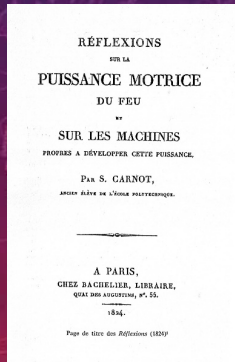


# Thermal

Temperature-, Heat-, Energy-, Reaction-, Mass-related Alliance to Communicate within, and Publicize beyond, the World Thermal Science and Engineering Community



bicentennial



1796–1832



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**Assembly for International Heat Transfer Conferences (AIHTC)**

Josua Meyer

President of the AIHTC

Department of Mechanical and Mechatronic Engineering,

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The Assembly for International Heat Transfer Conferences (AIHTC) has been dedicated to organizing the quadrennial International Heat Transfer Conferences (IHTCs), often referred to as the Heat Transfer Olympics, since 1966. The most recent event, IHTC-17, took place in Cape Town from 14 to 18 August 2023. Notably, there was an unusual five-year gap between IHTC-16 in China and IHTC-17, the latter being originally scheduled for 2022 but postponed to 2023 due to the Covid pandemic. The upcoming IHTC in Rio de Janeiro, Brazil, is set for 10 to 15 August 2026, less than three years after IHTC-17, as the initial bid for Brazil to host IHTC-18 proposed the 2026 dates.

This report focuses on key developments discussed during the AIHTC meeting chaired by then-President Prof Xing Zhang at the IHTC-17 conference on 16 August 2023. A well-received report on IHTC-17, with more details available in this newsletter under the South Africa section, was provided. Prof Orlande from Brazil presented a progress report on organizing IHTC-18 in Rio de Janeiro, garnering positive feedback from AIHTC members. Among the highlights, two countries submitted impressive bids to host IHTC-19, and London was awarded the bid with dates set for 16 to 21 August 2030.

The AIHTC received membership applications from two countries, with Poland successfully joining. The Polish Academy of Sciences will nominate two delegates to represent Poland in the future. Begell House will continue hosting the IHTC Digital Library, featuring the IHTC-17 conference proceedings. I was elected as the President of the AIHTC, with Prof Helcio Orlande (Brazil) as Vice-President and Prof Gherhardt Ribatski (Brazil) as the secretary. While the AIHTC's website was up to recently hosted on a server in China, it was transferred to a server in Brazil and is being managed by the newly elected secretary.

In conclusion, I express gratitude to the immediate past President, Prof Xing Zhang (China), for exceptional leadership during the challenging five-year period, including the Covid pandemic. Special thanks are extended to the immediate past secretary, Prof Jat du Toit (South Africa), for five years of dedicated service and invaluable support in organizing IHTC-17.

**The Series of Quadrennial World Events after 1964**

			
Year	No. Summer Olympic Games	No. Winter Olympic Games	No. FIFA World Cup
1964	18 Tokyo, Japan	9 Innsbruck, Austria	
1966			8 England
1968	19 Mexico City, Mexico	10 Grenoble, France	
1970			9 Mexico
1972	20 München, West Germany	11 Sapporo, Japan	
1974			10 West Germany
1976	21 Montreal, Canada	12 Innsbruck, Austria	
1978			11 Argentina
1980	22 Moscow, Soviet Union	13 Lake Placid, United States	
1982			12 Spain
1984	23 Los Angeles, United States	14 Sarajevo, Yugoslavia	
1986			13 Mexico
1988	24 Seoul, South Korea	15 Calgary, Canada	
1990			14 Italy
1992	25 Barcelona, Spain	16 Albertville, France	
1994			15 United States
1996	26 Atlanta, United States	17 Lillehammer, Norway	
1998			16 France
2000	27 Sydney, Australia	18 Nagano, Japan	
2002			17 South Korea Japan
2004	28 Athens, Greece	19 Salt Lake City, United States	
2006			18 Germany
2008	29 Beijing, China Hong Kong	20 Turin, Italy	
2010			19 South Africa
2012	30 London, United Kingdom	21 Vancouver, Canada	
2014			20 Brazil
2016	31 Rio de Janeiro, Brazil	22 Sochi, Russia	
2018			21 Russia
2020	32 Tokyo, Japan (2021)	23 Pyeongchang, South Korea	
COVID-19			
2022		24 Beijing, China	22 Qatar
2024	33 Paris, France		17 Cape Town, South Africa (2023)
2026		25 Milan and Cortina d'Ampezzo, Italy	23 Canada Mexico United States
2028	34 Los Angeles, United States		18 Rio de Janeiro, Brazil
2030		26	19 London, United Kingdom

**American Society of Thermal and Fluids Engineers (ASTFE)**

**Prof. Francine Battaglia, President**  
University at Buffalo, U.S.A., fbattagl@buffalo.edu

**Prof. Lorenzo Cremaschi, Chair, Executive Committee**  
Auburn University, Auburn, U.S.A., lzc0047@auburn.edu

**Ms. Anastasia Paulsen, Managing Director**  
ASTFE, Danbury, U.S.A., info@ASTFE.org



**The 9th Thermal and Fluids Engineering Conference (TFEC 2024)**

The 9th Thermal and Fluids Engineering Conference (TFEC 2024) will be held in a hybrid mode (in-person and virtual) during April 21-24, 2024. The chair and co-chairs of the conference are Drs. Jayathi Y. Murthy, David L. Blunk, and Nesrin Ozalp. The program chair and co-chairs are Drs. Hamidreza Najafi, Patrick Mensah, Ethan Languri, and Kevin R. Anderson. The conference will be hosted by Oregon State University, Corvallis, OR, USA and has accepted 515 submissions in the form of full papers, extended abstracts, and presentation-only abstracts. Participants from over 36 countries on nearly all continents will attend the conference with 250 in-person and 150 on-line. There will be 25 in-person sessions and 10 virtual sessions. The technical program will also host 3 plenary speakers, 8 keynote presentations, and 4 invited speakers in the Technology, Entrepreneurship and Communication (TEC-talk) session. These distinguished speakers from academia, industry, national labs, and federal agencies will cover a broad range of topics such as model validation, engineering education in post-corona future, next generation heat transfer fluids, tuning of phonon transport, gas turbine heat transfer and internal flow aerodynamics, sustainable energy and buildings, concentrating solar power, water-energy nexus, spacecraft engineering, distributed combustion, heat in hypersonics, and machine learning in CFD. In addition, one special poster session is being organized by Profs. Yong Tao and Yimin Zhu, with 10 students presenting. This session showcases student presenters who participated in the National Science Foundation-funded IRES Track III project focused on International Research Experience and Professional Development in Built Environment Sustainability. Administered by Louisiana State University in collaboration with ASTFE and the National University of Singapore, the project offers students the opportunity to conduct research in Singapore on various topics related to built environment sustainability after receiving training through the Center of Leadership Development in Built Environment Sustainability. The session will highlight the experiences of these students and their research findings. A special luncheon talk will be presented on "Wildland Fire: how did we get here and the thermo-fluid research needed," by Dr. Sara McAllister from the U.S. Department of Agriculture. Following is the awards ceremony to recognize the TFEC2024 best papers, best posters, best reviewers, as well as society awards. The ASTFE Thermal and Fluids Engineering Award will be given to Dr. Ramesh Agarwal, and ASTFE Fellows will be given to Drs. Sivaramkrishnan Balachandrar, Ashwani Gupta, Pamela Norris, Akshai Runchal, Ting Wang, and Yuwen Zhang. The First Annual ASTFE Nuclear Thermal Hydraulics CFD Competition sponsored by Framatome is organized and led by Dr. Wayne Strasser.

**ASTFE Thermal and Fluids Engineering Award 2024:**



**Ramesh Agarwal**  
The William Palm Professor of Engineering, Mechanical Engineering & Materials Science, Washington University in St. Louis

For lifetime fundamental and applied contributions to thermal and fluids engineering with applications to problems in mechanical engineering, aerospace engineering, and energy and the environment.

**ASTFE Fellows 2024:**



Sivaramkrishnan Balachandrar



Ashwani Gupta



Pamela Norris



Akshai Runchal



Ting Wang



Yuwen Zhang

**Executive Committee Report**

Formed in recognition of the continued growth and impact that ASTFE is achieving, the Executive Committee's goal is to expand ASTFE's impact in the fluids and thermal communities. The Executive Committee (EC) leaders include Profs. Lorenzo Cremaschi (Auburn Univ., EC-chair), Wilson Chiu (Univ. of Connecticut), Jon Longtin (Stony Brook Univ.), Nesrin Ozalp (Purdue Univ. Northwest), and Ting Wang (Univ. of New Orleans). One of the EC's predominant roles is to oversee the annual Thermal and Fluids Engineering Conference and provide support to the conference organizers as the conference planning unfolds. After this year's marvelous 9th TFEC conference, which will be at Oregon State University and led by President Jayathi Murthy and Dean David Blunk, the EC is thrilled to work with George Washington University Provost Pamela Norris and the George Washington Team in anticipation of the TFEC2025 conference, which will be March 9-12, 2025. The announcement can be found in this link <https://www.astfe.org/tfec2025/>. The outstanding caliber of the TFEC chairs highlights the exceptional first-rate conferences that the EC continues to promote.

The EC also formed four new technical committees that will assist with the conferences, seminars, and workshops. The Thermal Sciences, Fluid Dynamics, Energy and Sustainability, and Ethics and Education Technical Committees bring together over 100 members across the world while promoting the mutual exchange of ideas, research, and innovation among thermal and fluids disciplines.

The EC co-sponsored several conferences beyond TEFC, including the upcoming 27th National and 5th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMT-2023, IIT Patna). Membership outreach and communication are also part of the EC's recent activities, and several new programs that focus on students and industry-wide participation are under development.

