

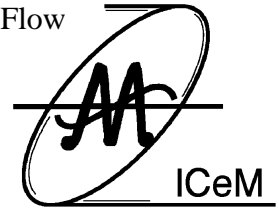


The International Information Center for Multiphase Flow

NEWSLETTER

No. 52, September 2019

The Japanese Society for Multiphase Flow



10th International Conference on Multiphase Flow (ICMF2019) May 19-24, 2019, Rio de Janeiro, Brazil

by Oscar Rodriguez

The 10th International Conference on Multiphase Flow was hosted by three of the major Brazilian Universities, the University of São Paulo (USP) at São Carlos School of Engineering, University of Campinas (UNICAMP) and Rio de Janeiro State University (UERJ), with the promotion of the Brazilian Society of Mechanical Sciences and Engineering (ABCM) and the European Research Community On Flow, Turbulence and Combustion (ERCOFTAC). It was held at the Convention Center of Windsor Barra Hotel, Rio de Janeiro, Brazil, from May 19 to May 24, 2019.

The ICMF was inaugurated in 1991 in Japan and has been organized every three years also in France, USA, Germany, South Korea and Italy. Today ICMF is consolidated as the largest and most important international scientific forum to discuss research, development and applications of multiphase flow. It

was the first time that ICMF was held in the southern hemisphere and Brazil is also part of that history now.

A significant number of 31 different countries sent delegates and a total of 683 people attended the ICMF2019. After a careful selection of papers, 554 oral and 35 poster presentations were given, including 5 plenary and 7 keynote lectures. Overall, 25% of the attendees came from Asia, 27% from the Americas, 44% from Europe and 4% from other regions all around the world. The participation of South America is worth noting, being 18% of the attendees.

The technical program, which featured 589 papers distributed in 25 technical sections, attested how diverse and multi-disciplinary ICMF2019 has been. The topics Computational and Experimental Methods for Multiphase Flows, Bubbly and Droplet Flows, Particle-laden Flows, Modeling of Multiphase Flows and Turbulence in Multiphase Flow were very

To Join ICeM:

Everybody, who is interested in Multiphase flow, is welcome to join ICeM. Please contact one of the following board members to register in ICeM member.

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well represented once more. It is worth noticing the importance that the topics Boiling, Condensation, Evaporation, Micro- and Nano-Scale Multiphase Flows and Multiphase Flow in Heat and Mass Transfer have gained in this edition. Not to mention topics as Bio-Fluids, Environmental and Geophysical Flows, Fluid-Structure Interactions, Colloidal and Suspension Dynamics, Interfacial and Reactive Multiphase Flows, Granular Media, Fluidization, Cavitation, Nucleation, Mixing, Collision, Agglomeration and Breakup and Instabilities, them all counting with significant numbers of papers presented.

Starting with ICMF 2019 the already traditional awards are sponsored by the International Journal of Multiphase Flow (IJMF) and Elsevier, and they are henceforth designated “Gad Hetsroni Award” (formerly Senior Award) and “Andrea Prosperetti Award” (formerly Junior Award). The former has as first recipient Prof. Sivaramakrishnan Balachandar and the latter Prof. Yoshiyuki Tagawa, and both award winners gave their ICMF Award lectures.

The Plenary Lectures were given by Professors C. Sun, E. Longmire, G. Tryggvason, J. Thome and S. Balachandar, and the Keynote Lectures by D. Lucas, G. Ribatski, L. Azevedo, T. Colonius, T. Sanada and T. Tanaka. In an effort to increase even further the quality of the works submitted to ICMF2019, the best full papers were invited for submission to special issues of three renown scientific journals. The

program of ICMF2019 also included the Poster Competition (three best posters were awarded with full reimbursement of the registration fee). The great scientific contribution of Professor Geoffrey Hewitt, who passed away in 2019, was remembered in one of the technical sections of ICMF2019, the Hewitt Tribute section, which took place on Wednesday 22 at 16:25.

The conference had its start through the first social activity on the evening of Sunday 19. The welcome cocktail was held on the panoramic terrace of the convention center in front of the Barra da Tijuca beach. The ICMF2019 official opening ceremony was on Monday 20 at 8:30 a.m. The conference Chair, Prof. Oscar Rodriguez, delivered the opening address. The ceremony finished with the congratulatory message of Prof. Steven Ceccio, Chairman of the ICMF Governing Board.

