

# PROGRAM

## 9<sup>th</sup> International Symposium on ADVANCES IN COMPUTATIONAL HEAT TRANSFER – CHT-24

May 26 – 30, 2024

**TIMES ARE GMT+3 (ISTANBUL TIME)**



Program at a Glance  
May 26 - 30, 2024

Sunday, 26 May, 2024

17:00 - 19:00	Registration at Conference Center
19:00	Welcome Cocktail

Monday, 27 May, 2024

8:00 - 17:00	Registration at Conference Center		
8:30 - 8:50	Opening Ceremony		Lecture Hall
8:50 - 9:35	Hewitt-Goldstein Award Speech	Ming-Jia Li	Lecture Hall
9:35 - 10:05	Coffee Break		
	Lecture Hall	D104	D103
10:10 - 10:55	Keynote Lecture 1-1 M. Pinar Mengüç	Keynote Lecture 1-2 Kazuya Tatsumi	
11:00 - 12:20	Session 1-2-A 112, 132, 134, 282	Session 1-2-B 177, 196, 203, 251	Session 1-2-C 116, 117, 131, 163
12:20 - 14:15	Free time		
	Lecture Hall	D104	D103
14:15 - 15:00	Keynote Lecture 1-3 Pedro J. M. Coelho	Keynote Lecture 1-4 Ankur Jain	
15:10 - 16:30	Session 1-4-A 144, 148, 201, 242	Session 1-4-B 113, 120, 184, 216	Session 1-4-C 129, 141, 259, 260
16:30 - 17:00	Coffee Break		
17:00 - 18:20	Session 1-5-A 158, 172, 220, 276	Session 1-5-B 118, 135, 145, 181	Session 1-5-C 115, 207, 222, 243

Tuesday, 28 May, 2024

8:00 - 17:00	Registration at Conference Center		
	Lecture Hall	D104	D103
9:00 - 9:45	Keynote Lecture 2-1 Satish Kumar	Keynote Lecture 2-2 Wojciech Lipinski	
9:45 - 10:15	Coffee Break		
10:20 - 12:20	Session 2-2-A 164, 165, 170, 180, 183, 190	Session 2-2-B 110, 125, 178, 185, 192, 195	Session 2-2-C 230, 233, 241, 244, 261, 283
12:20 - 14:15	Free time		
	Lecture Hall	D104	
14:15 - 15:00	Keynote Lecture 2-3 S. A. Sherif	Keynote Lecture 2-4 Qiuwang Wang	
15:00 - 15:30	Coffee Break		
15:30 - 16:50	Session 2-4-A 202, 212, 214, 224, 147	Session 2-4-B 122, 179, 254, 269	

Wednesday, 29 May, 2024

8:00 - 17:00	Registration at Conference Center		
	Lecture Hall	D104	
9:00 - 9:45	Keynote Lecture 3-1 K. Muralidhar	Keynote Lecture 3-2 Nesrin Özalp	
9:45 - 10:15	Coffee Break		
10:20 - 12:20	Session 3-2-A 127, 162, 197, 238, 280, 281	Session 3-2-B 204, 207, 208, 209, 229, 253	
12:20 - 14:15	Free time		
	Lecture Hall	D104	
14:15 - 15:00	Keynote Lecture 3-3 Debjyoti Banerjee	Keynote Lecture 3-4 Ali Beşkök	
15:00 - 15:30	Coffee Break		
15:30 - 17:30	Session 3-4-A 237, 256, 258, 271, 278, 140	Session 3-4-B 111, 130, 174, 205, 236, 121	
20:00	Social Dinner		

Thursday, 30 May, 2024

8:00 - 17:00	Registration at Conference Center		
	Lecture Hall	D104	
9:00 - 9:45	Keynote Lecture 4-1 Leonid Dombrovsky	Keynote Lecture 4-2 Dongsheng Wen	
9:45 - 10:15	Coffee Break		
10:20 - 12:20	Session 4-2-A 139, 140, 154, 194, 210, 213, 279	Session 4-2-B 137, 169, 193, 263, 270, 274	
12:20 - 14:15	Free time		
	Lecture Hall	D104	
14:15 - 15:00	Keynote Lecture 4-3 Mikhail Sheremet	Keynote Lecture 4-4 Hakan Ertürk	
15:00 - 15:30	Coffee Break		
15:30 - 17:30	Session 4-4-A 121, 176, 188, 191, 275	Session 4-4-B 133, 150, 199, 277	
17:40 - 18:00	Closing Ceremony		Lecture Hall

