelligent Welding Manufacturing		
12:00- 13:10	Lunch Time (Hotel restaurant on 1F)					
13:10 - 15:10	Keynote Speech (20min/p)	Invited Keynote Speech	Ding FAN LUT, China	Self-adaptive control system for additive manufacturing using double- electrode micro-plasma arc welding	Su WANG  Xinhua YANG	Crystal hall
		Invited Speech	Guangjun ZHANG HIT	Research on Intelligent Welding Technology and Its Application in SKL- AWJ of HIT		
		Invited Speech	Yonghua SHI SCUT	Recognition and prediction of keyhole TIG weld penetration based on high dynamic range imaging		
		Invited Speech	Huajun ZHANG ZMPC, PRC	Intelligent Welding Technology and Application of Large Steel Structure Robot		
		Invited Speech	Ke ZHANG SJTU	Research Progress and Application of Robot Intelligent Welding		
		Invited Speech	Na DONG, DEC, PRC	Practices of DEC Intelligent Manufacturing Projects		
		Invited Speech	Yang Li, S. Jack HU Tianjin University University of Michigan	Ultrasonic welding of short carbon fiber composite: from process characteristics to weld quality prediction		
		Invited Speech	Yanbin HE, Erbin LIU Risong, GRIC	Development and Application of Intelligent Robotic Welding Technology		
15:10- 15:30	Coffee Break					
15:30 -		Invited Speech	Jialei ZHU, Xiangdong JIAO BIPT, PRC	Research on Laser Welding Technology under Water		
		Invited Speech	Haoyu ZHANG, Dong DU Tsinghua University	Progress of online monitoring and control technology for electron beam freeform fabrication		


	17:50 Invited Speech (15min/p)	Invited Speech	Na LV, Shanben CHEN SJTU	Advances in Intelligentized Welding Manufacturing Technologies in SJTU- Arc acoustic sensing and control of welding penetration	Jiaxiang XUE  Ke ZHANG  Jiankang HUANG	Crystal hall
		Invited paper	Min ZENG SCUT	Research on Resonant High Voltage Plasma Power Supply		
		Invited paper	Xiaoqiang ZHANG, Xiaoqi CHEN SUT, Australia	Study on the 3D Printing Technology of High-temperature Alloy		
		Invited paper	Chunyang XIA, Zengxi PAN UW, Australia	Monitoring and Control of Wire and Arc Additive Manufacturing		
		Invited paper	Jiankang HUANG LUT	Wire and arc additive manufacturing technology of in-situ strengthened functionally gradient materials titanium alloy and research of microstructure and properties		
		Invited paper	Yanling XU SJTU	The key technology of visual sensor in intelligent welding		
	Selected Paper & Oral presentatio n (10min/P)	Invited paper	Yinshui HE Nanchang University	Autonomous Decision making of the welding position for the robotic welding process with T-joint based on Bayesian worknets	Guohong MA  Bo CHEN  Jialei ZHU	Crystal hall
		Invited paper	Yiming HUANG Tianjin University	On-line Detection of Aluminum Alloy GTAW Quality Based on Arc Spectral Information		
		Invited paper	Di WU Shanghai University of Engineering and Technology	Accurate characterization of weld appearance induced by T-joint laser stake-welding by integration of ANFIS approach and numerical simulation		
		Selected Paper	Zhichen GUAN LUT	In-situ with SiC powder functionally gradient materials titanium alloy by Wire and arc additive manufacturing technology		
		Selected Paper	Chao CHEN SJTU	Arc Sound Model for Pulsed GTAW and Recognition of Different Penetration States		



		Selected Paper	Runquan XIAO SJTU	Study on automatic calibration method and key technology of weld seam tracking based on laser vision sensor		
		Selected Paper	Jingyuan XU SJTU	Detection and control of porosity defects in aluminum alloy welding		
	18:30-20:00	Royal International Hotel Shanghai Hall				
Time	Agenda			Place/Chairs		
11.8	9:00-10:15	SHANGHAI-FANUC Robotics CO., LTD. 1) Fanuc robot model assembly line 2) High-speed flexible intelligent arc welding robot system 3) High-speed Stamping Product Line			Huabin CHEN Meng KONG	
	10:30-12:00	FRONIUS Intelligent Equipment CHINA CO., LTD. 1) High-performance welding system- TPS/i TWIN Push 2) The new TIG welding Process-Arc TIG 3) Delta-spot process technology for aluminum alloy spot welding			Huabin CHEN XinLUO	
	12:10-13:30	Lunch			FRONIUS	