The technical program started on Monday at 8:55 a.m. Each working day would start with a Plenary lecture, followed by parallel technical sections until 12:45. The works would restart in the afternoon at 14:00 with two parallel Keynote lectures, followed by technical sections until 17:40. The poster sections took place on Monday and Tuesday from 17:40 to 18:30 p.m. On Monday evening from 18:30 to 19:30 the conference hosted the social activity “Meet the editors of the IJMF”, in which all the participants had the opportunity to meet and chat with the Editors-in-chief of the International Journal of



Multiphase Flow, Prof. Soldati and Prof. Balachandar. The Gad Hetsroni Award Ceremony took place on Wednesday at 9:30 a.m. and the Andrea Prosperetti Award was on Thursday at 17:50. On Wednesday 22 from 19:30 to 21:30 we had the Conference Banquet, followed by an after-dinner party that lasted until 1:30 a.m. The Samba show organized by the conference was meant to give the participants a taste of the world famous Brazilian carnival. During the Banquet, the recipients of the Gad Hetsroni, Andrea Prosperity and Poster Awards were announced, along with the newly-elected members of the Governing Board. The technical program ended on Friday 24 at 14:00.

The Closing Ceremony was on Friday 12:45 and at the end the venue of the next conference was announced. The next ICMF will take place in Kobe, Japan. Professor Akio Tomiyama, from the University of Kobe, is the ICMF2022 chairman.

The organization of an event as important and big as ICMF would not be possible without the efforts of

many people. We would like to express our appreciation to the Virtual International Research Institute of Two-Phase Flow and Heat Transfer (VIR2AL) and The Japanese Society for Multiphase Flow for advertising the conference. The organizers would like to sincerely thank the 12 members of the ICMF Governing Board for assisting the 6 members of the Local Organizing Committee in the selection of invited speakers, the 81 members of the Scientific Committee for the hard work of reviewing all the submitted extended abstracts, the invited speakers, session chairpersons, authors, the students that helped with the organization, the ICMF2019 sponsors and exhibitors.

On behalf of the Local Organizing Committee, sincerely

Oscar Rodriguez
ICMF2019 Chairman
University of São Paulo
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27th International Conference on Nuclear Engineering (ICONE27) May 19-24, 2019, Tsukuba, Japan

by Kazuaki Kito

The 27th International Conference on Nuclear Engineering (ICONE27) was held during May 19-24, 2019 at the International Congress Center “EPOCAL TSUKUBA”, in Tsukuba city, Japan. ICONE is organized by JSME (The Japan Society of Mechanical Engineers), ASME (The American Society of Mechanical Engineers) and CNS (The Chinese Nuclear Society), and it is the premier global conference for nuclear professionals that want to stay technically current and on top of industry trends and developments. The objectives of the conference are to exchange information and to have fruitful discussion with experts from worldwide on state-of-art technical and commercial matters that will move the industry forward.

The conference began with the opening session on May 20, then two plenary session, 10 panel sessions and 161 technical sessions were held and it was closed with the closing session on May 23. In

addition, some workshops were held on May 19, Fukushima tours were held on May 21, 22 and 23, and the technical tour was held on May 24. Totally 753 studies were presented from 24 countries and 927 people attended. The conference covers a wide range of topics relating to nuclear engineering. Technical sessions were organized with the following tracks; (1) Operations & Maintenance, Engineering, Modifications, Life extension, Life Cycle and Balance of Plant, (2) Nuclear Fuel and Material, Reactor Physics and Transport Theory, (3) Plant Systems, Structures, Components and Materials, (4) Instrumentation and Control (I&C) and Influence of Human Factors, (5) Advanced Reactors and Fusion Technologies, (6) Nuclear Safety, Security, and Cyber Security, (7) Codes, Standards, Licensing, and Regulatory Issues, (8) Thermal-Hydraulics and Safety Analyses, (9) Computational Fluid Dynamics (CFD), (10) Decontamination & Decommissioning,

Radiation Protection, and Waste Management, (11) Mitigation Strategies for Beyond Design Basis Events, (12) Nuclear Education and Public Acceptance, (13) Innovative Nuclear Power Plant Design and SMRs, (14) Risk Assessments and Management, (15) Computer Code Verification and Validation, and (16) Student Paper Competition.



