



China-Japan Heat Transfer Symposium 2023

December 2nd-4th, 2023

Room 225, School of Energy and Power Engineering, Dalian University of Technology,
Dalian

Host organizations

Heat and Mass Transfer Society of China

The Heat Transfer Society of Japan

Executive organizations

School of Energy and Power Engineering, Dalian University of Technology, China

State Key Laboratory of Engines (Tianjin University), China

Program

December 2nd (Sat.)

Welcome Reception [19:00-21:30]

December 3rd (Sun.)

Opening Ceremony [9:30-9:55]

Opening and guests introduction [9:30-9:40]

TANG, Dawei [唐大伟] (Professor, Dalian University of Technology)

Welcome speech from Dalian University of Technology [9:40-9:45]

YANG, Mingjun [杨明军] (Dean of School of Energy and Power Engineering, Professor,
Dalian University of Technology)

Welcome speech from Heat and Mass Transfer Society of China [9:45-9:50]

ZHANG, Xing [张兴] (President of Heat and Mass Transfer Society of China, Professor,
Tsinghua University)

Speech from Heat Transfer Society of Japan [9:50-9:55]

HIRAI, Shuichiro [平井秀一郎] (President of the Heat Transfer Society of Japan, Professor,
Tokyo Institute of Technology)

Group Photo [9:55-10:10]

Lectures (40min each: 30-35 min presentation + 5-10 min question)

Session 1 [10:10-11:30]

Chair: JIANG, Dongyue [姜东岳] (Associate Professor, Dalian University of Technology)

SHIKAZONO, Naoki [鹿園直毅] (Professor, The University of Tokyo) [10:10-10:50]

**THREE DIMENSIONAL RECONSTRUCTION OF FROST MICROSTRUCTURE
BY REPLICA METHOD**

LIU, Zhongliang [刘中良] (Professor, Beijing University of Technology) [10:50-11:30]

**A STUDY OF FROST DEPOSITION PHENOMENA IN INITIAL PERIOD AND ON
CRYOGENIC COLD SURFACES**

Lunch [11:45-13:15]



HTSJ



Lab Tour [13:30-15:00]

Session 2 [15:00-18:00]

Chair: CHEN, Lin [陈林] (Researcher, Institute of Engineering Thermophysics, Chinese Academy of Sciences)

WANG, Shixue [王世学] (Professor, Tianjin University) [15:00-15:40]

A NEW MICROPOROUS LAYER FOR WATER MANAGEMENT AND COLD START IN PEMFC

ARAKI, Takuto [荒木拓人] (Professor, Yokohama National University) [15:40-16:20]

HEAT AND MASS TRANSPORT INSIDE FUEL CELLS AND ELECTROLYZES

Coffee Break [16:20-16:40]

GAO, Yufei [高宇飞] (Associate Professor, Dalian University of Technology) [16:40-17:20]

MULTI EFFECT OF GRAIN BOUNDARY ON THERMAL TRANSPORT IN NANOMATERIALS

KIKUGAWA, Gota [菊川豪太] (Associate Professor, Tohoku University) [17:20-18:00]

THERMOPHYSICAL PROPERTIES OF CROSSLINKED POLYMERS: A MOLECULAR DYNAMICS STUDY AND BEYOND

Banquet [18:30-21:00]

December 4th (Mon.)

Session 3 [9:00-11:55]

Chair: CHEN, Zhihao [陈志豪] (Associate Professor, Tianjin University)

MATSUURA, Hitoaki [松浦弘明] (Assistant Professor, The University of Tokyo) [9:00-9:40]

SLOW DYNAMICS OF WATER IN HUMAN CELLS MEASURED BY DIELECTRIC SPECTROSCOPY

RAO, Wei [饶伟] (Researcher, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences) [9:40-10:20]

PHASE CHANGE MECHANISM AND REGULATION TECHNIQUE IN ORGANISMS

Coffee Break [10:20-10:35]

HAYASHI, Jun [林潤] (Professor, Kyoto University) [10:35-11:15]

SOOT DIAGNOSTICS IN MULTI-PHASE COMBUSTION FIELD

WU, Xuecheng [吴学成] (Professor, Zhejiang University) [11:15-11:55]

PARTICLE/DROPLET MEASUREMENT BY DIGITAL HOLOGRAPHY

Closing Ceremony [11:55-12:00]

UTAKA, Yoshio [宇高義郎] (Professor, Tianjin University)

**HTSJ**

Lunch [12:15-13:30]

Conference Language: English

We welcome you attending the live webcast on <https://live.ckcest.cn/>.