## 4. Plenary Speakers

### ✧ Opening Ceremony

● Opening Ceremony Speech		
Speaker	Prof. Lin WU	
Harbin Institute Technology		
Prof. Lin WU's Biography		
<ul style="list-style-type: none"><li>● Prof. Wu Lin from Harbin Institute Technology (HIT)</li><li>● IWIWM2019-SH Conference Scientific Advisor</li><li>● The Former Chair of CWS</li><li>● Former vice president of International Institute of welding (IIW)</li></ul>		


● Opening Ceremony Speech		
Speaker	Researcher Shi HE	
Harbin Welding Research Institute		
Researcher Shi's Biography		
<ul style="list-style-type: none"><li>• Vice President and Secretary General of China Welding Society</li><li>• Member of the IWIWM2019-SH Academic Steering Committee</li><li>• Vice Chairman of China Welding Association</li><li>• Director of China National Welding Standardization Committee</li><li>• Former Director of Harbin Welding Research Institute</li></ul>		


● Opening Ceremony Speech		
Speakeer	Prof. Min WANG	
Shanghai Jiao Tong University		
Prof. Min WANG's Biography		
<ul style="list-style-type: none"><li>• Co-chair of the IWIWIM2019-SH Conference Organizing Committee</li><li>• Former Vice President, School of Materials Science and Engineering, Shanghai Jiaotong University</li><li>• Director of Pressure Welding Professional Committee of China Welding Society</li><li>• IIW (C-III) China Representative</li></ul>		

✧ Plenary Invited Keynote Speech

● Plenary Invited Keynote Speech		
Speaker	Prof. Suck-Joo NA	
KAIST, Korea		
Topic	Participatory design of welding processes using CFD- based coupled simulation of thermal, metallurgical and mechanical behavior	
Prof. Suck-Joo NA's Biography		
<ul style="list-style-type: none"><li>● Former President of the Korean Welding and Joining Society</li><li>● Former President of the Asian Welding Federation</li><li>● Fellow of the Korean Academy of Science and Technology</li><li>● Fellow of the American Welding Society</li></ul>		

● Plenary Invited Keynote Speech		
Speaker	Prof. Wei ZHOU	
Nanyang Technological University		
Topic	Precision Micro-Welding with Pulsed Lasers	
Prof. Wei ZHOU's Biography		
<p>Prof Wei Zhou of Nanyang Technological University obtained BEng in Welding from Department of Mechanical Engineering, Tsinghua University in 1985 and PhD in Materials Science and Metallurgy from Cambridge University in 1991. He was a Guest Scientist in Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany between 1991 and 1992, Visiting Scholar in Harvard University in 2002 and Visiting By-Fellow at Churchill College, Cambridge University in 2014. Trained both as a mechanical engineer and as a materials scientist, he has carried out researches on a wide range of manufacturing processes, including welding, casting, additive manufacturing, and nanofabrication using focused ion beam and laser. He was granted United States Patent 7888663 for invention of a nano-lens and elected Fellow of Singapore Welding Society in 2015. He is Chairman of Welding Technology Committee of Singapore Welding Society and Chairman of National Mirror Committee to ISO/TC 44 “Welding and Allied Processes” and recipient of Merit Award from Singapore standardization body SPRING in recognition of his “invaluable contributions towards quality and standards in Singapore”.</p>		

