The 9th International Conference on Compressor and Refrigeration, 2019

Guide

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Xi'an Jiaotong University

Chinese Association of Refrigeration (CAR)

China Refrigeration and Air-Conditioning Industry Association (CRAA)

State Key Laboratory of Compressor Technology

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International Institute of Refrigeration (IIR)

Air-conditioning，Heating，and Refrigeration Institute (AHRI)

Japan Society of Refrigerating and Air Conditioning Engineers (JSRAE)

XI'AN · CHINA

July 10-12, 2019

http://www.iccr-xjtu.org

Program at a Glance

Wednesday, 10/ 07/ 2019	
8:00am-5:00pm	**Registration** **Location: Jianguo Hotel lobby**
Thursday, 11/ 07/ 2019	
8:00am-5:00pm	**Registration** **Location: Jianguo Hotel lobby**
8:30am-9:20am	**Opening Ceremony** **Location: Changan hall of Jianguo Hotel**
9:20am-9:40am	**Taking photos**
Plenary Session **Location: Changan hall of Jianguo Hotel**	
9:40am-10:10am	Prof. Pega Hrnjak Visualization of oil flow in compressors and around helps improving components and systems **Chair: Prof. Ziwen Xing and Prof. Andreas Bruemmer**
10:10am-10:40am	Kuniaki Kawamura The status of the Air-conditioning and Refrigeration market in Japan and the activities of JSRAE **Chair: Prof. Ziwen Xing and Prof. Andreas Bruemmer**
10:40am-11:00am	**Coffee Break**
11:00am-11:30am	Prof. Yanzhong Li Cryogenic techniques in Hydrogen Energy Application **Chair: Prof. Eckhard Groll and Prof. Rodrigo Llopis**
11:30am-12:00pm	Carl Wouters Compressor Cycle Energy Requirement **Chair: Prof. Eckhard Groll and Prof. Rodrigo Llopis**

12:00pm-2:00pm	**Lunch** **Location: Jianguo Hotel**
2:00pm-2:30pm	Prof. Eckhard Groll Improving Vapor Compression System Efficiency through Advanced Compressor Technologies **Chair: Dr. Yan Tang and Prof. Pega Hrnjak**
2:30pm-3:00pm	Dr. Piotr Domanski From the Beginnings of Artificial Cold to Climate-Friendly Fluids：Evolution of Refrigerants Applications **Chair: Dr. Yan Tang and Prof. Pega Hrnjak**
3:00pm-3:30pm	Prof. Andreas Bruemmer Effects of two-phase fluids in twin-screw Expanders **Chair: Dr. Yan Tang and Prof. Pega Hrnjak**
3:30pm-3:50pm	**Coffee Break**
3:50pm-4:20pm	Bridge Xue AHRI Updates on Positive Displacement Refrigerant Compressors and Centrifugal Compressors **Chair: Dr. Piotr Domanski and Prof. Ahmed Kovacevic**
4:20pm-4:50pm	Anantha Sharma Emerson Copeland Scroll Compressor Technologies Introduction **Chair: Dr. Piotr Domanski and Prof. Ahmed Kovacevic**
4:50pm-5:20pm	Prof. Kim Choon Ng Approaches to Energy Efficiency in Air Conditioning: Innovative Processes and Thermodynamics **Chair: Dr. Piotr Domanski and Prof. Ahmed Kovacevic**
6:00pm-8:00pm	**Welcome Banquet** **Location: Jianguo Hotel**

Technical Sessions
Friday, 12/ 07/ 2019

Session 1: Positive Displacement & Dynamic Compressors I
Location: Multiple-function hall, Room A

Chair: Kim Tiow Ooi, Guangwen Yin

8:30am-8:50am	Development of High-Speed Low Side Variable Speed Compressor. **Shi Wang.** *Emerson Climate Technologies (Suzhou) Co., Ltd., China*. (Keynote)
8:50am-9:05am	Modelling of a Vapor Compression Cycle Independent of Orientation and Gravity. **Leon Philipp Martin Brendel.** *Ray W. Herrick Laboratories, Purdue University, USA.*
9:05am-9:20am	Optimization of Built-in Compression Ratio for Scroll Compressor Balancing Cooling and Heating Mode. **Jiahao Wu.** *Shanghai Jiaotong University, China.*
9:20am-9:35am	Valve engineering for efficient Compressors. **Martin Stephan Lachmann.** *Hoerbiger Kompressortechnik GmbH, Germany.*
9:35am-9:50am	Co-simulation of 3D CFD model for positive displacement compressor and 1D CFD model of connected system. **Andreas Spille-Kohoff.** *CFX Berlin Software GmbH, Germany.*
9:50am-10:05am	Structural characteristics and performance experiment of the swing compressor with no valves and its derived structure. **Xi Pan.** *Xi'an Jiaotong University, China.*
10:05am-10:25am	**Coffee Break**