**Asian Union of Thermal Science and Engineering (AUTSE)**

Xing Zhang  
 President of the AUTSE  
 Department of Engineering Mechanics  
 Tsinghua University, China  
 x-zhang@tsinghua.edu.cn



The Asian Union of Thermal Science and Engineering (AUTSE) aims to organize high-quality international conferences, promoting academic exchanges and cooperation, and cultivating outstanding young academic talent in Asia. After several years development, AUTSE has grown into an important and vibrant international academic organization. In the last year, AUTSE has made important progress, listing as following. United Arab Emirates (UAE) has been accepted to join AUTSE as a new member. New executive board members from Chinese Taipei and India have joined the big family of AUTSE. Nine new AUTSE fellows have been nominated and finally proved by all the AUTSE executive members. With help from all these renowned and experienced researchers, AUTSE will become more impactful and successful in the coming future. In 2024, the third Asian Conference on Thermal Science (ACTS 2024) will be held from Jun. 23 to Jun. 27 in Shanghai, China. ACTS 2024 is organized by AUTSE and Chinese Society of Engineering and Thermophysics, supported by Heat Transfer society of Japan, Korean Society of Mechanical Engineers, Australasian Fluid and Thermal Engineering Society and Indian Society for Heat and Mass Transfer. The ACTS has already become one of the largest conferences in the area of thermal sciences in the Asia Pacific and even around the world. There will be 22 conference tracks in ACTS 2024, including Combustion, Energy Storage, Micro/Nano Heat Transfer, Bio and Medical Applications, etc. ACTS 2024 aims to attract 1000 participants, including 8 Plenary Lectures, AUTSE Outstanding Award Lecture and Nukiyama Memorial Award Lecture.

In conclusion, I express sincere gratitude to all the distinguished professors and colleagues in AUTSE for their continuous support and assistance. Together with all the help, AUTSE will make more progress and achievements in 2024.

**EUROTHERM****Pedro Jorge Martins Coelho, Secretary**Instituto Superior Técnico, Universidade de Lisboa, Portugal  
pedro.coelho@tecnico.ulisboa.pt**New Eurotherm members**

Professors José García-Cascales and Wojciech Lipiński are new Spanish and Cyprus Eurotherm Committee members.

José García-Cascales is a Professor of the Department of Thermal Engineering and Fluids at the Technical University of Cartagena. He is an Industrial Engineer, with a specialization in energy techniques, and got his PhD in 2001 on Thermal Engineering and Thermal Properties of Matter at the Technical University of Valencia. He is the principal investigator of the research and development group on thermal and energy systems modelling. His research lines include heat and mass transfer, heat pumps, refrigeration systems, combustion, multiphase, and multicomponent fluids.

Wojciech Lipiński is a Professor at the Cyprus Institute. He obtained his Master of Science degree in Environmental Engineering from Warsaw University of Technology (2000), doctorate in Mechanical and Process Engineering from ETH Zurich (2004), and habilitation in Energy Technology from ETH Zurich (2009). He previously held academic positions at ETH Zurich (2004–2009), the University of Minnesota (2009–2013), and the Australian National University (2013–2021). His research interests encompass solar optical, thermal and chemical engineering sciences. His basic research focuses on advances in transport and reactive flow phenomena, in particular for problems with significant radiative transfer effects. His applied research primarily underpins developments in concentrated solar thermal energy for power generation, processing of fuels and materials, and environmental separations. Prof. Lipiński is currently serving on the editorial boards of *Solar Energy*, *Journal of Quantitative Spectroscopy and Radiative Transfer*, and *Thermopedia*. He is involved, among others, in the International Centre for Heat and Mass Transfer, the Eurotherm Committee, and the American Institute of Chemical Engineers. He is Fellow of the American Society of Mechanical Engineers (2021).

**Eurotherm Seminar 118 - Hydrogen Energy Technologies**

The Eurotherm Seminar No. 118 on Hydrogen Energy Technologies will be held in Krakow, Poland, from 8<sup>th</sup> to 10<sup>th</sup> May, 2024 (<https://eurotherm118.agh.edu.pl/>). This seminar is connected with 20 years of cooperation between AGH University of Krakow and Shibaura Institute of Technology in Tokyo. The aims of seminar are to collect presentations dealing with hydrogen energy technologies: production, storage, utilization and transport phenomena. The seminar is chaired by Prof. Prof. Janusz Szymd (AGH University of Krakow) and co-chaired by Prof. Akito Takasaki (Shibaura Institute of Technology) and Prof. Wojciech Lipiński (The Cyprus Institute). The invited speakers are Prof. Grzegorz Brus (AGH University of Krakow, Krakow, Poland), Prof. Łukasz Gondek (AGH University of Krakow, Krakow, Poland), Prof. Wojciech Lipiński (The Cyprus Institute, Nicosia, Cyprus), Prof. Mikihito Nomura (Shibaura Institute of Technology, Tokyo, Japan), Prof. Yoshihide Suwa (Shibaura Institute of Technology, Tokyo, Japan), Prof. Akito Takasaki (Shibaura Institute of Technology, Tokyo, Japan) and Prof. Chi-Hwa Wang (National University of Singapore, Singapore). The Proceedings of the Seminar will be published in the Journal of Physics: Conference Series.

**9<sup>th</sup> European Thermal Sciences Conference**

The European Thermal Sciences Conference is organized every four years under the auspices of the Eurotherm Committee. The 9<sup>th</sup> edition is scheduled 10<sup>th</sup>-13<sup>th</sup> June, 2024, and it will be held at Bled, Slovenia (<http://www.eurotherm2024.si/>). It will be chaired by Profs. Bozidar Sarler, Faculty of Mechanical Engineering, University of Ljubljana, Slovenia, and Prof. Laura Vanoli, Department of Engineering, Parthenope University of Naples, Italy. The aim of this Conference is to promote and to encourage European cooperation in thermal sciences and heat transfer by bringing together scientists and engineers working in specialized areas. The conference topics include both fundamentals (e.g., boiling and condensation, combustion, computational/numerical methods, conduction, convection, evaporation, mass transfer and drying, melting and solidification, micro/nano scale heat transfer, porous media, thermal radiation, turbulent transport, two-phase/multiphase flows) and applications (e.g., aerospace and aeronautics technology, bioheat transfer, biomedical engineering, electronic cooling, energy engineering, environmental applications, fires, heat exchangers, heat transfer in buildings, inverse problems, optimization in heat and mass transfer).

The conference programme comprises keynote lectures, oral presentations and poster sessions. Plenary lectures will be delivered by Dr. Sasa Bajt (DESY, Germany), Prof. Nurupam Chakraborti (Czech Technical University in Prague, Czech Republic), Prof. Iztok Golobic (University of Ljubljana, Slovenia), Prof. Alain Kassab (University of Central Florida, USA), Prof. Wojciech Lipiński (The Cyprus Institute, Nicosia, Cyprus), Prof. Andreas Ludwig (Montan University Leoben, Austria), Prof. Perumal Nithiarasu (Swansea University, UK) and Prof. Dimos Poulikakos (ETH Zurich, Switzerland). Dr. Katja Klinar, University of Ljubljana, Slovenia, will deliver a keynote lecture. Special sessions on thermal control devices and thermal circuits, thermal energy storage, morphology optimized design for heat exchangers, advances in meshfree methods with applications in thermal sciences, recent advances in boiling and condensation heat transfer, advanced and multiscale computational methods in bioengineering, and solidification science and technology are planned.

All papers will be peer-reviewed and the accepted papers will be published in the Journal of Physics: Conference Series. The authors of the best papers will be invited to submit extended versions of their manuscripts to special issues of *Applied Thermal Engineering*, *Computational Thermal Sciences*, *Experimental Thermal and Fluid Science*, *International Journal of Numerical Methods in Heat & Fluid Flow* and *Journal of Mechanical Engineering*.

**International Centre for Heat and Mass Transfer (ICHMT)**

**Prof. Yildiz Bayazitoglu, President**  
Rice University, Houston, U.S.A., [bayaz@rice.edu](mailto:bayaz@rice.edu)



**Prof. Ilker Tari, Secretary General**  
Middle East Technical University, Turkiye, [ilker@ichmt.org](mailto:ilker@ichmt.org)



**Tugba Gun, Executive Secretary**  
Middle East Technical University, Turkiye, [ichmt@ichmt.org](mailto:ichmt@ichmt.org)

ICHMT organized two international symposium and sponsored six in 2023. Details of these meetings can be found on the web site, <http://www.ichmt.org>

**Meetings Organized by ICHMT:**

**“10th International Symposium on Radiative Transfer, RAD-23”**, 12 - 16 June, 2023, in Grand Hotel Palace, Thessaloniki, Greece. The Symposium Chairmen were Prof. Brent Webb, Brigham Young University, USA and Dr. Denis Lemonnier, ISAE-ENSMA, France. Detailed information can be found on the Web site: <http://www.ichmt.org/rad-23>



**“10th International Symposium on Turbulence Heat and Mass Transfer, THMT-23”**, 11 - 15 September 2023, in Roma, Italy. The Symposium Co-Chairmen were Professor K. Hanjalic, Delft University of Technology, The Netherlands; Professor K. Suga, Osaka Metropolitan University, Osaka, Japan and D. Borello, Università di Roma "La Sapienza", Rome, Italy. Detailed information can be found on the Web site: <http://www.thmt-23.org/>

**Meetings Co-Sponsored by ICHMT:**

**“12th Mediterranean Combustion Symposium, MCS-2023”**. <http://www.combustioninstitute.org/ci-event/12th-mediterranean-combustion-symposium/>

**“11th Inter. Conf. on Boiling & Cond. Heat Trans., ICBCHT2023”**. <http://www.icbcht11.eng.ed.ac.uk/>

**“14th Inter. Conf. on Thermal Engin. Theory and App., ICTEA-2023”**. <http://www.ictea.ca/>

**“8th METTI, Adv. Sch. on Thermal Measur. and Inverse Tech.”**. <http://www.metti8.sciencesconf.org>

**“The 2nd Inter. Conf. on Energy Storage and Saving, ICENSS2023”**. <http://www.icenss2023.xacn.cc/>

**“17th International Heat Transfer Conference, IHTC-17”**, 14 – 18 August 2023, Cape Town, South Africa. The symposium Chairman was Josua P. Meyer, University of Pretoria, South Africa. <http://www.ihtc17.org/>. IHTC-18 will be chaired by Helcio Orlando in Rio Brazil, 2026.