Opening Session



Participants in ICONE27

One of the most important program of the ICONE is "Student Program". 50 students were invited from Japan/Asia, China, North America and Europe using supporting fund by JSME, ASME and CNS. They had fruitful discussions with other countries' students and

experienced researchers during the conference. In addition, 20 papers, 20 posters and the best paper (Akiyama Medal Award) were commended in the closing session.



Student Award Ceremony

In Fukushima tours, attendees visited "Fukushima Dai-ichi Nuclear Power Station" and "Japan Atomic Energy Agency (JAEA) Naraha Center for Remote Control Technology Development". And in the technical tour, attendees visited "Nippon Nuclear Fuel Development Co. Ltd.", "JAEA Oarai Research and Development Institute" and "Hitachi-GE Nuclear Energy, Ltd." All attendees actively participated in the tours with great interest.

The ICONE27 successfully finished. The next ICONE, ICONE28, will be held during August 2-6, 2020 in the Disneyland Hotel in Anaheim California, USA. I am looking forward to see attendees again in ICONE28.

Finally, I express our sincere appreciation to all attendees, track leaders, committee members, and sponsorship companies.

Kazuaki Kito
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Multiphase Flow Track in ASME-JSME-KSME Joint Fluids Engineering Conference July 28 – August 1, 2019, San Fransisco, USA

by Yuichi Murai and Mitsuru Tanaka

The ASME-JSME-KSME Joint Fluids Engineering Conference (AJK Fluids 2019) was held at Hyatt Regency, San Fransisco, CA, USA. The conference was co-organized by three host counties; The American Society of Mechanical Engineers (ASME, Organizer: Mark R. Duignan; Co-Organizer, Judith Bamberger), The Japan Society of Mechanical Engineers (JSME, Organizer, Shinnosuke Obi; Co-Organizer, Satoshi Watanabe), and The Korean Society of Mechanical Engineers (KSME, Organizer, Haecheon Choi; Co-Organizer, Gihun Son). About 800 participants came to the city center of San Fransisco.



Hyatt Regency San Fransisco

The conference consists of six technical tracks, one of which is Multiphase Flow Track (MFTC). The MFTC was sterred by Marianne Francois (ASME), Robert Kunz (ASME), Yuichi Murai (JSME), Mitsuru Tanaka (JSME), Ho-Young Kim (KSME), and Hyoungsoo Kim (KSME). We had two-step reviewing process of the individual manuscripts before acceptance of oral presentation. In Multiphase Flow Track, 74 accepted papers were presented, which were classified into 12 topics as below.

- 5-1 Numerical methods for Multiphase Flows
- 5-3 Experimental Methods for Multiphase Flows
- 5-4 Cavitation
- 5-5 Gas-Liquid Flows
- 5-6 Liquid-Solid Flows
- 5-7 Gas-Solid Flows
- 5-9 Bubble, Droplet, and aerosol Dynamics
- 5-10 Interfacial Phenomena (waves, free surface)

- 5-11 Erosion, slurry, sedimentation
- 5-13 Multiphase Flows in Petroleum Engineering
- 5-14 Multiphase Flows in Nuclear Engineering
- 5-15 Compressible Multiphase Flows (Turbulent Mixing)

For these topics, 18 additional researchers were asgined as session organizers who chaired individual sessions to promote fruitful discussion among participants.



A table in AJK Fluids 2019 banquet

One of the features in multiphse flow research as for fluid engineering was pioneering the state-of-art technology for designs of devices. In experimental fields, new measurement principles robustly operatable in various multiphase conditions were presented such as by high-repetition ultrasound, combined laser optics, and electro-magnetic conductivity sensors. In the field of CFD, many visual understanding of 3-D unsteady multiphase flows were reported such as for turbo machineries, environmental facilities, and complex purous material. As a recent world-wide trend, introduction of deep learning and data assimulation to multiphase flow analysis began to appear in the conferece.

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Future Meetings

Following list includes conference name, place, date and contact information.