Chair: Martin Stephan Lachmann, Tatsuya Oku

10:25am-10:45am	Coupled Vane compressor: Its conceptualisation, design and advantages. **Kim Tiow Ooi.** *Nanyang Technological University, Singapore.* (Keynote)
10:45am-11:00am	Study on Single Speed Compressor Motor Design Parameters for Improving Manufacturability. **Tugba Cetinturk.** *Arcelik A.S. Compressor Plant, Turkey.*
11:00am-11:15am	A new structure compressor based on motor air gap control. **Yiqun Tang.** *Shanghai Highly Electrical Appliances Co., Ltd, China.*
11:15am-11:30am	Study of the novel dual chamber rotary compressor. **Sang Kyung Na.** *Gyeongnam National University of Science and Technology, South Korea.*
11:30am-11:45am	Research to develop design guidelines for the influence of valve design on the noise of compressor systems. **Muhammad Waqas Tofique.** *Voestalpine Precision Strip AB, Sweden.*
11:45am-12:00pm	The Numerical Study on The Performance of a Rotary Compressor with Blade Injection Structure. **Yanfen Huang.** *Beijing Hi-Key Technology, China.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 2: Air-conditioning, freezing and refrigerating system I
Location: Multiple-function hall, Room B

Chair: Lin Wang, Rodrigo Llopis

8:30am-8:50am	Mayekawa's Technology for Refrigeration System with Natural Refrigerants. **Tatsuya Oku.** *Mayekawa mfg Co., Ltd, Japan.* (Keynote)
8:50am-9:05am	Refrigerant Circuitry Optimization of Heat Exchangers Used as Condensers and Evaporators in Heat Pump Applications. **Vikrant Aute.** *University of Maryland, USA.*
9:05am-9:20am	An online liquid floodback diagnosis method for compressor in VRF systems. **Zhenxin Zhou.** *Huazhong University of Science and Technology, China.*
9:20am-9:35am	Performance Evaluation of HVAC Systems via Coupled Simulation between Modelica and OpenFOAM . **Hongtao Qiao**. *Mitsubishi Electric Research Laboratories, USA.*
9:35am-9:50am	Thermodynamic Analysis of Transcritical CO2 Booster Refrigeration Cycles with and without Parallel Compressor. **Zuliang Ye.** *Xi'an Jiaotong University, China.*
9:50am-10:05am	Performance study of a transcritical ejector refrigeration cycle in a combined cooling and power system. **Yinhai Zhu.** *Tsinghua university, China.*
10:05am-10:25am	**Coffee Break**

Chair: Xudong Wang, Shengchun Liu

10:25am-10:45am	Subcooled CO2 booster systems for supermarket application in China. An energy approach. **Rodrigo Llopis.** *Jaume I University, Spain* (Keynote)
10:45am-11:00am	Investigation on Solar-Powered Single-Effect Absorption/ Dual Compression Hybrid Refrigeration System with an air-cooled condenser. **Hui He.** *Henan University of Science and Technology, China.*
11:00am-11:15am	Study on the performance of the new pump-less ejector refrigeration system. **Meihong Yu.** *Shandong University, China.*
11:15am-11:30am	Thermodynamic Simulation Analysis of Transcritical CO2 Booster Refrigeration System with an Internal Heat Exchanger in Supermarket. **Xin Yang.** *Tianjin University of Commerce, China.*
11:30am-11:45am	Experimental study on influence of lubricant and evaporator inner fin in domestic refrigerator. **Been Oh.** *Pusan National University, South Korea.*
11:45am-12:00pm	Study on the influential parameters of performance of an economizer system coupled with a vapor injection scroll compressor. **Lei Zhao.** *Xi'an University of Architectural and Technology, China.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 3: Heat pump and energy recovery
Location: Multiple-function hall, Room C