**ICHMT Hosted AIHTC-ICHMT EC Joint Dinner during IHTC-17**



**ICHMT Executive Committee Meeting during IHTC17**

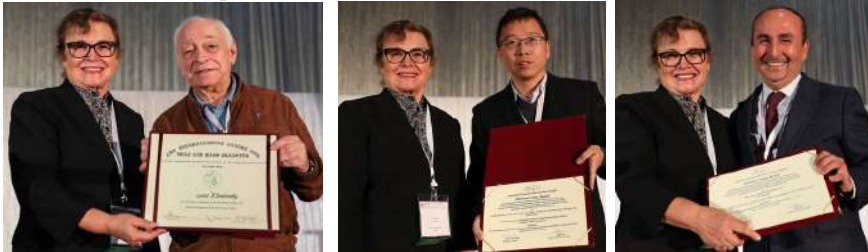


Renato M. Cotta received ICHMT's Luikov Award (with medal and certificate) during IHTC-17



Leonid A. Dombrovsky received ICHMT's 2023 Fellowship Award.

ICHMT President Yildiz Bayazitoglu presented 2021 and 2023 Hartnett-Irvine Best Paper Award



The organization of several future meetings are in progress. These are:

**Meetings to be Organized by ICHMT:**

“8th International Symposium on Advances in Computational Heat Transfer, CHT-24”, 26 – 30 May 2024, Istanbul, Turkiye. The Symposium Co-Chairmen are Yogesh Jaluria, Rutgers University, USA and Tuba Okutucu-Özyurt, İTÜ, Istanbul, Turkiye. Detailed information can be found on the Web site: [www.ichmt.org/cht-24](http://www.ichmt.org/cht-24)

“Sustainable Energy”, 11 – 14 December 2024, Istanbul, Turkiye. The Symposium Co-Chairmen are Pinar Menguc, Ozyegin University, Istanbul, Turkiye and Wojciek Lipinski, The Cyprus Institute, Cyprus. Web site is under construction.

**Meetings to be Co-sponsored by ICHMT:**

“9th Thermal and Fluids Engineering Conference (Hybrid), TFEC-2024”, Detailed information can be found on the Web site: <https://www.astfe.org/tfec2024/>

“15th International Conference on Thermal Engineering Theory and Applications, ICTEA-2024”, Detailed information can be found on the Web site: <https://www.ictca.ca/>

“3rd Asian Conference on Thermal Sciences (ACTS 2024)”, Detailed information can be found on the Web site: <https://acts3.sjtu.edu.cn/>

“Heat and Mass Transfer in Porous Media: Fundamentals and Applications, HMTPM-24”, Web site is under construction.

**Officers of ICHMT**

Executive Committee 1.1.2023 - 31.12.2026		
<b>President</b>		
Yildiz BAYAZITOGLU United States of America		
<b>Vice Presidents</b>		
Peter STEPHAN Germany	Hideo YOSHIDA Japan	
<b>Secretary General</b>		
Ilker TARI Turkiye		
<b>Executive Committee Chairman</b>		<b>Executive Committee Vice Chairman</b>
M. Pinar MENGÜÇ Turkiye		Leonid DOMBROVSKY Russia
<b>Elected Executive Committee Members</b>		
Pedro Jorge Martins COELHO Portugal	Siaka DEMBELE U.K.	Paolo DI MARCO Italy
Leonid DOMBROVSKY Russia	Abel HERNANDEZ- GUERRERO Mexico	Denis LEMONNIER France
Wojciech LIPINSKI Poland	Shigenao MARUYAMA Japan	M. Pinar MENGÜÇ Turkiye
Abdulmajeed MOHAMAD Canada	Hélcio R. B. ORLANDE Brazil	Jacques PADET France
Aldo STEINFELD Switzerland	Qiuwang WANG China	Brent WEBB United States of America
<b>Financial Auditors</b>		
Kyle DAUN Canada	Yogesh JALURIA United States of America	Mikhail A. SHEREMET Russia
<b>Past Presidents who are ex-officio voting members of the Executive Committee</b>		
Kemal HANJALIC Bosnia Herzegovina	Terrence (Terry) SIMON United States of America	

<https://www.ichmt.org/p/officers-of-ichmt>

**Organization:**

- 40 Member Institutions from 31 countries
- More than 300 Scientific Council members
- Officers: President, Vice Presidents, Secretary General, Executive Committee (15 members), Financial Auditors

**Publications:**

- Proceedings of ICHMT Meetings  
<https://www.ichmt.org/p/proceedings-of-ichmt-meetings>
- Other Publications  
<https://www.ichmt.org/p/other-publications>
- ICHMT Digital Library  
<http://dl.begellhouse.com/references/1bb331655c289a0a.html>



**The William Begell Medal for Excellence in Thermal Science and Engineering**

The Assembly for International Heat Transfer Conferences & Begell House Publishers History and Establishment

**Yelena S. Begell**, President, Begell House Publishers  
elena@begellhouse.com



Dr. William (Bill) Begell (May 18, 1927–July 4, 2009) taught at Columbia University and was the Director of Columbia Heat Transfer Research Center Facility. There, he managed the large-scale seminal work on two-phase flows, burnout studies and cooling procedures for nuclear reactors, some of which were conducted directly under the founder of the US Nuclear Navy, Admiral Hyman Rickover. He then became involved in a US Air Force intelligence project, that culminated in the cofounding of Scripta Technica (1962), a publishing company specializing in the presentation of important scientific and engineering materials translated into English from foreign languages. Building upon his experience and reputation in the field, Dr. Begell was a founder and continued to pursue his personal research and publishing activities at Hemisphere Publishing Corporation (1966) where he developed an impressive list of 86 high-impact engineering and biomedical journals, as well as hundreds of basic texts, research books and reference tools. In 1986, Taylor and Francis acquired Hemisphere Publishing and in 1991, Dr. Begell established Begell House, Inc. to continue his independent scholarly publishing.

Dr. Begell's visionary sense of future trends in engineering and biomedicine led to the creation of interdisciplinary and cross-disciplinary publications. Throughout the years, Dr. Begell's contributions and support of scholarly societies were a factor in the development of new branches of knowledge. In some cases, these innovative titles led to the establishment of new fields of endeavor and study. Under Hemisphere Publishing, he was the founding editor for the journals *Heat Transfer Engineering* and *Numerical Heat Transfer*, which continue to be published today.

Dr Begell had a long career in science, engineering, and publishing, where he was actively involved and made numerous contributions to the Heat Transfer community. Dr. Begell was a chairman of the American Society of Mechanical Engineers (ASME) Publications Committee and helped to establish ASME's publishing program; following his recognitions, he was an ASME Fellow and in 2005 received the ASME Heat Transfer Division Distinguished Service Award. Dr. Begell was one of the founding members of the Society for Scholarly Publishing (SSP), publisher of The Assembly for International Heat Transfer Conference (AIHTC) proceedings and International Center for Heat and Mass Transfer (ICHMT) proceedings for many years, and has been nominated for and granted many awards for his achievements in science, engineering and publishing.

Dr. Begell was an extraordinary man; he truly made a global impact by facilitating scientific exchanges and communications between many countries during the Cold War years. He spoke eight languages and made numerous translations to bring a better understanding of science and engineering progress. Soon after Dr. Begell's passing in July 2009, his friends and colleagues gathered in New York to celebrate his life and decided to establish an Award in his honor, making his life and contributions to heat transfer and engineering societies a memorable legacy. Later the logistics were worked out between Begell House and AIHTC to establish The William Begell Medal (Begell Medal).

The William Begell Medal for Excellence in Thermal Science and Engineering was accepted and fully established in 2010 by The Assembly for International Heat Transfer Conferences (AIHTC), the International Center for Heat and Mass Transfer (ICHMT), and Begell House Inc. The first Begell Medal was given at the

14<sup>th</sup> International Heat Transfer Conference (IHTC-14) awards banquet in Washington, D.C. in August 2010. The founding members of the William Begell Medal are Geoff Hewitt, Avi Bar Cohen, Art Bergles, Graham de Vahl Davis, Dick Goldstein, Darrell Papper, and Faruk Arinc, with participation of other senior committee members of AIHTC and ICHMT.

The initial rules for selection and awarding of the Medal were set within the AIHTC Conference and only the scheduled Keynote lecturers at the IHTC Conference were eligible for consideration. The AIHTC Steering Committee members, members of the ICHMT Executive Committee and Begell House's Executive Editorial Board members are not eligible for consideration.

The rules for selection of the Begell Medal recipients were set by the Begell Medal Bylaws together with AIHTC and the Begell Medal Steering Committee. The first Committee was chaired by Professor Geoff Hewitt, President of ICHMT, and consisted of three delegates from the AIHTC chosen by the Officers of the AIHTC, and three members from the ICHMT Executive Committee chosen by ICHMT Executive Board. In the event of a tied vote, an ex-officio Begell House representative, selected from the Begell House Executive Editorial Board, will cast the deciding vote. The AIHTC, ICHMT, BH, and IHTC Conference websites promote the Begell Medal, and its presentation during future IHTC conferences will be supported by Begell House. The final IHTC conference program includes recognition of the Begell Medal Award and the event.