## **PROGRAM PER DAY**

### **Sunday, 26 May 2024**

**17:00- 19:00**      **Registration at Conference Center**

**19:00**              **Welcome Cocktail**

### **Monday, 27 May 2024**

**08:00- 17:00**      **Registration at Conference Center**

#### **Lecture Hall**

**8:30 - 8:50**              **Opening Ceremony**

**8:50 - 9:35**              **Hewitt-Goldstein Award Speech,  
Ming-Jia Li  
Chairperson: Yogesh Jaluria**

**9:35 - 10:05**              **Coffee Break**

## Lecture Hall

**10:10 - 10:55**

### **Keynote Lecture 1-1, Radiation:**

Radiative Transfer and Computational Challenges, *by Dr. M. Pinar Mengüç, Dr. M. Pinar Mengüç, Ozyegin University, Turkiye*

**Chairperson: Brent Webb**

**11:00 - 12:20**

### **Technical Session 1-2-A: Radiation**

**Chairperson: M. Pinar Mengüç**

**CHT-24-112**

Propagation of collimated radiation in highly scattering media: Approximate solution and its verification, *byr Leonid Dombrovsky, and Jaona Randrianalisoa*

**CHT-24-132**

Inverse Design of Pigmented Coatings for Radiative Cooling, *by Hakan Erturk, Tuba Okutucu Ozyurt, Songul Bayraktar, and Ehsan Tuzcuoglu*

**CHT-24-134**

Inverse Design of a Selective Emitter for a Multijunction Thermophotovoltaic System, *by Hakan Erturk, and Yigithan Mehmet Kose*

**CHT-24-282**

Consideration of Particle Wave Diffraction to Enhance Spacecraft Radiation Shielding, *by David Warden*

## D-104

**10:10 - 10:55**

### **Keynote Lecture 1-2: Micro and Nanoscale Heat Transfer:**

Current and Heat Transfer Paths in Nanowire Network Structure, *by Dr. Kazuya Tatsumi, Kyoto University, Japan*

**Chairperson: Ali Beşkök**

**11:00 - 12:20**

### **Technical Session 1-2-B: Internal Flow and Heat Transfer**

**Chairperson: Kazuya Tatsumi**

**CHT-24-177**

Energy, Entropy, And Exergy Analyses of Sudden Expansion Tube with Convex Surface Using Ferrofluid, *by Emrehan Gürsoy, Mehmet Gurdal, Engin Gedik, Kamil Arslan*

**CHT-24-196**

Mixed Convection of Fluid with Temperature-Dependent Viscosity in A Channel in The Presence of Porous Material, *by Marina Astanina, and Mikhail Sheremet*

**CHT-24-203**

Longitudinal Vortex Generation using Various Winglet Configurations in Double-Pipe Heat Exchangers, *by Amogh S Amblihalli, Anirudh Kashyap, Druva Murali, Het Milind Ambani, H. M. Uma Maheshwara urf Abhishek, and Dr. V. Krishna*

**CHT-24-251**

Heat transfer and flow simulation in tapered roller bearings using CFD, *by Zaaquib Ahmed, Ilya T'Jollyn, Wim Beyne, Toon Demeester, Mohammadreza Banakermani, Dieter Fauconnier, and Michel De Paepe*