Chair: Jianlin Yu, Weifeng Wu

8:30am-8:50am	Compressors in Carbon Dioxide Booster Systems. **Yi Wang.** *BITZER Refrigeration Technology(China) Co., Ltd, China.* (Keynote)
8:50am-9:05am	Simulation Study on Single-Machine Two-chamber in-parallel Compression Refrigeration/Heat pump System. **Shuxue Xu.** *Beijing university of technology, China.*
9:05am-9:20am	Performance investigation of ventilation heat recovery system using dual-cylinder rotary compressor with independent suction and discharge ports. **Lei Wang.** *Beijing University of Technology, China.*
9:20am-9:35am	Theoretical study on the winter running of a heat pump with integrated evaporative condenser. **Yang Li.** *Zhejiang University, China.*
9:35am-9:50am	A novel ensemble learning method for ground source heat pump systems energy consumption forecasting. **Chengliang Xu.** *Huazhong University of Science and Technology, China.*
9:50am-10:05am	A Study on Operation of Heat Pump Cluster Based on Particle Swarm Optimization. **Hao Li.** *Zhejiang University, China.*
10:05am-10:30am	**Coffee Break**

Chair: Joseph Anthony Karnaz, Yi Wang

10:30am-10:45am	Exergy analysis of a power/cooling cogeneration ejector refrigeration system. **Mengke Yang.** *Henan University of Science and Technology, China.*
10:45am-11:00am	Experimental Research on the Influence of Sub-Cooling on the Heating Performance of Air Source Heat Pump. **Jianhui Niu.** *Beijing University of Technology, China.*
11:00am-11:15am	Exergy analysis of an air-conditioning system at heating mode with and without liquid-vapor separation. **Yunhai Li.** *Guangdong University of Technology, China.*
11:15am-11:30am	Experimental Investigation of Two Stage Compression with Vapor Injection in Trans-critical CO2 Heat Pump. **Dongfang Zhao.** *Qingdao Hisense Hitachi Air Conditioning System Co., Ltd., China.*
11:30am-11:45am	Application of Two-stage Compression Technology with Variable Volume Ratio in Air Source Heat Pump. **Ouxiang Yang.** *State Key Laboratory of Air-conditioning Equipment and System Energy Conservation, China.*
11:45am-12:00pm	Coupling mechanisms between injection-port and slide valve control in single screw compressor used for air source heat pump. **Shanwei Liu**. *Beijing University of Technology, China.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 4: Haier Sponsored Technical Session
Location: Multiple-function hall, Room D

Chair: Zhiguo Qu, Gang Yan

8:30am-8:50am	Experimental study on the energy storage with micro-encapsulated phase change material. **Zhiguo Qu.** *Xi' an Jiaotong University, China.* (Keynote)
8:50am-9:05am	Experimental Study on Household Water Source Heat Pump Water Heater. **Rongji Xu.** *Beijing University of Civil Engineering and Architecture, China.*
9:05am-9:20am	Optimal design of the heat transfer unit fully based on the CFD model. **Zhichun Liu.** *Huazhong University of Science and Technology, China.*
9:20am-9:35am	Experimental investigations on a novel semi-coupled desiccant heat pump system. **Tianshu Ge.** *Shanghai Jiaotong University, China.*
9:35am-9:50am	Research on HC 32 refrgeration system. **Yingxia Qi.** *University of Shanghai for Science and Technology, China.*
9:50am-10:05am	Experimental research on vapor-injected heat pump using injection subcooling. **Shuxue Xu.** *Beijing University of Technology, China.*
10:05am-10:30am	**Coffee Break**
10:30am-10:45am	Research on Test Method of Heat Transfer for Refrigerator Gasket. **Guoqiang Liu.** *Xi'an Jiaotong University, China.*
10:45am-11:00am	Study on heat transfer of cryogenic vessels with different filling rates at atmospheric and thermostat. **Guomeng Wei.** *Xi'an Jiaotong University, China.*
11:00am-11:15am	An Airflow Optimization Design Based On Air-cooled Beverage Cooler. **He Li.** *Secop Compressors (Tianjin) Co.,Ltd, China.*
11:15am-11:30am	CFD Simulation of an Open Refrigerated and Heated Display Cabinet. **Yao Wang.** *Xi'an Jiaotong University, China.*
11:30am-11:45am	Performance Comparison of Helical flat tube heat exchangers and Helical Baffle Heat Exchangers. **Chaolong li.** *Xi'an Jiaotong University, China.*
11:45am-12:00pm	Evaluation of methanol vehicle applications in California and Shaanxi. **Chengjiang Li.** *University of Tasmania, Australia.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 5: Cryogenics
Location: Multiple-function hall, Room E