The 7th Asian Symposium on Computational Heat Transfer and Fluid Flow- 2019 (ASCHT2019)

Tokyo, Japan, September 3 - 7, 2019

Chair: K. Suga (Osaka Pref. Univ.)

<http://www.ascht2019.com/>

The 14th International Symposium on Numerical Analysis of Fluid Flows, Heat and Mass Transfer - Numerical Fluids 2019

Rhodes, Greece, September 23 - 28, 2019

Chair: D. Zeidan (German Jordanian University)

<http://icnaam.org/nafluids>

Inhomogeneous Flows: Asymptotic Models and Interfaces Evolution

Luminy, France, September 23 - 27, 2019

<https://conferences.cirm-math.fr/1919.html>

14th International Symposium on Numerical Analysis of Fluid Flows, Heat and Mass Transfer (Numerical Fluids 2019)

Rhodes, Greece, September 23 - 28, 2019

Chair: D. Zeidan (German Jordanian University)

<http://icnaam.org/nafluids>

Attracting stationary distributions for the semi-discrete stochastic heat equation

Luminy, France, September 23 - October 4, 2019

<https://conferences.cirm-math.fr/2193.html>

The 15th Asian Symposium on Visualization (ASV15)

Busan, Korea, September 25 - 28, 2019

Chair: D.H. Doh (Korea Maritime and Ocean University)

Co-Chair: H.S. Ko (Sungkyunkwan University)

<http://www.asv15.org/>

Advanced Autumn School in Thermal Measurements & Inverse Techniques (METTI 7)

Porquerolles, France, September 29 - October 4, 2019

<http://iusti.cnrs.fr/metti7/>

12th Asian Thermophysical Properties Conference (ATPC 2019)

Xi'an, China, October 2 - 6, 2019

Chair: M. He (Xi'an Jiaotong University)

<http://www.atpc2019.org/>

Response Theory and Its Applications in Geophysical Fluid Dynamics

Paris, France, October 14 - 16, 2019

Organisers: V. Baladi, W. Bahsoun, S. Galatolo, V. Lucarini

<http://baladi.perso.math.cnrs.fr/ResponseTheory.html>

The Fifth International Symposium on Innovative Materials and Processes in Energy Systems 2019 (IMPRES2019)

Kanazawa, Ishikawa, Japan, October 20 - 23, 2019

General Chair: Y. Kato (Tokyo Tech)

Chair: A. Kodama (Kanazawa Univ.)

<http://www.knt.co.jp/ec/2019/impres2019/index.html>

2019 International Conference on Power Engineering (ICOPE 2019)

Kunming, China, October 21 - 25, 2019

Chair: M. Ni (CSPE, Zhejiang University)

Chair: H. Wang (Kunming University of Science and Technology)

<http://icope2019.kmust.edu.cn/>

Second International Workshop on the APPLICATIONS OF FINE AND ULTRAFINE BUBBLES

Halifax NS, Canada, October 24 - 25, 2019

K. Terasaka (Keio University)

M. Schluter (Hamburg University of Technology)

A.M. Al Taweel, A. Donaldson, J. Haelssig

(Dalhousie University)

<https://registration.dal.ca/Registration/Welcome.aspx?e=8093D127456D8CE9B7D7B7B11C23F423>

The 30th International Symposium on Transport Phenomena (ISTP30)

Halong Bay, Vietnam, November 1 - 3, 2019

Chair: L.A. Tuan (Hanoi University of Science and Technology)

Co-Chair: K. Fushinobu (Tokyo Institute of Technology)

<http://istp30.com/>

The 11th International Symposium on Measurement Techniques for Multiphase Flows (ISMTMF2019)

Zhenjiang, Jiangsu, China, November 3 - 7, 2019

<http://ismtmf2019.ujs.edu.cn>

International Gas Turbine Congress (IGTC) 2019 Tokyo

Tokyo, Japan, November 17 - 22, 2019
 Chair: T. Nishizawa (Japan Aerospace Exploration Agency)
 Vice Chair: Y. Ohta (Waseda University)
<http://igtc2019.org/>

72nd Annual Meeting of the APS Division of Fluid Dynamics

Seattle, United States, November 24 - 26, 2019
<http://www.aps.org/meetings/index.cfm>