Dec. 3rd AM: <https://live.ckcest.cn/open/pc/play?id=10001642>

Dec. 3rd PM: <https://live.ckcest.cn/open/pc/play?id=10001643>

Dec. 4th AM: <https://live.ckcest.cn/open/pc/play?id=10001644>

Organizing Committee:

Chair: ZHANG, Xing [张兴] (Tsinghua University),
HIRAI, Shuichiro [平井秀一郎] (Tokyo Institute of Technology)

Members: FUJIOKA, Keiko [藤岡恵子] (Functional Fluids)
HANAMURA, Katsunori [花村克悟] (Tokyo Institute of Technology)
KATO, Yukitaka [加藤之贵] (Tokyo Institute of Technology)
SHIKAZONO, Naoki [鹿園直毅] (The University of Tokyo)
TAKATA, Yasuyuki [高田保之] (Kyushu University)
TANG, Dawei [唐大伟] (Dalian University of Technology)
UTAKA, Yoshio [宇高義郎] (Tianjin University)
WANG, Shixue [王世学] (Tianjin University)
WANG, Shuangfeng [汪双凤] (South China University of Technology)
ZHAO, Jun [赵军] (Tianjin University)

Executive Committee:

Chair: TANG, Dawei [唐大伟] (Dalian University of Technology)

Members: LI, Mu [李沐] (Dalian University of Technology)
CHEN, Zhihao [陈志豪] (Tianjin University)
KOMIYA, Atsuki [小宮敦樹] (Tohoku University)
YANG, Mingjun [杨明军] (Dalian University of Technology)
DONG, Ming [东明] (Dalian University of Technology)
CHEN, Jiamo [陈家模] (Dalian University of Technology)
LIU, Changshu [刘常姝] (Dalian University of Technology)
CHEN, Cong [陈聪] (Dalian University of Technology)
JIANG, Dongyue [姜东岳] (Dalian University of Technology)
JIANG, Bo [蒋博] (Dalian University of Technology)
MA, Jiaxuan [马佳萱] (Dalian University of Technology)
HE, Yichuan [何一川] (Dalian University of Technology)

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Introduction of Speakers



Professor Naoki Shikazono started researches on solid oxide fuel cells and component technologies for steam and refrigeration cycles from 2022. Since 2010, he is a full professor at the Institute of Industrial Science, the University of Tokyo. He is serving in various Technical Program Committees of the SOFC Society of Japan, the Japan Society of Mechanical Engineers (JSME), Japan Society of Refrigerating and Air Conditioning Engineers (JSRAE), Heat Transfer Society of Japan (HTSJ), Japan Science and Technology Agency, etc.

SHIKAZONO, Naoki [鹿園直毅]

Professor, Institute of Industrial Science, The University of Tokyo

Presentation Title: Three dimensional reconstruction of frost microstructure by replica method



Professor Liu Zhongliang works as a professor of Environmental & Energy Engineering College of Beijing University of Technology. His main research interests are environmental energy technology, enhanced heat transfer theory and technology, numerical methods in heat and fluid flow and renewable energy utilization and energy conservation, process energy saving, analysis and optimization. He has published more than 350 academic papers.

LIU, Zhongliang [刘中良]

Professor, College of Environmental and Energy Engineering, Beijing University of Technology

Presentation Title: A study of frost deposition phenomena in initial period and on cryogenic cold surfaces



Professor Wang Shixue received his MS from Tianjin University in 1989, and received Ph.D from Yokohama National University, Japan, in 2002. He had worked in Yokohama National University as an assistant professor, and he working in Tianjin University as a professor from 2008. The research interest mainly focuses on polymer exchange membrane fuel cell, heat and mass transfer in porous media, phase change heat transfer and new energy system.