Chair: Wensheng Lin, Anna Diao

8:30am-8:50am	Research and Develop on Series of LNG equipment. **Zhouwei Zhang.** *Lanzhou Jiaotong University, China.* (Keynote)
8:50am-9:05am	Effect of Ultrasonic Cavitation on the Characteristics of Generation Process of Absorption Refrigeration Cycle. **Zhaoning Hou.** *Henan University of Science and Technology, China.*
9:05am-9:20am	Design of a Stirling/Pulse Tube Hybrid Cryocooler operating below 15K. **Biqiang Liu.** *University of Chinese Academy of Sciences, China.*
9:20am-9:35am	Experimental Study on Coupling Characteristics of Two-stage Cascade Linear Compressors. **Qi Huang.** *University of Chinese Academy of Sciences, China.*
9:35am-9:50am	Investigation on the Stiffness of the Suction and Exhaust Valves in a Valved Linear Compressor. **Xinquan Sha.** *University of Shanghai for Science and Technology, China.*
9:50am-10:05am	The Influence of Temperature on the Performance of Centrifugal Cold Compressor. **Maofei Geng.** *Hefei General Machinery Research Institute Co., Ltd., China.*
10:05am-10:30am	**Coffee Break**

Chair: Xiaolin Wang, Davide Ziviani

10:30am-10:45am	An LNG Energy Storage System with ORCs in Both Charge and Discharge Units. **Jingxuan Xu.** *Shanghai Jiaotong University, China.*
10:45am-11:00am	LNG Subcooling Systems for Recovering BOG on LNG-Fired Ships. **Yajie Tian.** *Shanghai Jiaotong University, China.*
11:00am-11:15am	Numerical research on influencing factors of geyser phenomenon in cryogenic propellant feedline. **Hongwei Mao.** *Xi'an Jiaotong University, China.*
11:15am-11:30am	Realization of High Precision Refrigeration Strategy for Focal Plane Module of Remote Sensing Camera. **Yu Wang.** *Beijing Institute of Space Mechanics & Electricity, China.*
11:30am-11:45am	Comparison Study on Thermodynamic Venting System Performance under Different Gravity Levels. **Siqi Xia.** *Xi'an Jiaotong University, China.*
11:45am-12:00pm	The Experimental Investigation on LNG Cold Energy Power Generation System with the Oil Free Screw Expander. **Yuli Wang.** *Shanghai Marine Diesel Engine Research Institute, China.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 6: Positive Displacement & Dynamic Compressors II
Location: Multiple-function hall, Room A

Chair: Andreas Bruemmer, Ahmed Kovacevic

14:00pm-14:20pm	New technologies of rolling piston compressor in Highly. **Yi Zhou**. *Shanghai Highly Electrical Appliances Co., Ltd., China*. (Keynote)
14:20pm-14:35pm	Modification of Suction Structure in a Scroll Refrigeration Compressor Based on Numerical Simulation. **Shuiahui Sun.** *Xi'an Jiaotong University, China.*
14:35pm-14:50pm	Analysis of a rolling piston compressor through a coupled fluid and solid solver with automated mesh generation. **Zhihong Zhang.** *IDAJ-China, Co., Ltd., China.*
14:50pm-15:05pm	Balancing of the Oldham in a Co-Rotating Scroll. **Jianhui Peng**. *Johnson Control-Hitachi Air Conditioning Technology (Wuxi) Co., Ltd., China.*
15:05pm-15:20pm	Experimental Analysis of an Oil-Free Linear Compressor for a Domestic Refrigerator. **Xinye Zhang.** *Purdue University, USA.*
15:20pm-15:35pm	Semi-hermetic Screw compressor application on IR industrial. **Yujun Dong**. *Johnson Controls, China*.
15:35pm-15:55pm	**Coffee Break**