## **D-103**

**11:00 - 12:20**

### **Technical Session 1-2-C: Open Forum 1**

**Chairperson: Senem Şentürk-Lüle**

- CHT-24-116** Heat Transfer Augmentation Through the Sliding-Wall Concept, *by Jafar Ghazanfarian, and Zahra Shomali*
- CHT-24-117** A Thermal Analysis of a Functionally Graded Gyroid as a Heat Sink, *by Marcello Iasiello, Vitaliano Alessandro Anacreonte, Marcello Iasiello, Gerardo Maria Mauro, Assunta Andreozzi, Nicola Bianco, and Wilson K. S. Chiu*
- CHT-24-131** An Effective Mass Transfer Approach on Washer Dryer Machines, *by Mert Umutlu, Tuba Okutucu Ozyurt, Songul Bayraktar, and Ehsan Tuzcuoglu*
- CHT-24-163** Thermal Discrete Dipole Approximation with Surface Interactions, *by Ege Sukru Tahmaz, and Hakan Erturk*

**12:20 - 14:15**

**Free Time**

## **Lecture Hall**

**14:15 - 15:00**

### **Keynote Lecture 1-3: Turbulence:**

Progress In the Modelling of Turbulence-Radiation Interaction in Large-Eddy Simulation of Turbulent Reactive Flows, *by Dr. Pedro J. M. Coelho, Instituto Superior Técnico, Universidade de Lisboa, Portugal*

**Chairperson: Ali Beşkök**

**15:10 - 16:30**

### **Technical Session 1-4-A: Biological Heat Transfer**

**Chairperson: Pedro J. M. Coelho**

- CHT-24-144** Laser ablation for prostate cancer therapies: mathematical modelling, *by Giovanni Napoli, Assunta Andreozzi, Marcello Iasiello, and Giuseppe Peter Vanoli*
- CHT-24-148** Numerical Simulation of a Short Pulse Gaussian-Beam Laser Applied to Cutaneous Tumours, *by Pedro J. Coelho*
- CHT-24-201** Induced Hypothermia Effects Under Cold and Hot Environments, *by S. R. Shine.*
- CHT-24-242** Simulating the Coupled Heat and Mass Transfer of a Plant in a Vertical Farm, *by Wito Plas, Toon Demeester, and Michel De Paepe*

## **D-104**

**14:15 - 15:00**

### **Keynote Lecture 1-4: Solidification and Melting:**

Melting and Solidification in Multilayer Geometries, *by Dr. Ankur Jain, University of Texas at Arlington, USA*

**Chairperson: Mikhail Sheremet**

**15:10 - 16:30**

### **Technical Session 1-4-B: Solidification and Melting 1**

**Chairperson: Ankur Jain**

**CHT-24-113**

A Simple Approach to Modeling Heat Transfer During Solar Heating and Melting of Lake or Sea Ice, *by Leonid Dombrovsky,*

**CHT-24-120**

Numerical Analysis of Frost Formation Finned Tube Heat Exchangers, *by Alper Abdusoglu, Kaan Demirhan, Altug Melik Basol, and Mehmet Arik*

**CHT-24-184**

Shell and Corrugated Tube TES Filled with PCM and Metal Foam Considering a Not Constant Section Configuration, *by Renato Elpidio Plomitallo, Bernardo Buonomo, Oronzio Manca, and Sergio Nardini*

**CHT-24-216**

Porosity Effects of Melting Process for Phase Change Material (PCM) with Metal Foam Structures with Kelvin Cells, *by Oronzio Manca, Safa Sabet, Bernardo Buonomo, Huseyin Kaya, and Rahmatollah Khodabandeh*

## **D-103**

**15:10 - 16:30**

### **Technical Session 1-4-C: Micro and Nanoscale Heat Transfer:**

**Chairperson: Kazuya Tatsumi**

**CHT-24-129**

Energy Based Interface Detection in Nanoscale Confinements, *by Mustafa Ozsipahi, and Ali Beskok*

**CHT-24-141**

Molecular Transport Across a Steady-State Net Condensing Surface, *by Ahmet Ata Ersoy, Mustafa Ozsipahi, and Ali Beskok*

**CHT-24-259**

Critical conditions of Puffing/Micro-explosion of composite droplets, *by Pavel Strizhak, and Dmitrii Antonov*

**CHT-24-260**

Mathematical Model of Child Droplets Formation During Micro-explosion of Two-liquid Droplets, *by Roman Fedorenko, Antonov Dmitrii, and Pavel Strizhak*