● Invited Keynote Speech		
Speaker	Prof. Yuming ZHANG	
University of Kentucky		
Topic	Human-Robot Collaborative Welding	
Prof. Yuming ZHANG's Biography		
<p>Prof. Yuming Zhang has been with the University of Kentucky, Lexington, Kentucky, USA since 1991 where he was promoted to Professor of Electrical Engineering in 2005. He received his BS and MS degrees in control major from Harbin Institute of Technology (HIT) where he also finished his PhD degree in welding major in 1990. His research in machine intelligence and advanced controls with application in welding has been funded, primarily by the NSF and Navy. His research in this area has brought him 180 peer-reviewed journal publications and 8 US patents. His recognitions include numerous awards from the American Welding Society (AWS), The Institution of Mechanical Engineers (United Kingdom), International Federation of Automatic Control (IFAC), as well as plenary speaker in numerous international conferences. Four of his PhD students won the prestigious Henry Granjon Prize on behalf of the US from the International Institute of Welding (IIW) against winners from other IIW member countries. YuMing Zhang is currently a Lead Principal Reviewer for Welding Journal, and an Associate Editor for IEEE Transactions on Automation Science and Engineering and SME Journal of Manufacturing Processes. He is also a Fellow of the AWS, the ASME, and the SME.</p>		

● Invited Speech		
Speaker	Dr. Baicun WANG	
University of Michigan China Academy of Engineering Strategic Consulting Center		
Topic	Intelligent manufacturing and human-cyber-physical systems	



### **Dr. Baicun WANG's Biography**

Dr. Wang now is a postdoctoral researcher at the University of Michigan supported by "The International Postdoctoral Exchange Fellowship Program". His main research interests focus on intelligent manufacturing and development strategy. Dr. Baicun Wang received Ph.D. degree in Chemical Process Equipment from Zhejiang University (ZJU) in 2016. During 2014-2015, he was supported by the program of China Scholarship Council (CSC) as a joint Ph.D. student in Georgia Institute of Technology (GT).

### **● Invited Keynote Speech**

**Speaker**

**Prof. Xinguo MING**

**Shanghai Jiao Tong University**



**Topic**

**Recent Development and Future Perspectives of  
Smart Manufacturing System in China**

### **Prof. Xinguo MING's Biography**

Xinguo MING is a professor of School of Mechanical Engineering, Shanghai Jiao Tong University. He received his Ph.D. degree in Mechanical Engineering from Shanghai Jiao Tong University, China in 1995. He has served as Vice Chairman of the China Service-oriented Manufacturing Alliance, Vice Chairman of the Expert Committee, Chairman of the Expert Committee of the China Industrial Services Alliance, Expert of the Working Group on the Revision of the Working Guide of for National Smart Manufacturing Standard Architecture, member of the Expert Group of the China Mass Personalization Alliance, and member of the Expert Group of the China Information Consumption Promotion Alliance, Director of the Innovation Center of the Producer Service Industry at Shanghai Jiao Tong University, member of the Shanghai Information Technology Expert Committee, Director of Shanghai Center for Promoting Information Technology and Industrialization Integration. He was a Research Scientist in Singapore Institute of Manufacturing Technology and Visiting Faculty Fellow in MIT. His research interests include Industrial Artificial Intelligence, Industrial Internet, Smart Manufacturing


Systems, Product Innovation Engineering, Service-oriented Manufacturing (Smart Product Service Ecosystem), Green Design and Supply Chain, Lean Enterprise and Management, etc. Prof. Ming has published over 100 scientific papers and 5 books (in Chinese). He was a member of the editorial board of Concurrent Engineering: Research and Applications, Business Process Management Journal, etc. He undertakes and participates in a number of Industrial-Academic-Research cooperative projects funded by national and Shanghai government.

● Invited Keynote Speech		
Speaker	Prof. Ding FAN	
Professor, Lanzhou University of Technology, China		
Topic	Self-adaptive control system for additive manufacturing using double-electrode micro-plasma arc welding	
Prof. Ding FAN's Biography		
<p>Ding Fan is a Professor of Lanzhou University of Technology. He graduated from Gansu University of Technology majoring in welding in 1982, and had been at Osaka University three times for study and cooperative research as a visiting fellow. He was promoted as a full professor since 1996 and Ph. D Supervisor since 1999. He is mainly engaged in welding process and welding physics, welding intelligent control and robotic automation, materials laser processing. He has obtained 9 invention patents and published over 300 papers in academic journals and conferences at home and abroad. He was the Dean of School of Materials Science and Engineering and the Dean of Graduate School of Lanzhou University of Technology. He has been a standing member of the council of China Welding Society and Chairman of Gansu Welding Society.</p>		