Chair: Xueyuan Peng, Hanushan Vasuthevan

15:55pm-16:15pm	Advances in modelling of Screw machines using CFD and lower order models. **Ahmed Kovacevic.** *City, University of London, United Kingdom.* (Keynote)
16:15pm-16:30pm	CFD Analysis of Twin-screw Vacuum Pump. **Yang Lu.** *City, University of London, United Kingdom.*
16:30pm-16:45pm	Generic experimental investigation of hydraulic losses within twin-screw machines. **Hanushan Vasuthevan**. *TU Dortmund University, Germany.*
16:45pm-17:00pm	CFD Simulation of a Two-Sided Screw Compressor with FEM Simulation of Pressure Load. **Andreas Spille-Kohoff.** *CFX Berlin Software GmbH, Germany*.
17:00pm-17:15pm	CFD Simulation of a Two-Stage Twin Screw Compressor including Leakage Flows and Comparison with Experimental Data. **Andreas Spille-Kohoff.** *CFX Berlin Software GmbH, Germany*.
17:15pm-17:30pm	Two-phase inlet flow in water-flooded twin-screw expanders. **Alexander Nikolov.** *TU Dortmund University, Germany.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 7: Air-conditioning, freezing and refrigerating system II
Location: Multiple-function hall, Room B

Chair: Jan Gerritsen, Long Huang

14:00pm-14:20pm	Centrifugal Chiller Using New Refrigerant R1233zd(E). **Fang Xue.** *Johnson Controls, China.* (Keynote)
14:20pm-14:35pm	A3 Refrigerant R290 Leak and Ignition Testing for a Mini-split Air-conditioner. **Xudong Wang.** *Air-Conditioning, Heating, and Refrigeration Institute (AHRI), USA.*
14:35pm-14:50pm	A heat driven elasto-caloric cooling cycle. **Suxin Qian.** *Xi'an Jiaotong University, China.*
14:50pm-15:05pm	Multi-scale and multi-physics analysis of novel high performance, reduced charge evaporators with novel tube shapes. **Vikrant Aute.** *University of Maryland, USA.*
15:05pm-15:20pm	A Design Study of Microchannel Heat Exchanger Header Using Computational Fluid Dynamics. **Kanishka Panda.** *Daikin Industries, Ltd., Japan.*
15:20pm-15:35pm	The Channel Dimension Effect on Bubble Growth and Flow Boiling Heat Transfer. **Yang Zhang.** *Xi'an Jiaotong University, China.*
15:35pm-15:55pm	**Coffee Break**

Chair: Jianqiang Deng, Hongtao Qiao

15:55pm-16:15pm	Measurement of Local Air-side Heat Transfer Coefficient through Absorption-based Optical Method. **Stefan Elbel.** *University of Illinois at Urbana-Champaign, USA.* (Keynote)
16:15pm-16:30pm	Ejector and system performance investigation of an ejector enhanced refrigeration system using R290. **Yunxiang Li.** *Xi'an Jiaotong University, China.*
16:30pm-16:45pm	Gea View on Transcritical CO_2 In Mid-Sized Refrigeration Systems. **Jan Gerritsen.** *GEA Refrigeration, Netherlands.*
16:45pm-17:00pm	Experiment and simulation research on a high temperature water-source heat pump with R1234ze(E). **Hongzhi Yan.** *Shanghai Jiaotong University, China.*
17:00pm-17:15pm	Study on the Influence of Primary Flow Expansion on the Mixing Uniformity in the CO2 Two-phase Ejector. **Lixing Zheng.** *Shanxi University, China.*
17:15pm-17:30pm	The Influence of Corrugated Angle on the Flow and Heat Transfer Performance of Plate and Shell Heat Exchanger. **Yuwen Yuan.** *University of Shanghai for Science and Technology,China.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 8: HVAC and high performance building technology
Location: Multiple-function hall, Room C