**16:30 - 17:00**

**Coffee Break**

## Lecture Hall

**17:00 - 18:20**

### **Technical Session 1-5-A: Computational Methods 1:**

**Chairperson: Paolo di Marco**

- CHT-24-158** Physical Modeling of Heat and Mass Transfer Near the Contact Line with The Volume-Of-Fluid Method, *by Johannes Kind, Axel Sielaff, and Peter Stephan*
- CHT-24-172** Spectral Heat Transfer Coefficient for Convection, *by Li He*
- CHT-24-220** Low-Rank Approximation with Time-Dependent Bases for Uncertainty Quantification for Transient Heat Transfer Problems, *by Hessam Babaei.*
- CHT-24-276** Non-Equilibrium Numerical Model for Heat and Moisture Transfer in Building Materials, *by Piotr Łapka, and Michał Wasik*

## D-104

**17:00 - 18:20**

### **Technical Session 1-5-B: Turbulence:**

**Chairperson: Yıldız Bayazıtöğlü**

- CHT-24-118** Flow modulation and interphase heat transfer in radiatively heated particle-laden turbulent flows, *by Yuhong Dong*
- CHT-24-135** On The Interaction Between the Processes of Intensive Evaporation and Bulk Condensation Near the Interfacial Surface, *by Naum M. Kortsenshteyn, Leonid V. Petrov, Artem V. Rudov, Arseny K. Yastrebov*
- CHT-24-145** Turbulent Flow Symmetry-Breaking in Periodic Porous Media in The Intermediate-Porosity Regime, *by Vishal Srikanth, and Andrey V Kuznetsov*
- CHT-24-181** Numerical Modelling of The Interaction of The Complex Heat Transfer and Phase Change Transient Processes of Water Droplets in The High Temperature Gas Flow, *By Monika Maziukienė, Gintautas Miliauskas, and Egidijus Puida*

## **D-103**

**17:00 - 18:20**

### **Technical Session 1-5-B: Natural Convection 1:**

**Chairperson: İlker Tari**

- CHT-24-115** Using ANSYS-Fluent for Computing Free Convection in Open-Cell Metal Foam, *By Nihad Dukhan, Mark Schumack, Ming Liang, And Mahmoud Ghannam*
- CHT-24-207** Performance Characterization of Non-Vacuum CPC Type Receiver for Linear Fresnel System: CFD Calculation and Experimental Assessment, *By Ahmed AL Mers, Yousra Filali Baba, Wissal Taibi, Mohamed Mmadi Hassane*
- CHT-24-222** Computation Of Free Convection in Metal Foam Using ANSYS-Fluent and Related Issues, *By Nihad Dukhan, And Mark Schumack*
- CHT-24-243** Numerical Study of Natural Convection in Square Cavity Using Copper-Water Nano-Fluid, *By Meriem AMOURA, And Badis MERADI*



## Tuesday, 28 May 2024

**08:00- 17:00**      **Registration at Conference Center**

### Lecture Hall

**09:00 - 09:45**      **Keynote Lecture 2-1: Thermal Management:**  
Advanced Thermal Management of Electric Machines, *by Dr. Satish Kumar, Georgia Institute of Technology, USA*  
**Chairperson: Yogesh Jaluria**

**09:45 - 10:15**      **Coffee Break**

**10:20 - 12:20**      **Technical Session 2-2-A: Open Forum 2:**  
**Chairperson: Satish Kumar**

**CHT-24-164**      Surrogate models for zeotropic mixtures in heat exchangers using machine learning, *by Alexandra Welp, Maximilian Reese, Dominik Freund, and Burak Atakan*

**CHT-24-165**      Numerical and Experimental Analysis of Gyroid Type Structures with Triply Periodic Minimal Surfaces, *by Kourosh Naji, Ahmet Kasidecioglu, Ozgur Ertunc, Altug Melik Basol*

**CHT-24-170**      Thermal Analysis on Catalyst Filled Heat Exchangers for Ortho-Para Hydrogen Conversion, *By Sarng Woo Karng, Baekjin Kim, Dong Hee Hong, Gwang Hoon Rhee*