● Invited Speech		
Speaker	Mr. Wayne HU Editor	
Springer Nature Publishing Group		
Topic	Development of Transactions on Intelligent Welding Manufacturing	
Mr. Wayne HU's Biography		
<p>Wayne HU, works as an Editor at Springer Beijing Office, with strong background as Research Engineer, Sales Engineer and Project Engineer at multinational corporations including ArcelorMittal and Siemens. He has been involved in publishing more than 150 books and is the gatekeeper of the book series: “CPSS Power Electronics Series”, “Series in Development and Utilization of Urban Underground Space” and “Transactions on Intelligent Welding Manufacturing”. He holds the Master of Science from ENSEM (Ecole Nationale Supérieure d'Electricité et de Mécanique). His interests include Industrial and Production Engineering, Aerospace, Thermodynamics, Civil Engineering, Metallurgy and Energy.</p>		

● Invited Speech		
Speaker	Prof. Guangjun ZHANG	
Harbin Institute of Technology		
Topic	Research on Intelligent Welding Technology and Its Application in SKL-AWJ of HIT	
Prof. Guangjun ZHANG's Biography		
Professor of Harbin Institute of Technology, member of China Remanufacturing Society, has been engaged in the research work of intelligent		

welding of robots, additive manufacturing/remanufacturing, and new high-efficiency arc welding technology for a long time.

● Invited Speech		
Speaker	Prof. Yonghua SHI	
South China University of Technology		
Topic	Recognition and prediction of keyhole TIG weld penetration based on high dynamic range imaging	
Prof. Yonghua SHI's Biography		
<p>Yonghua Shi received his bachelor's, master's and doctoral degrees from South China University of Technology in 1994, 1998 and 2001 respectively. From 2001 to 2005, he worked in the research and development of telecommunications systems at the Guangdong Institute of Telecommunications Science and Technology (China Telecom Guangzhou Research Institute). In 2003, he was awarded the title of Senior Engineer of Communication Engineering. Among them, from 2004 to 2005, he was a postdoctoral fellow at the Korea Institute of Science and Technology (KAIST). Since March 2005, he has served as an associate professor, professor and doctoral tutor at the School of Mechanical and Automotive Engineering of South China University of Technology. He won the second prize of the 2013 Chinese People's Liberation Army Science and Technology Progress Award. He has published more than 70 papers in international and domestic mainstream journals and academic conferences such as Science and Technology of Welding and Joining, Welding Journal, Journal of Mechanical Engineering, including more than 30 articles in SCI/EI; as STWJ, Metals And Design, Indian Journal of Engineering and Materials Sciences, International Journal of Mechanical and Materials Engineering and other international journal reviewers; authorized or applied for 12 invention patents; responsible for 3 national natural science funds, 2 research projects of the Naval Equipment Department, Guangdong There are 1 major science and technology projects in the province, other provincial and ministerial</p>		


level projects, and a number of scientific research projects commissioned by enterprises.

● Invited Speech		
Speaker	Yanbing HE、 Mr. Erbin Liu	
Vice -President of Guangzhou Risong Intelligent Technology Holding Co., Ltd		
Topic	Development and application of intelligent robot welding technology	

● Invited Speech		
Speaker	Prof. Huajun ZHANG	
Shanghai Zhenhua Heavy Industries Co., Ltd. PhD. Professor-level Senior Engineer		
Topic	Intelligent Welding Technology and Application of Large Steel Structure Robot	
Prof. Huajun ZHANG's Biography		
<p>Zhang Huajun,1978, Ph.D., Professor-level Senior Engineer, Chief Technician of Changxing Branch of Shanghai Zhenhua Heavy Industry Group, Director of Shanghai Marine Equipment High Efficiency Intelligent Welding Manufacturing Engineering Research Center. It mainly focuses on the application research of robotic intelligent welding technology, efficient welding technology, Internet of Things and intelligent factory planning for large steel structures. Published more than 60 papers and 3 monographs, won 20 awards, 94 patents and 40 R&amp;D projects, including 5 national projects and nearly 20 provincial and ministerial projects.</p>		