Chair: Jie Zhu, Alexander Nikolov	
14:00pm-14:20pm	Energy-saving optimization analysis of compressor. **Bo Song.** *IDAJ-China Co., Ltd. China.* (Keynote)
14:20pm-14:35pm	International Energy Standards for Smart Cities. **Essam E Khalil.** *Cairo University, Egypt.*
14:35pm-14:50pm	Surgical Operating Theatres: Four Decades of CFD Simulations. **Essam E Khalil.** *Cairo University, Egypt.*
14:50pm-15:05pm	Smoke Management in Underground Tunnels. **Essam E Khalil.** *Cairo University, Egypt.*
15:05pm-15:20pm	Building energy consumption prediction based on VMD-BP neural. **Weide Xun.** *Huazhong University of Science and Technology, China.*
15:20pm-15:35pm	Indoor overheating adaptations in the UK domestic buildings. **Jie Zhu.** *The University of Nottingham, United Kingdom.*
15:35pm-16:00pm	**Coffee Break**
Chair: Essam E Khalil, Jianmei Feng	
16:00pm-16:15pm	A Case Study of Chinese Office Building Energy Consumption. **Jie Zhu.** *The University of Nottingham, United Kingdom.*
16:15pm-16:30pm	Effect of air gap on Building Integrated Photovoltaics performance through CFD simulation. **Jie Zhu.** *The University of Nottingham, United Kingdom.*
16:30pm-16:45pm	Performance Assessment of Psychrometric Energy Core System. **Yuanlong Cui.** *University of Derby, United Kingdom.*
16:45pm-17:00pm	Analysis of standard JB/T 12843-2016 “Centrifugal Refrigerant Compressors” **Xudong Yuan.** *Hefei General Machinery Research Institute Co., Ltd., China.*
17:00pm-17:15pm	A comparative study and prediction of the screw chillers using intelligent models. **Chengcheng Tian.** *Xi'an Jiaotong University, China.*

Technical Sessions
Friday, 12/ 07/ 2019

Session 9: Lubrication, sealing, vibration and noise
Location: Multiple-function hall, Room D

Chair: Paul Xiubao Huang, Tugba Cetinturk

14:00pm-14:20pm	Research on the Interference Amount of Stators for a Small Displacement Inverter Compressor. **Heng Guo.** *Zhuhai Landa Compressor Co., Ltd., China.* (Keynote)
14:20pm-14:35pm	Simultaneous Measurement of Flow-Induced Noise and Two-phase Flow Regimes in Expansion Devices. **Stefan Elbel.** *University of Illinois at Urbana-Champaign, USA.*
14:35pm-14:50pm	Research on Pressure Distribution and Thermal Expansion of Piston Ring in High Pressure Oil-free Compressor. **Jingya Feng.** *Xi'an Jiaotong University, China.*
14:50pm-15:05pm	Test Method For Determining Insulation Life of Compressor Motor Cables. **Tugba Cetinturk.** *Arcelik A.S. Compressor Plant, Turkey.*
15:05pm-15:20pm	Numerical Simulation of Aerodynamic Noise Generated by Refrigerant Flow inside the Rotary Compressor. **Jiahua Hong.** *Guangdong Meizhi Compressor Co., Ltd., China.*
15:20pm-15:35pm	Reciprocating compressor Noise Analysis with Wavelet Transform. **Huaxing Hao.** *Nidec Compressors (Tianjin) Co., Ltd., China.*
15:35pm-16:10pm	**Coffee Break**