**The Committees and Winners (2010-2023)**

The winners of the Begell Medal and Begell Medal Selection Committees:

**2010**

**Nobuhide Kasagi**

The 2010 recipient of the **Begell Medal** was **Nobuhide Kasagi**, University of Tokyo, Tokyo, Japan.

His Keynote lecture was titled "CONTROL OF TURBULENT TRANSPORT: LESS FRICTION AND MORE HEAT TRANSFER".



**2014**

**Professor Liu, Jing**

The 2014 recipient of the **Begell Medal** was **Professor Liu, Jing**, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China, Department of Biomedical Engineering, School of Medicine, Tsinghua University, Beijing, China.

His Keynote lecture was titled WAYS TOWARD TARGETED FREEZING OR HEATING ABLATION OF MALIGNANT TUMOR: PRECISELY MANAGING THE HEAT DELIVERY INSIDE BIOLOGICAL SYSTEMS.





**2018**  
**Dr. Leonid A. Dombrovsky, Dr. Alexander A. Fedorets**

The 2018 recipients of the **Begell Medal** were **Dr. Leonid A. Dombrovsky**, Joint Institute for High Temperatures of the Russian Academy of Science, Moscow, Russia and **Dr. Alexander A. Fedorets**, Laboratory of Micro-Hydrodynamic Technologies at the University of Tyumen, Western Siberia, Russia.

Their Keynote lecture was titled SELF-ASSEMBLED STABLE CLUSTERS OF DROPLETS OVER THE LOCALLY HEATED WATER SURFACE: MILESTONES OF THE LABORATORY STUDY.



**2023**  
**Professor Chang-Ying Zhao**

The 2023 recipient of the **Begell Medal** is **Professor Chang-Ying Zhao**, Shanghai Jiao Tong University, Shanghai, China, for his lifetime achievements in and contributions to the field of thermal sciences and engineering.



**The Begell Medal - Value of Award**



The Begell Medal to be bestowed upon an internationally recognized, highly accomplished researcher and leader in fundamentals or applications of thermal sciences and engineering based on their lifetime achievements. The Awardee will receive a silver cast Medal, a certificate, and a cash check of \$5,000 (USD) plus \$5,000 (lump sum) reimbursable against travel costs to attend the conference.

**2020 Amendment to the Begell Medal Award**

Begell House is committed to continuously supporting the Begell Medal Award as an established IHTC Conference tradition; nevertheless, due to COVID-19 changes, IHTC schedule with the conference's organization, social media, and other coming challenges, the Begell Medal Steering Committee felt 2020 was the year to make some overall adjustments to the nomination rules and selection process. The members of AIHTC, ICHMT and Begell Medal Steering Committee engaged in an open discussion for the amendment of the Begell Medal Award Bylaws.

In 2022, the Begell Medal Steering Committee reached a mutual agreement between all parties and the Award was elevated to the highest level for the selection of a recipient for the Medal. The Begell Medal is now bestowed upon an internationally recognized, highly accomplished researcher and leader in the fundamentals and/or applications of thermal sciences and engineering based on their lifetime achievements. The world's leading international organizations in this field, AIHTC, ICHMT, ASTFE, AUTSE, and EURO THERM select nominees for final considerations by the Award Council and the winner is chosen by an anonymous vote. The Begell Medal will be awarded every four years and the value of the Award remains the same.

**References**

1. www. <https://www.begellhouse.com/begell>
2. AIHTC, ICHMT, ASTFE, AUTSE, EURO THERM and Begell House correspondence.

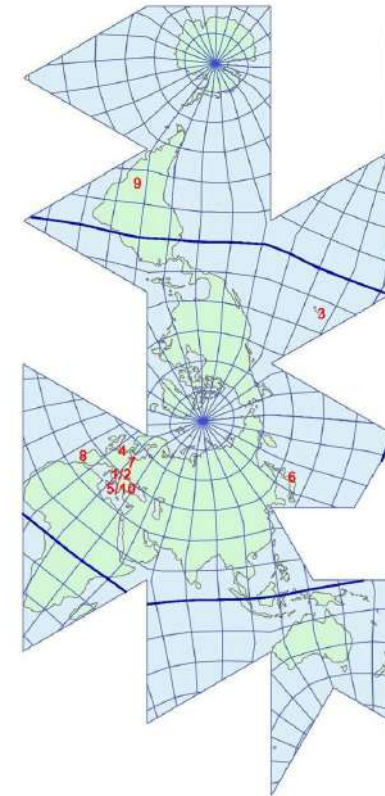


Professor Hewitt, President Begell, Professor Kasagi  
August 11, 2010 in Washington

# EXHFT

Part 1.5

# HFT



1st	1988	Dubrovnik, Croatia
2nd	1991	Dubrovnik, Croatia
3rd	1993	Honolulu, USA
4th	1997	Brussels, Belgium
5th	2001	Thessaloniki, Greece
6th	2005	Matsushima, Japan
7th	2009	Krakow, Poland
8th	2013	Lisbon, Portugal
9th	2017	Iguazu Falls, Brazil
10th	2024	Rhodes, Greece

The 10th World Conference  
on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics  
(ExHFT-10)  
in Greece, Member of ICHMT, EURO THERM (1)



**SAVE THE DATE! August 26-30, 2024**  
**EXTENDED ABSTRACT SUBMISSION DEADLINE:**  
**29 March 2024**

Dear colleagues,

It is great pleasure to welcome you at the ExHFT-10 Conference in **one of the most attractive islands in the world, Rhodes (Greece)**. ExHFT-10 is the last of a series of conferences organized under the auspices of the Assembly of World Conferences on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics. As in former ExHFT conferences, the goal of ExHFT-10 is to set up an international forum of researchers from industry and academia where new research ideas, advanced methods, sophisticated instrumentation and thoughtful results are presented on heat transfer, fluid mechanics and thermodynamics.

Apart from bringing together the well-established community in the field, ExHFT-10 has the ambition to attract also young researchers who will not only report their work to a knowledgeable audience, but they will also communicate present-day science and engineering problems in an effort to identify possible answers to their early career questions.

Looking forward to seeing you in Rhodes!

**Professor Thodoris Karapantsios**  
Conference Chairman



Location

Rodos Palace Hotel  
Rhodes Island, GREECE



Rodos Palace Hotel - Families are welcome!

[www.Exhft-10.gr](http://www.Exhft-10.gr)

CONFERENCE TOPICS INCLUDE, BUT ARE NOT LIMITED TO:

FUNDAMENTALS	APPLICATIONS
Heat and Mass Transfer	Advanced Energy Systems (Fuel Cells, Batteries, Hydrogen Systems)
Fluid Mechanics	Advanced Environmental Systems (Renewable Energy Sources)
Thermodynamics	Aerospace and Aeronautical Technology
Measurement Techniques and Image Processing	Biotechnology and Medical Systems
Heat and Fluid Flow in Micro/Nano Scales	Cryogenics
Turbulence	Heat Exchangers
Multi-Phase Flows	Manufacturing Processes
Chemical Reaction and Combustion	Material Processing
	Micro Electronic Equipment
	Micro-Electro-Mechanical Systems
	Life Sciences



The 2017-2022 Nusselt-Reynolds Prize Board of AWC announced the Recipient of the 2022 Nusselt-Reynolds Prize, Professor **Kemal Hanjalić**. The Award Ceremony and the Nusselt-Reynolds Prize Lecture will take place during ExHFT-10.

[https://www.exhft-10.gr/wp-content/uploads/2022/02/Handout\\_NU\\_RE-for-KEMAL.pdf](https://www.exhft-10.gr/wp-content/uploads/2022/02/Handout_NU_RE-for-KEMAL.pdf)



### Members in the five world organizations

(The order of ASTFE, EUROTHERM and AUTSE is changed corresponding to the geographical one.)

Member †	ICHMT	AIHTC	ASTFE	EUROTHERM	AUTSE
Australia					
Austria					
Belarus					
Belgium					
Brazil					
Canada					
China					
Chinese Taipei					
Czech Republic					
Egypt					
Finland					
France					
Germany					
Greece					
Hungary					
India					
Ireland					
Israel					
Italy					
Japan					
Mexico					
Morocco					
New Zealand					
Poland					
Portugal					
Romania					
Russia					
Serbia					
Singapore					
South Africa					
South Korea					
Slovenia					
Spain					
Sweden					
Switzerland					
Thailand					
The Netherlands					
Türkiye					
UK					
USA					
<b>40</b>	<b>31</b>	<b>19</b>	<b>2</b>	<b>16</b>	<b>7</b>

† The meaning of “Member” is different for the five world organizations.

**ICHMT:** Members are based on Member Institutions. <https://www.ichmt.org/p/member-institutions>

**AIHTC:** Members are based on Countries. <http://www.aihtc.org/officers.html>

**ASTFE:** USA (but, basically worldwide, particularly North America). <https://www.astfe.org/about/>

**AUTSE:** Members are based on Countries/Regions. [http://autse-asia.org/?page\\_id=21](http://autse-asia.org/?page_id=21)

**EUROTHERM:** Members are based on Countries. <http://www.eurothermcommittee.eu/membership.php>

France, Member of ICHMT, AIHTC, EUROTHERM (2)

200th Anniversary of the publication of  
“Reflections on the Motive Power of Fire” by Sadi Carnot



200th Anniversary of the publication of  
“Reflections on the Motive Power of Fire” by Sadi Carnot

Michel Feidt

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## 1. The Young Man and his Research

Nicolas Léonard Sadi Carnot<sup>1</sup> was born on 1 June 1796. His father<sup>2</sup> was an eminent engineer involved in mathematics and mechanics (he was probably an example for his son). S. Carnot graduated from Ecole Polytechnique (Paris) in 1814. He was always interested in learning some courses at the Ecole des Mines and Sorbonne (1818-1821) and worked on the theory of thermal engines from 1821 to 1823, a date at which he probably completed his reflection on the book that was published in 1824.