● Invited Speech		
Speaker	Prof. Ke ZHANG	
Shanghai Jiao Tong University		
Topic	Research Progress and Application of Robot Intelligent Welding	
Prof. Ke ZHANG's Biography		
<p>Ke Zhang is Professor, Ph. D, Doctoral supervisor in the School of Materials Science and Engineering at Shanghai Jiao Tong University. He received his master of engineering degree from Xi'an Jiao Tong university in 2001, and Ph. D degree from Shanghai Jiao Tong University in 2005, and then become a teacher of Shanghai Jiao Tong University, and stayed in the BIAS Institute of Bremen University in Germany as a visiting scholar at 2008.11-2009.1, and stayed in the ISM institute of University of Kentucky in the United States as a visiting scholar in 2016.3-2017.3. His research interests mainly include robotic intelligent welding technologies, Advanced Laser Processing Method and Control. Won Second Prize for Science and Technology Progress Award of Chinese shipbuilding industry Ministry, First Prize and Third Prize of science and technology progress award for Chinese Machinery industry Ministry, and Second Prize and third Prize of shanghai science and technology progress award, achieved more than 30 national invention patents, published more than 60 papers.</p>		

● Invited Speech		
Speaker	Dr. Na DONG	
Dongfang Electric Corporation Senior engineer		
Topic	Practices of DEC Intelligent Manufacturing Projects	

### **Doc. Na DONG's Biography**

Doctor of Engineering, Senior Engineer, International Welding Engineer, Research in intelligent manufacturing, robotic automatic welding and Special robot. She is vice president of DEC academy of central research and the director of Sichuan intelligent Manufacturing innovation center. She led the team to carry out more than 20 key projects, ranging from technology research to industrial application, including special robots for nuclear waste disposal, digital workshop, robotic welding production line. The project results promote the application of DEC intelligent manufacturing technology.

### **● Invited Speech**

**Speaker**

**A-Prof. Yang Li, Prof. S. Jack HU**

**Tianjin University  
The University of Michigan**



**Topic**

**Ultrasonic welding of short carbon fiber composite: from process characteristics to weld quality prediction**

### **A-Prof. Yang Li's Biography**

- 2004.9-2008.6: Tianjin University, Materials Forming and Control Engineering, B.S.
- 2008.9-2010.6: Tianjin University, Materials Processing Engineering, M.S.
- 2010.9-2014.1: Tianjin University, Materials Processing Engineering, Ph.D.
- 2014.1-2016.2: Tianjin University, Mechanical Engineering, Postdoctoral Research Fellow
- 2015.8-2019.6: University of Michigan, Mechanical Engineering, Postdoctoral Research Fellow
- 2019.7- Present: Tianjin University, School of Materials Science and Engineering, Associate Professor

Research Interests: Welding and joining of lightweight materials and construction of intelligent welding system, including ultrasonic welding of carbon fiber composites, resistance spot welding of aluminum alloy, development of technology roadmap for intelligent welding system, et al.

### **Prof. S. Jack HU's Biography**

Academician of the American Academy of Engineering, foreign academician of the Chinese Academy of Engineering. He is currently the executive vice president and provost of the University of Georgia.

His main research interests include manufacturing and assembly system design, quality statistical analysis, and automotive lightweight technology research.

### **● Invited Speech**

**Speaker**

**Jialie ZHU, Prof. Xiangdong JIAO**

**Beijing Institute of Petrochemical Technology**



**Topic**

**Research on Laser Welding Technology under Water**

### **Prof. Xiangdong JIAO's Biography**

- 1980.9-1988.7, Studied in Tsinghua University, Bachelor, Master
- 1991.2-1994.3, Studied in Tsinghua University, Ph.D
- 1988.10-1991.2, Worked in Guangdong Nuclear Power Station, Engineer
- 1994.4-Present, Beijing Institute of Petrochemical Technology

### **● Invited Speech**

**Speaker**

**Haoyu ZHANG, Prof. Dong DU**

**Tsinghua University**




**Topic**

**Progress of online monitoring and control technology for electron beam freeform fabrication**

### **Prof. Xiangdong JIAO's Biography**

Prof. Dong Du obtained Bachelor degree and Ph.D degree from Department of Mechanical Engineering, Tsinghua University , China in 1985 and 1991, respectively. He is now full professor of the Department of Mechanical Engineering at Tsinghua University, China, and is the Head of the Institute of Materials Processing Equipment and Automation. His research interests now include robot technologies and applications, advanced sensing and controlling of welding processes, and nondestructive testing. He has published over 150 papers, and obtained over 50 patents.