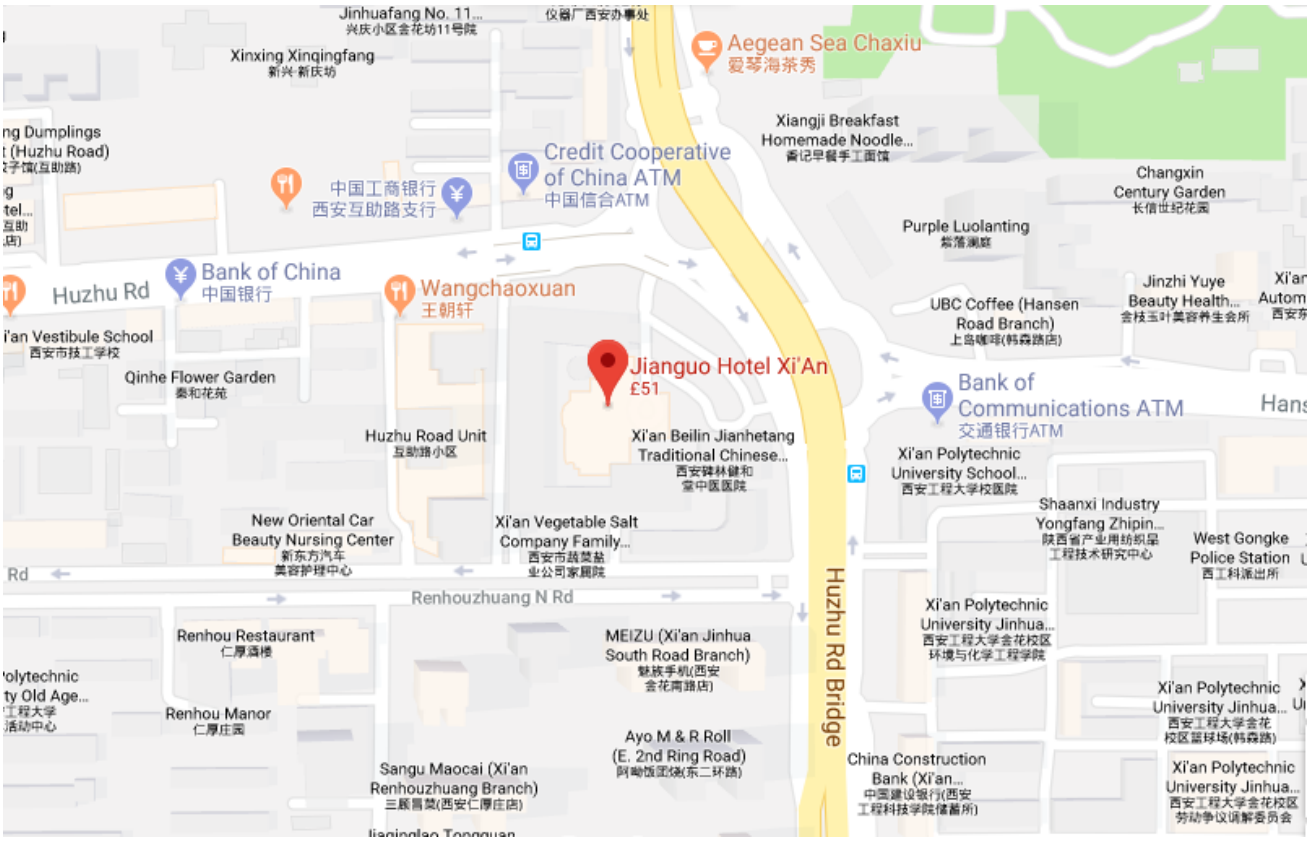
Chair: Yun Li, Xiaoling Yu

16:10pm-16:30pm	An Experimental Investigation On Pulsation & Noise Reduction By SPT-Nozzle for Compressors Operating at UC. **Paul Xiubao Huang.** *Hi-Bar Blowers, Inc., USA.* (Keynote)
16:30pm-16:45pm	Lubricant and Refrigerant Direction for China Refrigeration and Air Conditioning Market. **Joseph Anthony Karnaz.** *Shrieve Chemical Products, USA.*
16:45pm-17:00pm	Experimental Study on Damping Ratio of Compressor Reed Valve. **Yang Qian.** *Shanghai Highly Electrical Appliances CO., Ltd., China.*
17:00pm-17:15pm	Numerical Simulation of Turbo-compressors for PEM Fuel Cell Systems. **Nabeel Ahsan.** *Xi'an Jiaotong University, China.*
17:15pm-17:30pm	Linear hydrogen regulation scheme by parallel multi-ejector for anode recirculation in a PEM fuel cell system. **Lei Wang.** *Shandong University, China.*

Important Information

※Congress Venue

Jianguo Hotel (西安建国饭店)
ADD: No. 2 Huzhu Road, Xi'an, Shaanxi, China (陕西省西安市碑林区互助路 2 号)



※Transportation

From Xi'an Xianyang International Airport to Jianguo Hotel (45 km):
By Taxi: It is about 60 minutes and the fee is less than 200RMB.
By airport bus: You can take airport bus directly to Jianguo hotel from Xi 'an xianyang international airport. It is about 80 minutes running time and charges of 25RMB.

From Xi'an North Railway Station---High-speed rail station (18 km):
By Taxi: It is about one hour and the fee is about 50 RMB.
By subway: Take subway line 2 to Xiaozhai station(小寨站), and then transfer to subway line 3 and get off at Changle Park station(长乐公园站).