**CHT-24-180**      A Future Demand Prediction Based Approach For The Design Of Pelton Turbines On Irrigation Channels, *by Ece Ayli, Abdul Rahman Sabra Kaak, Kutay Celebioglu, Zafer Bozkus, Oguzhan Ulucak , Ece Ayli, Selin Aradag*

**CHT-24-183**      Frosting performances of an ultra-low temperature surface simulated by an improved heat and mass model, *by Kaihan Xie, Wenke Zhao, Yaning Zhang, Wei Wang, and Bingxi Li*

**CHT-24-190**      On State Laws and Heat Transfer in String-based Plasma, *by Geert Dijkhuis*

## **D-104**

**09:00 - 09:45**

### **Keynote Lecture 2-1: Solidification and Melting:**

Mathematical Modeling of Heat and Mass Transfer in Phase Change Materials During Melting/Solidification, *by Dr. Mikhail Sheremet, Tomsk State University, Russia*

**Chairperson: Peter Stephan**

**09:45 - 10:15**

### **Coffee Break**

**10:20 - 12:20**

### **Technical Session 2-2-B: Energy 1:**

**Chairperson: Wojciech Lipinski**

**CHT-24-110**

Modelling And Numerical Simulations of Heat and Mass Transfer Through Entire Equipment of Hydrogen Refuelling Station, *By Vladimir Molkov, Hazhir Ebne-Abassi, and Dmitriy Makarov*

**CHT-24-125**

Enhancing Volumetric Solar Receiver Performance with Graded Porous Structures: A Numerical Investigation, *By Sonika Sharma, And Prabal Talukdar*

**CHT-24-178**

Integrating Solar Tower Technology for Industrial Process Heat, *By Yusuf Karakas, Sevan Karabetoglu, and Tuba Okutucu-Ozyurt*

**CHT-24-185**

Experimental Dataset and Numerical Model Validation for A Lab Scale Solar Volumetric Receiver for High Temperature Industrial Heating, *By Aysha Melhim, Fathya Salih, and Konstantinos Kakosimos*

**CHT-24-192**

Effect Of Pcm and Metal Foam on Thermal Energy Storage of Parallel Plates, *By Huseyin Kaya, Safa Sabet, Berbarfo Buonomo, and Oronzio Manca*

**CHT-24-195**

2d Simulation of Photovoltaic Thermal Panel Module with A Layer of Phase Change Material and Metal Foam, *By Oronzio Manca, Bernardo Buonomo, Maria Rita Golia, and Sergio Nardini*

## **D-103**

**10:20 - 12:20**

**Technical Session 2-2-C: Open Forum 3:  
Chairperson: Tuba Okutucu-Özyurt**

**CHT-24-283**

The Effects of Temperature-Dependent Thermal Properties on Localized Heating Induced Thermal Size Effects with Kinetic Collective Model, *By Amir Abdolhosseinzadeh, and Nazli Donmezer*

**CHT-24-230**

Laboratory Study of Hot-Water Temperature and Injection Rate Effects on Hot-Water Flooding in Heavy Oil Reservoirs, *By Yongan Gu, Jiangyuan Yao, and Wei Zou*

**CHT-24-233**

Investigating The Structural and Mechanical Properties of Al-Xzn (X=10, 15, And 20 Wt.%) Alloys Synthesized by Solid-State Sintering, *By Adjmi Samah, and Hafs Ali*

**CHT-24-241**

Modeling Of Phase Change Transitions in ANSYS Fluent Including Thermal Hysteresis, *By Maitas Goderis, Adam Buruzs, Fabrizia Giordano, and Tilman Barz*

**CHT-24-244**

Experimental And Detailed Kinetic Modeling Study of The Effect of Strain Rate on Laminar Counterflow Flames of Jet-A Surrogate Fuel, *By Olawole Abiola Kuti*

**CHT-24-261**

Study Of Enhance in Heat Transfer by Electro-Convection in An Inclined Square Cavity, *By Dalila Akrou, and Walid Hassen*

**12:20 - 14:15**

**Free Time**

## **Lecture Hall**

**14:15 - 15:00**

**Keynote Lecture 2-3: Energy:**  
Heat Transfer and Ice Accretion on Aircraft Wings in Supercooled Clouds, Dr. S. A. Sherif, University of Florida, USA  
**Chairperson: Nesrin Özalp**