He continued to work on thermal engines and also on economics until his death in 1832. He formulated the main ideas relating to the first law of thermodynamics (conservation principle) in *Notes*. These *Notes* were only rediscovered in 1878 for the part related to thermodynamics and in 1976 for the part related to economics. Due to these recovered notes, a new tombstone was created, presenting S. Carnot as the father of a new science: thermodynamics, a word that was not known to him.



Nicolas Léonard Sadi Carnot  
(1796-1832)

## 2. The Technical Evolution

Since the eolipile, the first machine actuated by water vapor (Heron of Alexandria, 2<sup>nd</sup> century B. C.) and until the 18th century, mechanical forces were the only ones used by man: human and animal power, hydraulics, and windmills.

Attempts to develop internal combustion engines began in the early 18th century: fire machines (N. Niepce, 1807), steam engines (J. Watt, 1775; J. Cugnot, 1770-1771; D. Papin, 1707).

<sup>1</sup> There is another famous *Sadi Carnot* in the French history: Marie François Sadi Carnot, who was also commonly called Sadi Carnot, like his uncle the physicist. M.F.S. Carnot was a French statesman, who served as the President of France from 1887 until his assassination in 1894.

<sup>2</sup> Lazare Carnot (1788-1841) was a French military engineer and politician.

The improvement of the steam engine (condenser) coincided with other ones (Stirling engine; Otto-Beau de Rochas; Lenoir; Diesel). But Sadi Carnot was more concerned with the fundamental aspects of engines.

## 3. The Birth of a Science

During the same period, many scientists developed the studies of gases (J. Charles, L. J. Gay-Lussac, N. Clément and C. Desormes, P. Dulong and A. T. Petit). For Carnot, the aim was to show that the nature of the cycled medium did not influence the maximum useful effect of the engine.

In the same period, J. Joule established the equivalence between mechanical work and heat. This coincides with the end of the phlogiston theory and the emergence of the concept of heat. Sadi Carnot thus extended the conservation of matter principle (Lavoisier) to energy conservation (first law of thermodynamics).

Other major contributions of Sadi Carnot (but in the frame of equilibrium thermodynamics or *thermostatic*) are using the reversibility hypothesis:

- The proposal of the Carnot cycle with two isotherms and two isentropic;
- The efficiency of the perfect machine (upper bound). This efficiency is an extension of the mechanical efficiency (well known to his father).

$$\eta = 1 - \frac{T_F}{T_C}$$

One of the first thought experiments was the concept of macroscopic entropy (extensity corresponding to absolute temperature):

$$dS = \delta S_E + \delta S_I = \frac{\delta Q}{T} + \delta S_I$$

where  $S_E$  stands for the heat transfer entropy and  $S_I$  for the production of entropy, a non-conservative quantity. The concept of entropy was unknown at the time of Carnot. It was later refined by R. Clausius and more recently by I. Prigogine, who was awarded the Nobel Prize in 1977.

## 4. Extensions of Thermodynamics

### 4.1 Phenomenological extension

As presented at the end of the previous section, the developments of thermodynamics are recent. Significant contributions regarding the near-equilibrium situation are due to L. Onsager and linear approximation before Prigogine's work on dissipative structures.

More recently, an extended irreversible model of Carnot engine was developed, with new results on power and efficiency. A schematic example can be found in Reference [7].

### 4.2 Other extensions

To these phenomenological results are associated other extensions, mainly:



Front page of the first edition of  
S. Carnot's book.

- statistical thermodynamics (L. Boltzmann)
- relativistic thermodynamics (L. de Broglie)
- quantum thermodynamics

These fundamental developments are adapted to, whatever the scale of the system:

- large structures (universe, multiverses, black holes)
- living systems (dissipative structures, biology)

The final goal of I. Prigogine and I. Stenger was also to extend the thermodynamics to human and social sciences, and even philosophy. But this proved difficult, as it did for psychoanalysis. In contrast, as stated by Carnot, interesting developments have been made in the field of economy and environment (N. Georgescu-Roegen).

### 5. Some Conclusions and Perspectives

Sadi Carnot's time was the premise of the Industrial Revolution. It led to the practical realization of a great variety of machines and engines in particular.

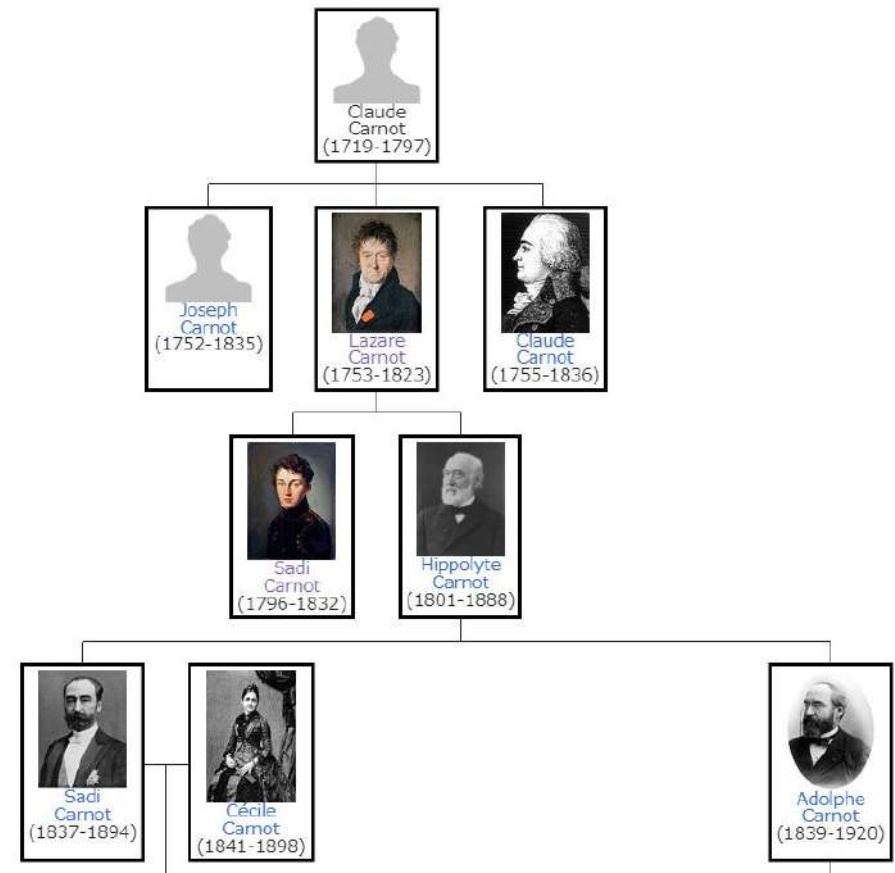
Carnot appears as the father of what is now called thermodynamics, with a wonderful insight into the fundamental aspects of this new science: heat, efficiency, power, Carnot cycle.

Since then, a second revolution seems to be emerging: the information revolution, and qubits are linked to thermodynamics. A great deal of research is in progress, always related to Sadi Carnot's work (Shannon entropy).

Nevertheless, Carnot's approach can always evolve and diversify. The future will probably confirm new trends not only in applications but also in fundamental aspects. Reference [7] provides an illustration of the current state of the art and the perspectives to be consolidated.

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Généalogie détaillée de la famille Carnot  
 from [https://fr.wikipedia.org/wiki/Famille\\_Carnot](https://fr.wikipedia.org/wiki/Famille_Carnot)

India, Member of ICHMT, AIHTC, AUTSE (1)

Report on the 27th National and 5th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTc-2023)



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The 27<sup>th</sup> National and 5<sup>th</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTc-2023) took place at the Indian Institute of Technology Patna from December 14<sup>th</sup> to 17<sup>th</sup>, 2023. The conference is a biennial event organized by the Indian Society of Heat and Mass Transfer (ISHMT) in collaboration with the American Society of Thermal and Fluids Engineers (ASTFE). Since its inception in 1971, the conference has evolved into a prestigious platform for researchers, scientists, and industry professionals to share and discuss advancements in heat and mass transfer.



Inauguration of IHMTc-2023.



Prof. K.N. Seetharamu Medal and Prize-2023 awarded to Prof. Dr. Purbarun Dhar, IIT Kaharagpur

**Conference Overview:**

The IHMTc-2023 featured a rich program, including four (04) plenary lectures, thirteen (13) keynote sessions, four (04) industry sessions, forty-eight (48) parallel sessions, and three (03) poster sessions. The event focused on diverse themes related to energy, fluid flow, heat and mass transfer. The conference received a significant number of paper submissions, totaling 419 across 24 diverse themes. After a rigorous two-round review process, more than 350 papers were accepted, with an average of 2.3 reviews per paper. The accepted papers were presented in two formats: 215 oral presentations and 120 poster presentations.



Plenary speaker, Prof. Zhuomin Zhuang, Georgia Tech, being felicitated.



Keynote speech Dr. Sunil Kumar from Indian Space Research organization (ISRO)

**Publication and Special Issues:**

The IHMTc-2023 announced the publication of many special issues in reputed journals such as the *Internal Communications in Heat and Mass Transfer* and *Begell House Journals*. The commitment to ensuring a high-quality review and publication process was appreciated by all participants.