WANG, Shixue [王世学]

Professor, Department of Mechanical Engineering, Tianjin University

Presentation Title: A new microporous layer for water management and cold start in PEMFC



Professor Takuto Araki is a professor in the Faculty of Engineering at Yokohama National University. He earned his doctorate in microscale heat transfer from Kyoto University in 2002 and after completing his postdoctoral fellowship at UCLA, joined Toyohashi University of Technology in 2003. In 2007, he transferred to Yokohama National University. His research focus is on the study of heat and mass transport processes in electrochemical energy devices, including fuel cells, electrolyzers, and batteries.

ARAKI, Takuto [荒木拓人]

Professor, Faculty of Engineering, Yokohama National University

Presentation Title: Heat and mass transport inside fuel cells and electrolyzers



Dr. Yufei Gao received his bachelor, master and doctor's degree from Harbin Institute of Technology in 2007, 2009 and 2013, respectively. After 1-year post-doctoral research at RWTH Aachen University in Germany, he joined Dalian University of Technology as an associate professor. His research interests contain heat and mass transport in multi-phase materials, the special effect of grain and twin boundary on the thermophysical properties of novel materials.

GAO, Yufei [高宇飞]

Associate Professor, School of Energy and Power Engineering, Dalian University of Technology

Presentation Title: Multi effect of grain boundary on the thermal transport in nanomaterials



Dr. Gota Kikugawa received his Ph.D. Eng., MS and BS from The University of Tokyo. Then, he joined the faculty of Institute of Fluid Science at Tohoku University. His research interests are heat and mass transport phenomena in soft matters like liquid substances and polymeric materials including their interfaces from the nanoscopic viewpoint, mainly utilizing molecular simulation techniques. Dr. Kikugawa was awarded The Young Scientists' Prize from MEXT in Japan in 2018.

KIKUGAWA, Gota [菊川豪太]

Associate Professor, Institute of Fluid Science, Tohoku University

Presentation Title: Thermophysical properties of crosslinked polymers: A molecular dynamics study and beyond



Dr. Hiroaki Matsuura received Ph.D degree in mechanical engineering from Keio University in 2019. He was a post-doctoral research fellow of Japan Society for the Promotion of Science at the University of Tokyo (2019-2022). He started working in the University of Tokyo at 2022 as a research associate. His research interests include structural and dynamic properties of water in biomaterials, cryopreservation, and development of measurement techniques for mass transport properties of liquids.

MATSUURA, Hiroaki [松浦弘明]

Assistant Professor, the University of Tokyo

Presentation Title: Slow dynamics of water in human cells measured by dielectric spectroscopy



Dr. Wei Rao works at the Technical Institute of Physics and Chemistry, Chinese Academy of Sciences. She received her BSc and MSc from Harbin Institute of Technology in 2003 and 2006, and Ph. D. from Chinese Academy of Sciences in 2009. Her main research fields are bioheat transfer and pharmacology, and she has made important research achievements in the field of biothermal physics and cryobiology.

RAO, Wei [饶伟]

Researcher, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

Presentation Title: Phase change mechanism and regulation technique in organisms



Professor Jun Hayashi received the BSc. in 2003, MSc. in 2005 from Keio University. He received Ph.D in 2009 from the department of mechanical engineering of Osaka University. He is a professor of combustion and power engineering laboratory in the department of energy conversion science, Kyoto University. His current interests include laser diagnostics of soot formation processes in multi-phase combustion, plasma assisted ignition/combustion, and combustion/heat transfer processes in the small-scale liquid propulsion system.

JUN, Hayashi [林潤]

Professor, department of energy conversion science, Kyoto University

Presentation Title: Soot diagnostics in multi-phase combustion field



Professor Xuecheng Wu is currently the dean of the Energy Design and Research Institute of Zhejiang University, the director of the Energy and Environmental Engineering Laboratory of Zhejiang University. His Main research fields are multiphase flow testing and combustion diagnosis, intelligent sensing and online measurement of energy systems, intelligent energy big data analysis and operation optimization and flue gas pollution control technology and evaluation.