**15:00 - 15:30**

**Coffee Break**

**15:30- 16:50**

**Technical Session 2-4-A: Open Forum 4:  
Chairperson: Jacques Padet**

**CHT-24-212**

Investigating the Impact of Temperature on the Properties of Petroleum Refining Products, *By Kherief Nacereddine Abdel Haki, and Kholai Omar*

**CHT-24-214**

Effect of Self-Sustained Oscillations of a Cooling Jet on Thermal Comfort Parameters in Indoor Spaces, *By Nikolay Ivanov, Marina Zasimova, Ekaterina Stepasheva, and Anna Krasikova*

- CHT-24-224** Energy Optimization in Natural Phenomena and its Implications for Applications in Technology, By *Yogesh Jaluria*
- CHT-24-147** Flow Characteristics and Heat Transfer in a Two-Pass Channel with Interconnecting Slots, By *Zia Ud Din Taj, Kohei Fukuda, Majed Etemadi, Ram Balachandar, and Ronald Barron*

### **D-104**

- 14:15 - 15:00** **Keynote Lecture 2-3: Computational Methods:**  
Local Thermal Resistance Method: A Computational Heat Transfer Method for Precise Analysis and Optimisation of Heat Transfer Processes, by *Dr. Qiuwang Wang, Xi'an Jiaotong University, China*

**Chairperson: Dongsheng Wen**

- 15:00 - 15:30** **Coffee Break**

- 15:30- 16:50** **Technical Session 2-4-B: Computational Methods 2:**

**Chairperson: Qiuwang Wang**

- CHT-24-122** Optimizing The Serpentine Channels of a Liquid-Flow-Through (LFT) Cooled Cold Plate Using CFD Analysis for Enhanced Cooling Performance, By *Barbaros Çetin, Deniz Aldemir, and Mehmet Yener*
- CHT-24-179** Comparison Of Continuous and Discontinuous Elements in Boundary Element Method for Heat Transfer Problems with Non-Linear Boundary Conditions, By *Barbaros Cetin, Artun Alp Oztas, Alp Iskit, Can Onol, and Besim Baranoglu*
- CHT-24-254** Advancing Electric Machine Lumped Parameter Thermal Modelling: a Novel Spatial and Temporal Discretization Methodology, By *Jasper Nonneman, Ilya T'jollyn, and Michel De Paepe*
- CHT-24-269** A Multiscale-Model Data Fusion Methodology for Thermal Interfacial Property Predictions of ZrB<sub>2</sub>-SiC Composite Materials, by *Yingfei Cao, Jin Zhao, Guice Yao, and Dongsheng Wen*

## Wednesday, 29 May 2024

**08:00- 17:00**      **Registration at Conference Center**

### Lecture Hall

**09:00 - 09:45**      **Keynote Lecture 3-1: Biological Heat Transfer:**  
Diffusive Flux Modeling of RBC Transport During Blood Flow In  
Microchannels, *by Dr. K. Muralidhar, Indian Institute of  
Technology Kanpur, India*

**Chairperson: Yogesh Jaluria**

**09:45 - 10:15**      **Coffee Break**

**10:20 - 12:20**      **Technical Session 3-2-A: Forced Convection:**

**Chairperson: Krishnamurthy Muralidhar**

- CHT-24-127**      Control Of Heat Transfer Characteristics in Helicoid Heat Exchangers with  
Strong Dependence of Oil Viscosity on Temperature, *By Kurmanova D.,  
Jaichibekov N., Volkov K., and Zhumanbayeva A.*
- CHT-24-162**      Exploiting Flow Maldistribution to Improve the Thermal Performance of  
Crossflow Microchannel Heat Sinks, *By Carlo Nonino, and Stefano Savino*
- CHT-24-197**      Thermal Analysis on Catalyst Filled Heat Exchangers for Ortho-Para  
Hydrogen Conversion, *By Sarng Woo Karng, Baekjin Kim, Dong Hee Hong,  
and Gwang Hoon Rhee*
- CHT-24-238**      Investigation Of Heat Transfer Performance with Impinging Jets on  
Surfaces with Multiple Cylindrical Protrusions, *By Tamer Çalışır, Hazar  
Yuksel, Senol Baskaya*
- CHT-24-280**      Numerical Analysis of Microchannel Heat Sink for Cooling of An Electronic  
Component, *By Yogesh Jaluria, and Eslam Al Qawasmeh*
- CHT-24-281**      Combined Radiation and Convection in Developing Flow in A Parallel  
Plate Channel with Real Gas Behavior, *By Kyle Pulsipher, and Brent W.  
Webb*