Prof. Du has achieved many professional awards. He was awarded the Hiwin Outstanding Doctoral Dissertation Supervisor Award in Mechanical Engineering in 2013, and the Beijing High Education Teaching Achievement Award in the same year. He received the University Youth Teacher Award, Ministry of Education, China in 2002, and the Progresses in Science and Technology Award, Ministry of Education, China in 1997. He is currently a member of the robot specialty committee, Chinese Association of Automation, and member of the university teaching instruction committee of forming and control engineering specialty, Ministry of Education, China. He also served as a deputy director of the Key Laboratory for Advanced Materials Processing Technology, Ministry of Education, China, and the Chairman of the fusion welding processes and equipment specialty committee, China Welding Society

● Invited paper		
Speaker	Xiaoqiang ZHANG, Prof. Xiaoqi CHEN	
Swinburne University of Technology		
Topic	Study on the 3D Printing Technology of High-temperature Alloy	
Prof. Xiaoqi CHEN's Biography		
Prof. Xiaoqi CHEN is a professor in the Department of Mechanical and Product Design Engineering, Swinburne University of Technology, Australia. He graduated from South China University of Technology with BEng in		

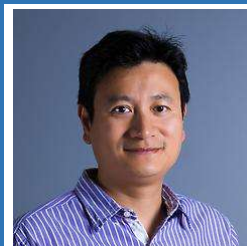
Mechanical Engineering in 1984. He was a recipient of China-UK Technical Co-Operation Award for his MSc study in Materials Technology, Brunel University (1985-1986); and PhD study in Electrical Engineering, the University of Liverpool (1986-1989).

Prof. CHEN was Senior Research Assistant at Durham University (1989-1990), Research Fellow at Brunel University (1990–1992), and Research Fellow, Research Scientist and Senior Scientist at Singapore Institute of Manufacturing Technology (1992-2006). In 1999, he led a research team that won the prestigious “Singapore National Technology Award” for their success in developing the first-its-kind robotic system for polishing and grinding distorted 3D aerofoils of High-Pressure Turbine (HTP) vanes. Prof Chen joined the University of Canterbury as Director for Mechatronics Engineering in 2006.

#### ● Invited pape

**Speaker**

**Chunyang XIA, Prof. Zengxi PAN**



**University of Wollongong**

**Topic**

**Monitoring and Control of Wire and Arc Additive Manufacturing**

#### **Prof. Zengxi PAN's Biography**

Professor Zengxi PAN received his undergraduate degree in mechanical design and manufacturing and a master's degree in mechatronics from Tsinghua University in Beijing in 1998 and 2000. He received his Ph.D. in Robotics Automation from Stephens University of Technology, New Jersey, USA in 2005. From 2003 to 2006, he worked as a robotic engineer at the ABB Robotics USA R&D Center. He is one of the main developers of the ABB IRC5 robotic force control cutting system. Since 2006, he has been a lecturer in the Department of Electrical Engineering at the University of Wollongong, Australia, and has joined the Welding and Industrial Automation Group since 2008. His main research interests include automatic programming techniques for industrial robots, robotic welding and assembly, and arc additive technology. He and his projects have won several Australian national research awards,



including the 2015 National Invention Award, the 2013 Eureka Award, and the 2012 Australian Welding Association Young Scientist Award. Professor Pan has published more than 100 professional books in various journals and national conferences. Since 2013, he has been the team leader of the 12-member Arc Welding Sensing and Control Group of the International Welding Association and a member of the editorial board of the Welding World. He also served as a member of the editorial board for IEEE robotics and institutionalized letters.