**Participation:**

The conference attracted nearly four hundred (~400) participants from more than ten (10) countries and various organizations, including ISRO, BARC, IGCAR, DRDO, CSIR, ANSYS, and others. The conference received support from agencies such as SERB, BRNS, CADFEM, AMETEK, and publishing houses like Begell House and ACS.



Cultural Programme

**Conclusion:**

The IHMTc-2023 provided a comprehensive platform for researchers and professionals in the heat and mass transfer community. The commitment to maintaining high standards in paper selection, the global participation, and the emphasis on industry collaboration underscored the success of the conference. The organizers expressed hope for a rewarding and enjoyable conference experience for all participants, highlighting the efforts made to ensure both technical enrichment and comfort. Feedback from attendees was encouraged to further enhance future conferences.



Group Photo

## Japan, Member of ICHMT, AIHTC, AUTSE (4)

Report on JSME Thermal Engineering Conference 2023  
October 14 & 15, 2023 at Kobe University, Hyogo

**Hitoshi Asano**, Organizing Committee Chair  
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**Hideki Murakawa**, Organizing Committee Secretary  
Department of Mechanical Engineering, Kobe University,  
murakawa@mech.kobe-u.ac.jp

**JSME (The Japan Society of Mechanical Engineers) Thermal Engineering Conference 2023** was held on 14 and 15 October 2023 at the Graduate School of Engineering, Kobe University which is located on the mountainside of Mt. Rokko. Kobe is a port city in the Kansai area, which includes Osaka and Kyoto. There are two large artificial islands in the port of Kobe. On the artificial island, there is the supercomputer FUGAKU (RIKEN), a pilot-scale loading/unloading terminal of liquified hydrogen developed by Kawasaki Heavy Industries, Ltd., and a special district for advanced medical industries.

The conference 2023 was planned so that we can return back as much as possible to the same style before the COVID-19 pandemic. The sessions were held in person, but some of the lectures from overseas were given online. There were 233 scientific presentations in **general sessions** and **14 organized sessions** shown below: **OS-1** External combustion engine and waste heat utilization technology, **OS-2** Fire and explosion, **OS-3** Thermal management of electric device and equipment, **OS-4** Heat, flow and mass transport phenomena in porous media and their applications, **OS-5** Progress in turbulent heat transfer research, **OS-6** New developments in research on fuel cell, electrolyzation, and secondary battery, **OS-7** New developments in micro energy, **OS-8** New developments in biomass conversion from a thermal engineering perspective, **OS-9** Heat transfer and flow with solidification and melting, **OS-10** Radiation transport control, **OS-11** Combustion for energy conversion and propulsion system of the future, **OS-12** Recent progress in the research of boiling and condensation heat transfer, and multiphase flows, **OS-13** Wettability control and liquid droplet dynamics, **OS-14** Nano-scale thermal control.

**The Thermal Engineering Collection** (Organizers: Prof. Yoshikazu Teraoka, Kanazawa Univ., Prof. Hiroyuki Kumano, Aoyama Gakuin Univ.) was held in addition to the sessions and lectures. This program was a competition of video footage on thermal engineering. There were eight applicants, each giving a five-minute presentation. The best video award was given to Prof. Takashi Suzuki of Toyohashi University of Technology for his “*Photographic Observations of Thermal Fluid Phenomena with Gas-Liquid Interfaces*” which was selected by a vote of participants at the venue. Video footages submitted as well as the best video award can be viewed on the website of the Thermal Engineering Collection of the Thermal Engineering Division of JSME at



Fig. 2. Conference session room.



Fig. 1. Kansai area.

<https://g.ted-jsme.jp/>. Unfortunately, this website is in Japanese, but it contains many video footages that have been submitted so far.

The number of registrants were 269 general participants and 156 students, of which 45 were from industry. Another typical feature of this conference is the large number of young speakers. This year, 106 talks were given from young researchers who are eligible for the Young Fellow Award for Outstanding Presentation.

**The special lecture** planned by the organizing committee was given by Prof. Minoru Takeda, Graduate School of Maritime Sciences, Kobe University. The lecture was entitled “*Ocean and Hydrogen Energy*”. Advanced hydrogen technology research at Kobe University was introduced.

**The annual Thermal Engineering Workshop**, organized by the Workshop Committee (Chairman: Prof. Kazuya Tatsumi, Kyoto Univ.), was held during the lunch break on the first day of the conference. The presentations at the workshop were “*Introduction of Power Module Reliability Technologies*” by Mr. Takeshi Horiguchi (Mitsubishi Electric Corporation), “*Innovative SOEC Methanation Technology Pioneering E-Methane as a Game Changing Technology*” by Dr. Hisao Onishi (Osaka Gas Co., Ltd.) and “*Development of Heating and Hot Water Heat Pump Technologies towards Carbon Neutrality*” by Mr. Hirokazu Fujino (Daikin Industries, Ltd.). The general meeting of **InterPore Japan** and one special lecture from abroad were given at OS-4 (an organized session for heat, flow and mass transport phenomena in porous media and their applications).

**The 2022 awards ceremony** was held to honor the division awards. Prof. Kazuyoshi Nakabe (Kyoto Univ.), Prof. Shigeo Maruyama (The Univ. of Tokyo), and Dr. Hideaki Sato (Denso Corporation) were honored for the Meritorious Contribution Award. Prof. Hirofumi Daiguji (The Univ. of Tokyo) was honored for the Outstanding Achievement Award. And, Prof. Yoshihiro Taguchi (Keio Univ.) was honored for the Contribution Award. The award was presented by the former chair of the Thermal Engineering Division, Prof. Mamoru Tanahashi, Tokyo Institute of Technology.



Fig. 4. Winners of the division awards.

The 2023 organizing committee was supported by many members from the Kansai branch of JSME. In particular, we would like to thank Prof. Takeyuki Ami (Kansai Univ.) for his great cooperation in general affairs and Prof. Masashi Kishimoto (Kyoto Univ.) for his great contribution in planning and corporate sponsorship. Finally, the organizing committee would like to thank all the people participated in the Thermal Engineering Conference 2023 for their cooperation and support, and many students who cooperated in preparing the venue and looking after all the events during the conference. The Thermal Engineering Conference 2024 will be held in Yamaguchi with Prof. Masato Mikami, Yamaguchi Univ. as the organizing committee chair.



Fig. 3. Special lecture by Prof. Minoru Takeda.



Morocco, Member of ICHMT (2)

8th International Thermal Sciences Congress AMT'2024, ENSA, Al Hoceima

The 8th edition of International Thermal Sciences Congress AMT'2024, ENSA, Al Hoceima



**Prof Mustapha EL-ALAMI**, Hassan II University of Casablanca, Morocco, President of of the Scientific Committee of AMT2024

**Prof. Brahim Benhamou**, Cadi Ayyad University Marrakech, Secretary General of Moroccan Association of Thermal Sciences AMT

The International Thermal Sciences Congress is a periodic conference organized by the Moroccan Association of Thermal Sciences (AMT), once each two years, in collaboration with a public higher education establishment in Morocco. The 8th edition of this scientific conference (AMT'2024, <https://amth.ma/?p=4526>) will be organized jointly by the AMT and the Higher School of Applied Sciences (ENSA) in Al-Hoceima, which belongs to Abdelmalek Essaadi University (Morocco), on April 25-26, 2024. Al-Hoceima is a touristic seaside small town on the Mediterranean sea.

The main topic of AMT2024 is “Thermal sciences at the core of energy transition”, while the subtopics are: heat & mass transfer, Fluid mechanics, Renewable Energy & Energy Efficiency, Materials for Energy & the Environment and Advanced Mechanics & Thermal sciences. The scientific program includes four plenary keynotes closely related to the main topic. Furthermore, the conference participants will have the opportunity to present the up-to-date research in the above mentioned subtopics during the two days event. These presentations, given during Oral and Poster sessions, are based on peer-reviewed scientific contributions.

The International Congress of Thermal Sciences, through all its editions, has always been an excellent platform for scientific exchange on thermal sciences, heat transfer, energy efficiency, thermal measurement methods, environment and many other themes related to this area. The event, organized once during the even-numbered years since 2010, used to involve an average of 150 scientific contributions in the form of long-paper or short-paper. The presented long-paper contribution are published in an indexed journal while the short-paper ones are published in a local referenced proceedings.



Al Hoceima in North Morocco



Photos of Al Hoceima city



Photo of the plenary opening session of AMT '2018

**South Africa, Member of AIHTC (2)**

**1. 17<sup>th</sup> International Heat Transfer Conference - IHTC17**

Jat du Toit

**2. 13<sup>th</sup> South African Conference on Computational and Applied Mechanics**

**SACAM 2024**

Jaap Hoffmann

**1. 17<sup>th</sup> International Heat Transfer Conference (IHTC17)**



**Jat du Toit**, Unit for Energy and Technology Systems, North-West Univ., Potchefstroom, jat.dutoit@nwu.ac.za

The 17<sup>th</sup> International Heat Transfer Conference (IHTC 17) was held in the Cape Town International Convection Centre in Cape Town from 14 to 18 August 2023. It was originally scheduled to take place in 2022. However, due to the uncertainty whether the COVID-19 pandemic would make a face-to-face conference possible, it was postponed to 2023. IHTC 17 was organised and hosted by the International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT) under the auspices of the Assembly for International Heat Transfer Conferences (AIHTC). IHTC 17 was supported by the South African Institution of Mechanical Engineers, the International Centre for Heat and Mass Transfer (ICHMT) and the American Society of Thermal and Fluids Engineers (ASTFE).