WU, Xuecheng [吴学成]

Professor, College of Energy Engineering, Zhejiang University

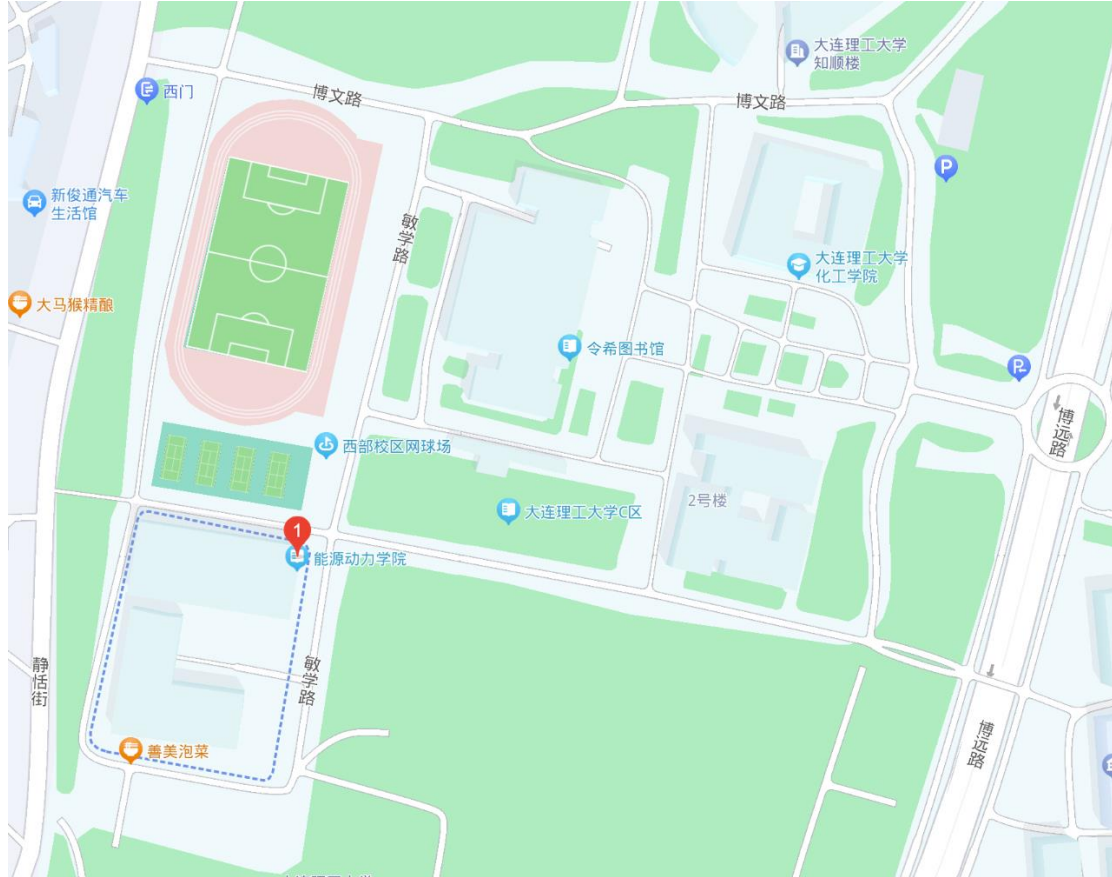
Presentation Title: Particle/droplet measurement by digital holography

Important Information

Symposium Venue

Room 225, School of Energy and Power Engineering, Dalian University of Technology

Add. No.2 Linggong Rd, Dalian, Liaoning.



Hotel

Hi Chance Dalian Science and Technology Center (海创大连科技交流中心)

Fee: 490 CNY/Day

Add. No.606, Lingshui Residential District Dalian Hi-tech Park Huangpu Road, Dalian, Liaoning.

The route for the participants who come directly from airport to hotel is as follows:



Taxi: 15.2 km, about 35 RMB, 25 minutes.

Banquet Venue

Zhongguancun (中关村), 5F, Hi Chance Dalian Science and Technology Center (海创大连科技交流中心)

Lunch Venue

3F, Boliu Dining Hall (博留食堂), Dalian University of Technology

The route from symposium venue to lunch venue is as follows:



Shuttle Bus

Hotel → Symposium venue: at the **Main Entrance** of Hi Chance Dalian Science and Technology Center.

12/3 8:50

12/4 8:20

Symposium venue → Lunch venue: at the **Main Entrance** of School of Energy and Power Engineering.

12/3 11:30

12/4 12:00

Symposium venue → Banquet venue: at the **Main Entrance** of School of Energy and Power Engineering.

12/3 18:00