## **D-104**

**09:00 - 09:45**

### **Keynote Lecture 3-2: Energy:**

Computational Modeling and Design Optimization of a Solar Reactor and the Integration of Supersonic Turbomachinery for Hydrogen Production, *by Dr. Nesrin Ozalp, Illinois State University, USA*

**Chairperson: S. A. Sherif**

**09:45 - 10:15**

### **Coffee Break**

**10:20 - 12:20**

### **Technical Session 3-2-B: Energy 2:**

**Chairperson: Nesrin Ozalp**

**CHT-24-204**

CFD Modelling of Temperature Distribution on PV Modules in a Ground-Mounted PV System in Australia, *By Svetlana Tkachenko, Phillip Hamer, Tingyi Zhang, Ruby Klisser, Zibo Zhou, Charitha De Silva, Victoria Timchenko, and Bram Hoex*

**CHT-24-207**

Performance Characterization of Non-Vacuum CPC Type Receiver for Linear Fresnel System: CFD Calculation and Experimental Assessment, *By Ahmed Al Mers, and Yousra Filali Baba*

**CHT-24-208**

Novel Modeling Tool for Dynamic Behavior Forecast and Management of CSP Plant Coupled to TES System, *By Yousra Filali Baba, Ahmed Al Mers, and Tauseef-Ur Rehman*

**CHT-24-209**

Semi-Supervised Anomaly Detection Framework Using Solar Energy Generation Data, *By Luis Fernando Rodrigues Agottani, Reginaldo Ferreira, Viviana Cocco Mariani*

**CHT-24-229**

Numerical Simulation of a Representative PMR200 Reactor Model in Flownex (Part 1), *By Gert Nel, Gc Du Toit*

**CHT-24-253**

Numerical Parametric Analysis of Charging/Discharging Low-Temperature Thermochemical Storage Unit, *By Piotr Łapka, Mateusz Młynarczyk, Natalia Mikos-Nuszkiewicz, And Piotr Furmański*

**12:20 - 14:15**

### **Free Time**

## Lecture Hall

**14:15 - 15:00**

**Keynote Lecture 3-3: Micro and Nanoscale Heat Transfer: nanoFin Effect (nFE), by Dr. Debjyoti Banerjee, Texas A&M University College of Engineering, 3127 TAMU, USA**

**Chairperson: Tuba Okutucu-Özyurt**

**15:00 - 15:30**

**Coffee Break**

**15:30- 17:30**

**Technical Session 3-4-A: Energy:**

**Chairperson: İlker Tari**

**CHT-24-237**

Simulating Heat Transfer in a Prismatic Block VHTR Using a 1D/3D Thermal Fluid Co-simulation Methodology, *By Ockert Koekemoer, C.G. du Toit*

**CHT-24-256**

LITHIUM-ION BATTERY COOLING WITH WATER-BASED NANOFLUIDS, *By Elif Begum Elcioglu, İlber Deniz Ulaş Ceylan, Mustafa Berker Uysal*

**CHT-24-258**

Analysis of the thermal behavior of the concrete/PCM wall combined with a solar collector in three different climatic zones in Morocco, *By Mustapha Faraji*

**CHT-24-271**

Coupled Heat and Mass Transport in Air-Gap Diffusion Distillation for Clean Water Production, *By Akanksha K. Menon*

**CHT-24-278**

Flow Characteristics and Heat Transfer in a Two-Pass Channel With Interconnecting Slots, *By Zia Ud Din Taj, Kohei Fukuda, Majed Etemadi, Ram Balachandar, and Ronald Barron*