Workshop - Fluid Dynamics in Earth and Planetary Sciences

Kyoto, Japan, November 26 - 29, 2019
<http://www.kurims.kyoto-u.ac.jp/kyoten/en/workshop.html>

The 7th International Conference on Jets, Wakes and Separated Flows (ICJWSF-2019)

Hong Kong, December 1 - 5, 2019
 Chairpersons: H. Qiu, T. Zhao (HKUST)
<http://icjwsf2019.ust.hk/index.html>

The 2nd Pacific Rim Thermal Engineering Conference (PRTEC2019)

Maui, Hawaii, United States, December 13 - 17, 2019
 Co-Chair (JSME): M. Tanahashi (Tokyo Institute of Technology)
 Co-Chair (KSME): J.T. Chung (Korea University)
 Co-Chair (ASTFE): S. Acharya (Illinois Institute of Technology)
<https://www.jsme.or.jp/med/PRTEC2019/index.html>

16th Asian Congress of Fluid Mechanics

Bangalore, India, December 13 - 17, 2019
 Chair: G.S. Bhat (India)
<https://acfm.iisc.ac.in/index.php>

25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference

IIT Roorkee, India, December 28 - 31, 2019
<https://www.iitr.ac.in/ihmtc2019/>

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5th Thermal and Fluids Engineering Conference (TFEC 2020)

New Orleans, LA, United States, April 5 - 8, 2020

Chair: T. Wang (University of New Orleans)

Chair: M.W. Plesniak (The George Washington University)

<https://www.astfe.org/tfec2020/>

Mathematical Advances in Geophysical Fluid Dynamics

Oberwolfach, Germany, May 17 - 23, 2020

<https://www.mfo.de/www/schedule/2020/all>

Particle growth in turbulence

Stockholm, Sweden, May 18 - June 12, 2020

Chair: A. Brandenburg (Nordita)

Chair: B. Mehlig (University of Gothenburg)

<https://www.nordita.org/events/particles2020/>

13th International Conference on Thermal Engineering: Theory and Applications

Baku, Azerbaijan, June 12 - 14, 2020

Chair: Y. Abdullayev (Baku Engineering University)

Chair: M.Z. Saghir (Ryerson University)

<https://www.ictea.ca/>

ESAT 2020 - 31st European Symposium on Applied Thermodynamics

Paris, France, June 28 - July 1, 2020

Chair: E.A. Macedo (Porto, Portugal)

Vice chair: R. Dohrn (Leverkusen, Germany)

<http://www.esat2020.com/>

10th International Symposium on Turbulence, Heat and Mass Transfer (THMT'20)

St. Petersburg, Russia, July 6 - 9, 2020

Chair: D.M. Markovich (Kutateladze Institute of Thermophysics, SB RAS)

<http://www.thmt-20.org/>

26th International Conference on Chemical Thermodynamics (ICCT-2020)

London, United Kingdom, July 19 - 23, 2020

Chair: M. Trusler (Imperial College London)

<https://www.ucl.ac.uk/child-health/events/2020/jul/26th-international-conference-chemical-thermodynamics>

13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Operation and Safety (NUTHOS-13)

Vancouver, Canada, August 23 - 27, 2020

http://www.ans.org/meetings/m_325/

European Conference on Thermophysical Properties (ECTP 2020)

Venice, Italy, September 14 - 17, 2020

Chair: A. Muscio (AIPT / Univ. Modena e Reggio Emilia)

<http://www.ectp2020.eu/>

73rd Annual Meeting of the APS Division of Fluid Dynamics

Chicago, United States, November 22 - 24, 2020

<http://www.aps.org/meetings/index.cfm>

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74th Annual Meeting of the APS Division of Fluid Dynamics

Phoenix, United States, November 21 - 23, 2021

<http://www.aps.org/meetings/index.cfm>

The 11TH International Symposium on Measurement Techniques for Multiphase Flow – 2019

ISMTMF

November 3--7, 2019. Zhenjiang, Jiangsu, China

1st ANNOUNCEMENT

Sponsored by Jiangsu University
 Organized by The Chinese Society for Measurement Techniques on Multiphase Flow
 The Japanese Society for Multiphase Flow
 National Natural Science Foundation of P.R.China