From Xi'an railway station to Jianguo Hotel (5 km):
By Taxi: It is within 15 minutes and the fee is about 20RMB.
By Bus: You can take bus No. 240 or No. 517 and get off at Xingqing Road station (兴庆路站).

※Notice

The ONLY registration desk is at the lobby of Jianguo Hotel.
In technical sessions, a keynote lecture should be finished in 20 minutes, including 5 minutes of Q&A. A normal oral presentation should be finished in 15 minutes, including 3~5 minutes of Q&A. A presenter is kindly requested to be in the meeting room 15 minutes prior to the beginning of the session.The presenter should check whether the PowerPoint file works before the session begins.

※Practical Information

Weather

The weather in Xi'an at July will be hot. The temperature can be in 23-38 degrees Celsius or 73-100 degrees Fahrenheit.

Water

Tap water from your hotel is not safe for drinking. Please drink only boiled water or bottled water.

Electricity

The electrical power in China is 220V 50Hz, and most hotels provide 110V outlets for Shavers.

First Aid

Police: Call 110
Ambulance: Call 120
Fire: Call 119

Travel

Route 1: Terra-Cotta Warriors Museum and the Huaqing Pool

Cost: 1200RMB / Car (can take 3 people). Fee includes the fare and tour guide fee. Tickets and meals are not included.

The Terra-Cotta Warriors Museum is China's largest ancient military museum. In 1961, the state council of the People's Republic of China will be Emperor Qin as the national cultural relic protection unit. For the first Emperor Qin cemetery thorough archeological investigation begins. In 1962, the archeologists were plotted cemetery, the first piece of plane layout diagram via detecting, cemetery ranges 56.25 square kilometers, which is equivalent to nearly 78 palaces, cause the archaeology sensation. In 1987, the Emperor Qin and Terra Cotta Warriors pit "by UNESCO world heritage list approved listed in the", and is known as "eighth wonder of the world" make the whole world make amazing all Chinese proud.

The Huaqing Pool is located in the Lintong District 30 km east to the urban area of Xi'an. With Mount. Li to its south and the Wei River to its north, it boasts the natural hot springs. The favorable geographical condition and natural environment make it one of the cradles where ancient people settled. It was also a favorite place for emperors to build their palaces as a resort. Since ancient times, it has ever been a famous bathing and tourist destination.

Route 2: The City Wall of Ming Dynasty in Xi'an and Terra-Cotta Warriors Museum

Cost: 1200 RMB / car (can take 3 people). Fee includes the fare and tour guide fee. Tickets and meals are not included.

Xi'an City Wall is the most complete city wall that has survived in China, as well being one of the largest ancient military defensive systems in the world. It has been refurbished many times since it was built in the 14th century, thrice at intervals of about 200 years in the later half of the 1500s and 1700s, and in recent years in 1983. The wall encloses an area of about 14 square kilometers. The Xi'an City Wall is on the tentative list of UNESCO's World Heritage Site under the title "City Walls of the Ming and Qing Dynasties". Since 2008, it is also on the list of the State Administration of Cultural Heritage of the People's Republic of China. Since March 1961, the Xi'an City Wall is a heritage National Historical and Cultural Unit.

Location: Around the city center of Xi'an

Total Length: 13.7 kilometers (8.5 miles)

Four Main Gates: East Gate (Changle Gate), West Gate (Anding Gate), South Gate (Yongning Gate), North Gate (Anyuan Gate)

Ways of Visit: Walking, Sightseeing Battery Car, Biking

SUPPORTED BY

Qingdao Haier Smart Technology R&D Co. Ltd
hope.haier.com

Emerson Climate Technologies (Suzhou) Co., Ltd
http://www.emersonclimate.com.cn/

Shanghai Highly Electrical Appliances Co., Ltd
http://www.shec.com.cn/

BITZER Refrigeration Technology (China) Co., Ltd
http://www.bitzer.cn/

Johnson Controls China Investment Co. Ltd
http://www.johnsoncontrols.cn/

Zhuhai Landa Compressor Co., Ltd
http://www.landa.com.cn/

Zhejiang Kaishan Compressor Co., Ltd
http://www.kaishancomp.com/

Atlas Copco (Shanghai) Trading Co., Ltd
http://www.atlascopco.com.cn/

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