A total of 621 persons comprising general registrants, keynote speakers, plenary speakers, sponsors and exhibitors, and accompanying persons attended IHTC 17. The contributions included the Fourier lecture, 5 Award lectures, 7 Panel discussions, 26 Keynote lectures, and 27 Poster sessions encompassing 475 Poster presentations.

In the Fourier lecture presented by the President of AIHTC, Prof Xing Zhang, he dealt with nanoscale thermal measurements – new challenges and opportunities. The 2022 Luikov medal was awarded to Prof Renato Cotta and in his plenary lecture he focussed on hybrid numerical-analytical approach in transport phenomena: bridging the best of both worlds. Prof Chang-Ying Zhao was the recipient of the William Begell medal and in his plenary lecture he considered micro/nanoscale thermal radiation: fundamentals and applications abstract. The recipient of the Nukiyama Memorial Award was Prof Junichiro Shiomi who dealt with exploring thermal functional materials through massive parameter-space search in his plenary lecture. The first of two AUTSE Young Scientist Awards was awarded to Dr Aoran Fan. Unfortunately, Dr Fan could not receive the award personally and her plenary lecture in-situ multi-physical field measurement and multidisciplinary optimisation for power devices was presented on her behalf by Prof Xing Zhang. The second AUTSE Young Scientist Award was awarded to Dr Yutaku Kita who presented a plenary lecture on predicting spray quenching: progress and challenges.

The 7 Panel discussions addressed: (i) multiphase flow for energy systems; (ii) towards the next-level thermal engineering optimisation; (iii) green transformation (GX) for carbon neutrality; (iv) AI applications to heat transfer; (v) battery thermal management – recent trends and future challenges; (vi) thermal management; and (vii) heat and mass transfer needs in next generation solar energy. The panels consisted of leading experts and the discussions were insightful.

A total of 26 keynote lectures delivered covering a wide range of topics. Topics such as waves and rivulet formation in isothermal and heated falling liquid films; the role of the liquid film characteristics on the heat transfer process during flow boiling and convective condensation; heat and mass transfer in droplet flows: from advanced measurements to models; exploring heat transfer mechanisms in laminar flows: from jet impingement to micro-scale phenomena; refrigerant charge reduction in heat pumps with propane and the influence on heat transfer and heat exchanger design; lithium-ion battery cells, from characterisation to thermal management; and modelling heat and mass transfer phenomena in nanostructured materials for energy applications, were addressed in the keynote lectures.

The presenting author of each of the 475 posters got the opportunity at the beginning of the relevant poster session to give brief 2-minute oral presentation on the gist of the poster. To accommodate all the posters three poster sessions were run in parallel with a total of 27 poster sessions over the five days of the conference. To arrange the poster sessions the poster papers were sorted into 52 subject areas including amongst others air conditioning and

refrigeration; energy efficiency; inverse problems; numerical simulation; two-phase, bubble flow and water film; and thermal storage. Many lively discussions took place around the posters which were in many instances continued during the coffee breaks and lunches. During the conference dinner, for the first time, certificates were given to the authors of the best poster in each poster session based on a review of the papers accepted for inclusion in the proceedings.

During the opening ceremony the attendees were entertained by a choir from the University of Cape Town singing a number of traditional South African songs. A troupe from Cape Town treated the diners during the conference dinner to feast of dancing, acrobatics and songs expressing the heart and soul of Africa. A number of the attendees had the privilege to visit the Department of Mechanical and Mechatronic Engineering at the University of Stellenbosch and be exposed to the facilities and the research activities.

It can be concluded that IHTC 17 was a resounding success and a wonderful opportunity for the exchange of ideas and the forging of ties.

**2. 13<sup>th</sup> South African Conference on Computational and Applied Mechanics (SACAM 2024)**



**Jaap Hoffmann** Dept. of Mech. & Mechatron. Eng., Univ. Stellenbosch, hoffmaj@sun.ac.za

The 13<sup>th</sup> South African Conference on Computational and Applied Mechanics (SACAM 2024) will be held on 22 and 23 January 2024 at STIAS Wallenberg Centre in Stellenbosch.

SACAM is a premier international conference on Computational and Applied Mechanics on the African continent that attracts local and international participants. SACAM is held every two years under the auspices of the South African Association for Applied Mechanics (SAAM) as a forum for presenting current computational and applied mechanics developments. The main function of SACAM is to bring together engineers, scientists and applied mathematicians from academia, research institutions and industry to encourage scientific engagement and exchange of ideas in applied and computational mechanics. The conference covers a wide range of topics which include thermodynamics and heat transfer, both from thermal-fluids and solid / structural mechanics perspectives. SACAM 2024 will, amongst others, include a keynote on the thermal-hydraulic behavior of a micro modular prismatic block nuclear reactor during a depressurized loss of forced coolant (DLOFC) event and the associated scam of the reactor.

**Korea, Member of ICHMT, AIHTC, AUTSE (4)**

**1. 2023 Spring Conference of Thermal Engineering Division, KSME**

Honghyun Cho

**2. Future Development Workshop 2023: Advances in Thermal Engineering**

Hoseong Lee

**1. 2023 Spring Conference of Thermal Engineering Division, KSME**



**Honghyun Cho**, Dept. of Mech. Eng., Chosun University, hhcho@chosun.ac.kr

The annual Thermal Engineering Division 2023 Spring Conference of “The Korean Society of Mechanical Engineers,” held from April 19th to 22nd, 2023, at the Paradise Hotel in Busan, served as a forum for collaboration, knowledge exchange, and the unveiling of groundbreaking research. Under the stewardship of conference Chairman, Professor Jung-ho Lee, the Organizing Committee orchestrated an intellectually invigorating gathering that showcased the pinnacle of thermal engineering expertise and innovation. With the Chairman of the Thermal Engineering Division, Professor Young Soo Chang, delivering the opening speech, the conference commenced on a note of utmost significance, setting the tone for four days of scholarly discourse, collaboration, and knowledge dissemination. In particular, Vice President Saik-ee Oh from LG Electronics delivered a lecture on “Case Studies of Industrial-Academia Cooperation in Thermal Engineering Applied to Home Appliances and Air-Conditioning Products.”

With a total of 635 participants from various fields, the conference exemplified the global reach and collaborative spirit of the scientific community. These diverse perspectives not only enriched the discussions but also fostered an environment ripe for interdisciplinary insights and cross-border collaborations. The focal point of the conference lay in the multitude of papers and presentations that encapsulated the cutting edge of thermal engineering. An impressive total of 341 papers were presented, showcasing a depth of ongoing research efforts in the field of energy storage, heat and mass transfer, fuel cell, phase change heat transfer, thermal system control/measurement, conduction/radiation heat dissipation technology, and refrigeration and cryogenic technology. Furthermore, Professor Byung Ha Kang from Kookmin University and Professor Jaeseon Lee from UNIST were honored with the Thermal Engineering Academic Award. Additionally, Professor Hyungsoo Lee from Chung-Ang University and Professor Seong Kyun Im from Korea University received the Young Researcher Awards.

Five informative lectures functioned as foundational sources of knowledge, delving into fundamental aspects of thermal engineering, disseminating invaluable insights, and stimulating discussions on critical subjects. The conference featured an impressive lineup of 16 keynote speeches, each representing a reservoir of wisdom that steered participants through the forefront of innovation and technological advancements within the field. Notable presentations included “Introduction to Research on Eco-Friendly Thermal Energy Systems and High-Efficiency Heat Exchangers” by Professor Chan Woo Park from Chonbuk National University and “The Future of Heat Pump Technology and Latest Research Trends” by Professor Minsung Kim from Chung-Ang University, among others.

Moreover, five special sessions, hosting 37 presentations, provided a concentrated examination of topics including energy solutions, chemisorption heat pump systems employing an electrochemical compressor, advancements in heat pipe heat exchangers utilizing phase change activation, and innovations in plus-energy-building. These sessions facilitated profound insights and fostered engaging debates, contributing significantly to the scholarly discourse in thermal engineering. A total of 132 oral presentations and 156 poster presentations offered a dynamic platform enabling researchers to effectively communicate their findings, exchange ideas, and gain invaluable feedback from their peers.



**2. Future Development Workshop 2023: Advances in Thermal Engineering**



**Hoseong Lee**, Dept. of Mech. Eng., Korea University, hslee1@korea.ac.kr

The Future Development Committee held its annual workshop, a spring academic lecture series, at Chosun University from July 3rd to 4th, 2023. The workshop aimed to address the growing global demand for energy and explore sustainable solutions for efficient energy supply and consumption.

Professor Seong Hyuk Lee at Chung-Ang University, Vice Chairman of Thermal Engineering Division and Chairman of the Future Development Committee, delivered the opening address. Professor Sunmi Shin from the National University of Singapore presented research on thermal engineering using photonic structures, focusing on the coherent thermal emission in a single nano-object. Professor Hyung Sub Sim from Sejong University discussed the development of smart functional nanoengineered materials for future hypersonic propulsion systems. Professor Joon Sang Kang from the Korea Advanced Institute of Science and Technology presented findings on high, low, and switchable thermal conductivities in solids. Professor Jeong-Heon Shin from Hongik University shared insights into the study of heat transfer phenomena in microchannels. Professor Dong In Yu from Pukyong National University introduced research on visualizing interface phenomena.

The workshop provided a platform for experts to exchange knowledge on cutting-edge research in thermal engineering, laying the groundwork for future advancements in the field. The event successfully brought together renowned scholars and researchers, fostering collaboration and innovation in the pursuit of sustainable energy solutions.