Conference Website:
ismtmf2019.ujs.edu.cn

Invitation Letter

BACKGROUND

After enthusiastic responses to the past ten ISMTMFs held in Nanjing (1995), Beijing (1998), Fukui (2001), Hangzhou (2004), Macau (2006), Okinawa (2008), Tianjin (2011), Guangzhou (2013), Sapporo (2015) and Hong Kong (2017), the 11th International Symposium on Measurement Techniques for Multiphase Flows (ISMTMF) will be held in Zhenjiang at November, 2019. The focus of this symposium will be on the latest progress in the development of measurement techniques for multiphase flows and exchanging new information among scientists and engineers working in universities, industries and other fields.

This symposium aims to provide an international forum for presentation, exchange of ideas and creation of knowledge in recent advances on various aspects of theories, analyses, and applications of measurement techniques in complex multiphase/multicomponent flows. It will bring together researchers and practitioners from academia, research institutions and industry to exchange experiences, disseminate up-to-date information, and explore new opportunities in the field; in particular, it will expose young or new researchers to the state of the art in the field by means of the symposiums. It is anticipated that the 11th International Symposium on Measurement Techniques for Multiphase Flows-2019 (ISMTMF 2019) will provide an opportunity for stimulation of the researchers as well as for furthering cooperation among the investigators in the field of advanced Multiphase Flow Measurement Techniques.

CALL FOR PAPERS

ISMTMF'19 will focus on the following topics (include but not limited to):

- * Fundamentals of multiphase flow measurement techniques and experimental methods
- * Novel sensors and measurement methods of multiphase systems
- * Information technology for multiphase flow
- * Process tomography and flow visualization
- * Intelligent instruments and monitoring systems
- * Optical, non-intrusive and other advanced measurement techniques
- * Micro/nanoscale multiphase flow measurement techniques
- * Bio multiphase flow measurement techniques

ABSTRACT SUBMISSION

Papers will be selected based on one page abstracts (A4, single space, Times New Roman letters of 10 font size) including results and figures. Papers submitted should include the title of the paper, authors' names and affiliations, a concise statement of the problem, method of approach, results and discussion, and conclusions. Please identify the corresponding author. Electronic submissions are strongly encouraged. Template is available from the symposium website (ismtmf2019.ujs.edu.cn) which will be available in December 2018. Please submit your abstract in a Word or PDF format to the ISMTMF'19 Secretariat via ISMTMF'19 website (online submission) or e-mail. The file size is limited to 5MB.

Important Dates

Deadline of abstracts	Jun.1st, 2019
Notification of acceptance	Jul.15th, 2019
Full paper submission (Optional)	Aug.1st, 2019
Full paper acceptance	Sep.1st, 2019
Final paper submission	Sep.15th, 2019



*Welcome to Zhenjiang
 ISMTMF 2019*

*We encourage you to explore this city with
 your family and friends.*

The 11TH International Symposium on Measurement Techniques for Multiphase Flow – 2019

ISMTMF

November 3--7, 2019. Zhenjiang, Jiangsu, China

1st ANNOUNCEMENT

Conference Website: ismtmf2019.ujs.edu.cn



VISITING ZHENJIANG

Zhenjiang is a well-known historical beautiful city who locates on the south bank of Yangtze River. The Yangtze River and Grand Canal set cross at the side of the city. The citizen with Eastern and Western Chinese culture background live together here. Zhenjiang is a superposition of Shanghai Economic zone and Nanjing Metropolitan Belt. Zhenjiang covers an area of 3843 km² with the people of 2.92 million. Zhenjiang is situated in Yangtze River Delta which is the most developed and active area in China. It is famous for its convenient transportation of railway and boats, with the fertile land of honey. From early times, Zhenjiang was known as the port city for business. Zhenjiang is a national historical culture city, one of the birth places of Eastern Chinese culture. With the civilized history more than 3000 years, the city is full of different customs and cultural backgrounds. Zhenjiang is one of the top tourism cities in China. It is best known as "The City With Hills and Woods" and "The Landscape by Yangtze River". The mountains from West China are ended in Zhenjiang, the rivers and canals go through and surround the city.



We welcome and invite you to ISMTMF 2019 held in beautiful city Zhenjiang

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