● Invited Speech		
Speaker	Na Lv, Prof. Shanben CHEN	
Shanghai Jiao Tong University		
Topic	Advances in Intelligentized Welding Manufacturing Technologies in SJTU-Arc acoustic sensing and control of welding penetration	
Prof. Shanben CHEN's Biography		
<ul style="list-style-type: none"><li>• Prof. CHEN is a Distinguished Professor, Cheung Kong Scholar Program of Ministry of Education of P. R. China, and engaged in Shanghai Jiao Tong University, P. R. China. Prof. CHEN is currently the director of Intellgientized Robotic Welding Technology Laboratory, School of Material Science and Engineering, Shanghai Jiao Tong University.</li><li>• Prof. CHEN is a Senior member of IEEE; Chair of Robotics &amp; Automation Committee of Chinese Welding Society (CWS); Standing member of board of directors, CWS; and other academic positions.</li><li>• Prof. Chen's research interests include intelligentized welding manufacturing, intelligentized technologies for welding robot, intelligent control of welding dynamical process, modeling and control of complex systems, robust control of uncertain systems, and relevant ranging in welding automation and advanced welding manufacturing.</li><li>• As the Initiator, Program Chair and Executive General Chair, Prof. Shanben CHEN successfully organized and presided over a series of International Conference on Robotic Welding, Intelligence and Automation (RWIA) Every</li></ul>		

four years from 2002, i.e, RWIA '2002, RWIA '2006, RWIA '2010, RWIA '2014, RWIA '2018 and IEEE ARSO'2016; a series of International Workshop on Intelligentized Welding Manufacturing from 2017, the IWIWM'2017 and IWIWM'2019 ; and launched the TIWM in spring in 2017.

## 5. Transportation

From the airport/railway ➔ Royal International Hotel Shanghai

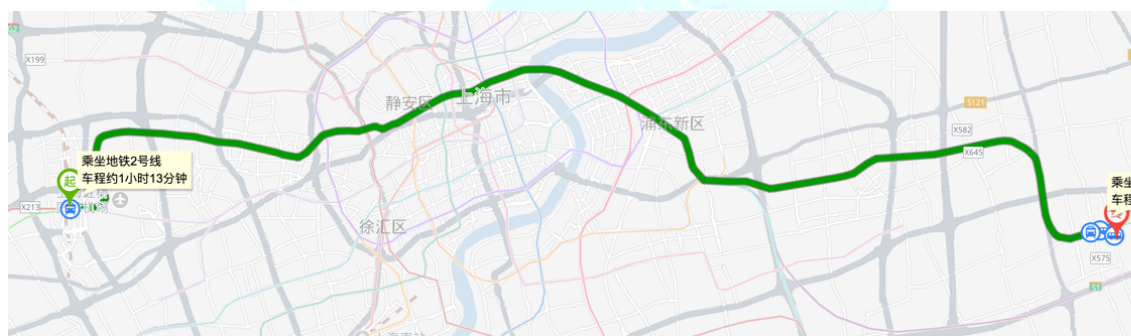
### 1) Shanghai Pudong International Airport

Metro Line 2 (to Xujing East) ➔ Chuansha Station (Gate 1) ➔ Walk about 1200 m



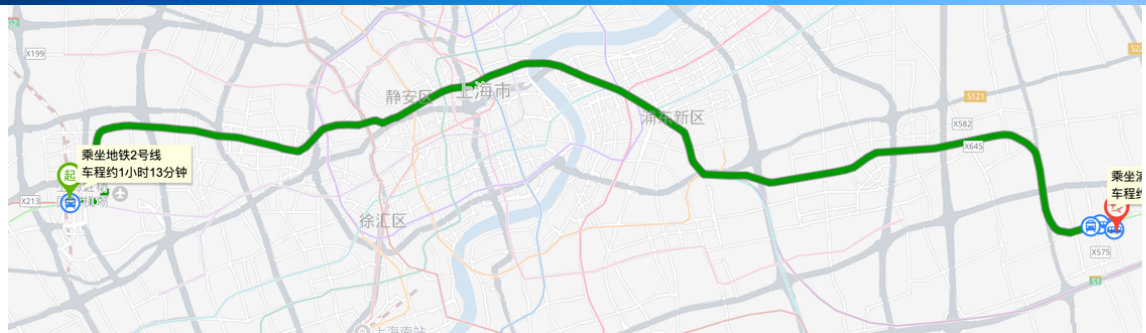
### 2) Shanghai Hongqiao Airport

Metro Line 2 (to Pudong International Airport) ➔ Chuansha Station (Gate 1) ➔ Walk about 1200 m