Turkiye, Member of ICHMT (4)

1. Selected Activities of Sectoral Institutions in 2023: ASHRAE Turkish Chapter, TOBB HVAC Assembly, MMO, TTMD and ISIB, Atilla Biyikoglu
2. 24<sup>th</sup> Congress of Thermal Sciences and Technology (ULIBTK'23), Atilla Biyikoglu



1. Selected Activities of Sectoral Institutions in 2023: ASHRAE Turkish Chapter, TOBB HVAC Assembly, MMO, TTMD and ISIB

Atilla Biyikoglu, Dept. of Mech. Eng., The University of Gazi, 2022-2023 Vice-President of ASHRAE Turkish Chapter [abiyik@gazi.edu.tr](mailto:abiyik@gazi.edu.tr) <https://ashrae.org.tr/>

TURKISH UNION OF CHAMBERS AND STOCK EXCHANGES (TOBB)  
TURKISH AIR CONDITIONING (HVAC-R) ASSEMBLY  
INDOOR AIR QUALITY (IAQ) COMMITTEE

**TURKISH HVAC-R INDUSTRY INTERNATIONAL "INDOOR AIR QUALITY IN SCHOOLS AND STUDENT LIVING AREAS" SUMMIT, 19-21 September 2023**  
Patalya Thermal Resort Hotel Kızılcahamam/Ankara



At the summit, indoor air quality limit values, which were obtained as a result of approximately 1 year of work of the TOBB IAQ Committee and are one of the basic input data sets for the design of ventilation systems in schools, were announced. As the final declaration of the summit, the idea of forming a working group to determine the outdoor air quality around existing and new schools across Turkey emerged.

ASHRAE TURKISH CHAPTER



ASHRAE TURKISH CHAPTER- FACTORY VISİT – ÜNTES-RHOSS 28 SEPTEMBER 2023

HVAC-R INDUSTRY EXPORTERS ASSOCIATIONS (İSİB)



Turkish HVAC-R ISIB Sector Strategy Workshop, Antalya, November 2<sup>nd</sup>, 2023.

The HVAC-R Strategy Workshop, where the Turkish HVAC-R Exporters Association (ISIB) determined the Turkish HVAC-R sector's roadmap for 2028, discussed the strategy and economic developments, and shared the important administrative and commercial developments experienced during the year with its members, was held at Antalya Cornelia Diamond Hotel between October 31 and November 2, 2023. The ISIB Export Leaders Award Ceremony was held as part of the workshop program, and the top companies were awarded.

Turkish Society of HVAC and Sanitary Engineers (TTMD)



ISK-SODEX Istanbul 2023

ISK SODEX Fair, organized by Hannover Messe Sodeks Fuarçılık, under the co-organization of TTMD, ISKAV, DOSİDER, İSKİD, İZODER and with the support of POMSAD, SOSİAD, ESSİAD, MTMD and KBSB, was held at Istanbul Expo Center between 25-28 October 2023. This year, TTMD attended the ISK SODEX Fair with its international collaborations: AEE (Association of Energy Engineers), EHPA (European Heat Pump Association), IBPSA (International Building Performance Simulation Association), IEA EBC TCP (International Energy Agency Energy in Buildings and Communities Technology Collaboration Program), IEA ES TCP (International Energy Agency Energy Storage Technology Collaboration Program), IEA SHC TCP (International Energy Agency Solar Heating Cooling Technology Collaboration Program) and REHVA (Federation of European Heating, Ventilation and Air Conditioning Associations).

UNION OF CHAMBERS OF TURKISH ENGINEERS AND ARCHITECTS (TMMOB)



Our chamber will organize the VI. The Energy Efficiency Congress aims to create an important platform and to bring together academicians, experts, public and private sector officials, professional organizations, companies that produce products and services in the sector, businesses and their employees, and candidate colleagues from all over our country, and to develop energy efficiency awareness and activities.

## 2. Report on 24<sup>th</sup> Congress of Thermal Sciences and Technology (ULIBTK'23)



**Atilla Biyikoglu** Dept. of Mech. Eng., Gazi Univ. [abiyyik@gazi.edu.tr](mailto:abiyyik@gazi.edu.tr)

The 24th Thermal Science and Technology Congress with International Participation, ULIBTK'23, (<https://ulibtk2023.baskent.edu.tr>) was organized by Başkent University under the leadership of the Turkish Society of Thermal Science and Technology in Kızılcahamam/Ankara between 06-08 September 2023. The aim of the congress is to bring together scientists and researchers and create a platform where the results of studies on heat science and technology are shared. The congress included new and original research and development studies on thermal systems, alternative and nuclear energy technologies. The 24th Thermal Science and Technology Congress with International Participation aims to bring together scientists, public and private sector researchers, and industrialists to produce joint projects. ULIBTK'23, with international participation, was held at Başkent University Patalya Thermal Resort Hotel, Kızılcahamam, Ankara, accompanied by the celebrations of the 100th anniversary of the Republic of Turkey.



A total of **701** papers were applied to the congress. The sessions, which were held in parallel in 5 different halls, continued for 3 days, and apart from the technical sessions, the studies prepared by the congress sponsor NUMESYS company for the congress were discussed in a special session.



24<sup>th</sup> Congress of Thermal Sciences and Technology (ULIBTK'23), Baskent University, Ankara

### Topics of the Congress

- Alternative and Clean Energy Technologies
- Energy Conversion and Storage
- Energy Harvest and Environment
- Energy Policies and Energy Efficiency
- Artificial Intelligence Applications in Energy
- Power and Energy Engineering Applications
- Solar Energy and Fuel Cells
- Hydrogen and Nuclear Energy Applications
- Heating, Cooling and Ventilation Applications Congress
- Applications in Micro and Nano Dimensions

### Important Dates:

Deadline for abstract submission	March 30th, 2023
Announcement of accepted abstracts	April 10 <sup>th</sup> , 2023
Deadline for full paper submission	May 2 <sup>nd</sup> , 2023
Announcement of accepted papers	July 31 <sup>th</sup> , 2023
Deadline for revised full papers	Aug 14 <sup>th</sup> , 2023

### Keynote Speaker:

Adv. Çiğdem Dilek, Chief Executive Chairman of the Global Energy Association and Founding Partner of CLA Partners Law Office, Topic: "Developments in the Turkish Electricity Market in the Light of Energy Law and Current Legislation"

### Invited Speakers:

Speaker 1: Prof. Dr. Hani Nigim, Faculty Member of Birzeit University Engineering Faculty

Topic 1: "Drag of Rough Surfaces: Types, Measurements and Control"

Speaker 2: Orhan Aytaç, TMMO Energy Working Group Member, METU Alumni Association Energy Commission Member

Topic 2: "Energy Outlook in Turkey"

## UK, Member of ICHMT, AIHTC, EURO THERM (2)

### UK National Heat Transfer Conference Announcement

**Raya Al-Dadah**, Birmingham University (chair), [R.K.AL-DADAH@bham.ac.uk](mailto:R.K.AL-DADAH@bham.ac.uk)

**Adriano Sciacovelli** Birmingham University (co-chair), [a.sciacovelli@bham.ac.uk](mailto:a.sciacovelli@bham.ac.uk)

**Tassos Karayiannis** Brunel University London (chair, UKNHTC), [tassos.karayiannis@brunel.ac.uk](mailto:tassos.karayiannis@brunel.ac.uk)

**Francesco Coletti** (Secretary, UKNHTC) Brunel University London and Hexxcell Ltd., [f.coletti@hexxcell.com](mailto:f.coletti@hexxcell.com)



The UK Heat Transfer Conference is the premier forum in the UK for the local and international heat transfer community to meet, disseminate ongoing work and discuss the latest advances in the Heat Transfer field. The 18th edition will be held at the University of Birmingham in September 2024. Join us for keynote lectures delivered by eminent figures from academia and industry, alongside special sessions and presentations on latest development in heat transfer.

The conference themes include: Single phase heat transfer, boiling, evaporation, and condensation, gas turbines, engines and combustion, heat transfer at micro and nano scale, sustainable energy (fuel cells,

solar energy, geothermal energy and energy storage), and many more (see conference themes on website).

The following keynotes have been secured:

- **Professor Ji Hwan Jeong** "Heat Transfer and Fluid Flow Characteristics in Open-Cell Porous Metal Structures"
- **Professor Peter Ireland**, Title: TBC
- **Dr Francesco Coletti**: "Exploring Artificial Intelligence Applications to Heat Transfer: the Good, the Bad, the Hybrid"
- **Professor Hector Iacovides** "Thermal Hydraulics Challenges, in Nuclear Engineering"
- **Professor Mateo Bucci** "Faraway, So Close: High Resolution Investigations of Boiling Heat Transfer, from Cryogenic Fluids to High-Pressure Water"
- **Professor Renato Cotta** "Recent Progresses on Fundamentals and Applications of Computational Integral Transforms in Heat and Fluid Flow"

Special sessions will be organized on:

- The current state and advances in Nuclear Engineering-including aspects of heat transfer. Chaired by Dr Michael Bluck and co-chaired by Dr Robin Kamenicky.
- Current state and advancements in Heat Pipe Devices for Smart Thermal Management of Space and Ground applications. Chaired by Dr Anastasios Georgoulas.
- Heat transfer for Net-zero Energy Production and Energy Storage. Chaired by Dr Adriano Sciacovelli
- Advanced Additive Manufacturing for Thermal Sciences. Chaired by Professor Simone Mancin
- Understanding heat transfer processes in geothermal systems. Chaired by Professor Gioia Falcone and Dr Christopher Brown.

Key Submission Dates:

- Extended abstract submitted: Friday 1st March 2024
- Acceptance or abstract re-submission: Friday 15th March 2024
- Final version of extended abstracts: Friday 4th April 2024 Notification of final acceptance: Monday 25th April 2024

For full programme and further details, please visit: <https://more.bham.ac.uk/ukhtc-2024/>