### 3) Shanghai Hongqiao Railway Station

Metro Line 2 (to Pudong International Airport) ➔ Chuansha Station (Gate 1) ➔ Walk about 1200 m



#### 4) Shanghai Railway Station

**Metro Line 4 ➔ Century Avenue Station ➔ Metro Line 2 (to Pudong International Airport)  
➔ Chuansha Station (Gate 1) ➔ Walk about 1200 m**



## 6. TIWM Catalogue

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19-004	Microstructure and mechanical properties of TC4 titanium alloy by electron beam freeform fabrication	wenjun sun, Liming Ke, shanlin Wang, WenDe Bu
19-005	Weld flaw recognition with improved convolutional neural network	Ande Hu, Ding Fan, Jiankang Huang, Zhenya Xu
19-006	Mask R-CNN based welding image object detection and dynamic modelling for WAAM	Chunyang Xia, Zengxi Pan, Shiyu Zhang, Joseph Polden, Huijun Li, YanLing Xu, Shanben Chen
19-007	Research on fuzzy comprehensive evaluation of seam quality in double-wire double-pulsed MIG high-speed welding	Huangsheng XIE, Zhihe Fu, Jiaxiang Xue, yu Hu
19-008	Welding deviation extraction during K-TIG welding based on K-means clustering	Baori Zhang, Yonghua Shi
19-009	Research on Resonant High Voltage Plasma Power Supply	ZiXin Hu, Song Yuan, ZhuoRan Wang, Min Zeng
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19-013	In-situ reinforced gradient titanium alloy by plasma additive manufacturing Technology	Zhichen Guan, Jiangkang Huang, Ding Fan
19-014	Research on process optimization of robotic MAG weaving-welding based on SVM-PSO hybrid model	Di Wu
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19-017	In-process monitoring of penetration in nuclear steel pipe welding using machine vision	Liangrui Wang, Huabin Chen
19-018	Wire Arc Additive Manufacturing of Nickle Aluminium Bronze Components	Donghong Ding, Runzhuo Zhao, Zengxi Pan, Qinghua Lu
19-019	Study on porosity in gas tungsten arc welded aluminum alloys	Yiming Huang
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19-020	Integration of Advanced Laser Technology for Automated Precision Micro-welding.	Wei Zhou
19-021	Detection and control of porosity defects in aluminum alloy welding	Jingyuan Xu, Shanben CHEN
19-022	Modeling and prediction for weld parameter during all-position narrow gap pulse GTAW	Minghua Chen, Huabin Chen
19-023	Effect of the Local Dry Environment on the Weld Quality of 10CrNi3MoV During Underwater Laser Welding.	Wang Kai, Jiao Xiangdong
19-024	Research on Virtual Simulation Technology of Pipeline Welding Robot Based on the Unity3D	Luo Yu, Guo Juzhi
19-025	Research on the optimization of local dry underwater laser welding for 921A steel	Zhu jialei, Wang kai
19-026	Intelligent welding technology for large deep and narrow shaped box with robot	Hu Lan
19-027	Aluminum GTAW pool image segmentation and penetration prediction based on LightGBM	Zheng Jiang, Huabin Chen



19-028	Study on automatic calibration method and key technology of weld seam tracking based on laser vision sensor	Runquan Xiao, Yanling Xu, Shanben Chen
19-029	Arc Sound Model for Pulsed GTAW and Recognition of Different Penetration States	Chao Chen, Shanben Chen
19-030	Research on intelligent picking method for tea leaves based on image recognition	Xiu Zhang, Na Lv, Shanben Chen
19-031	Research on optimization of laser vision sensor designation and installation	Zhen Hou, Yanling Xu, Shanben Chen

Note: The conference papers submitted to IWIWM'2019 will be reviewed by a standard process, and high-quality papers will be published in the TIWM series.

*The 2019 International Workshop on Intelligentized  
Welding manufacturing*

***IWIWM' 2019***