**CHT-24-140**

Computational Modeling of an Open Loop Thermochemical Energy Storage Reactor, *By Alper Saygin, Allannah M. Duffy, Srinivas Garimella*

## **D-104**

**14:15 - 15:00**

**Keynote Lecture 3-4: Micro and Nanoscale Heat Transfer:**

Nanoscale Meniscus Dynamics in Evaporating Thin Films, *by Dr. Ali Beşkök, Southern Methodist University, USA*

**Chairperson: Üner Çolak**

**15:00 - 15:30**

**Coffee Break**

**15:30- 17:30**

**Technical Session 3-4-B: Thermal Management:**

**Chairperson: Sevan Karabetoglu**

**CHT-24-111**

The Complex WSi<sub>2</sub>N<sub>4</sub> Material as the Thermal Management Solution of the MOSFETs, *By Zahra Shomali*

**CHT-24-130**

Mathematical Modeling of Grooved Heat Pipe for Cooling of Cylindrical Battery Cell, *By Vahit Corumlu, Barbaros Cetin, Zafer Dursunkaya*

**CHT-24-174**

Thermal Management Using Deep Cavities in Hypersonic Flow, *By David R. Emerson, Jian Fang, and Benzi John.*

**CHT-24-205**

The Effect of Fan Coil Unit Layout on Air Quality and Thermal Comfort in Classroom, *By Svetlana Tkachenko, Hengrui Liu, Chris Menictas, Victoria Timchenko*

**CHT-24-236**

Effect Of the Spiral Fins and Divergence Plenum on Controlling Cell Temperature for Air-Cooled BTMS, *By Manosh C. Paul, Ali Alzwayi*

**CHT-24-121**

Inside The PCM Melting Evolution: a CFD Investigation of Periodic Structures to Enhance Thermal Diffusion, *By Andrea Fragnito, Nicola Bianco, Marcello Iasiello, Gerardo Maria Mauro*



## Thursday, 30 May 2024

**08:00- 17:00**      **Registration at Conference Center**

### Lecture Hall

**09:00 - 09:45**      **Keynote Lecture 4-1: Radiation:**  
Simple Approach to Modeling Heat Transfer During Solar Heating and Melting of Lake or Sea Ice, *by Dr. Leonid Dombrovsky, Joint Institute for High Temperatures (RAS), Russia*

**Chairperson: Yıldız Bayazıtöğlü**

**09:45 - 10:15**      **Coffee Break**

**10:20 - 12:20**      **Technical Session 4-2-A: Natural Convection:**

**Chairperson: Leonid Dombrovsky**

- CHT-24-139**      A Numerical Study of Natural Convective Heat Transfer Across a Vertical Rectangular Enclosure with One Vertical Surface Being Heated and The Other Vertical Surface Being Cooled and Inclined at A Relatively Small Angle to The Vertical, *By Nesrin Ozalp, Patrick Oosthuizen*
- CHT-24-154**      Impact Of Unsteady Flow on Natural Convection Along a Vertical Plate with Random 3d Roughness, *By Tse-Yu Chen, Chung-Gang, Li*
- CHT-24-194**      Influence Of Tilt Angles and Different Models of Fluid Viscosity on Coupled Natural Convection in A Differentially Heated Closed Square Cavity with A Baffle, *By Alibek Issakhov, Aidana Sabyrkulova, Aizhan Abylkassymova*
- CHT-24-210**      Effect of a Rectangular Porous Layer on Entropy Generation During Thermosolutal Natural Convection Under Ltne Approach and Non-Uniform Heating and Salting, *By Abdeslam Omara, Abderrahim Bourouis, Rabah Bouchair*
- CHT-24-213**      Numerical Modeling of Heat Transfer from Finned Pipes Cooled by Natural Convection, *By Marina Zasimova, Vladimir Ris, Anastasia Filatova, Alexey Pozhilov and Nikolay Ivanov*
- CHT-24-279**      Cfd Analysis for The Improvement of Heat Transfer in Porous Media, *By Ranjit Singh, Sanjairaj Vijayavenkataraman, Sunil Kumar*

## **D-104**

**09:00 - 09:45**

### **Keynote Lecture 4-2: Computational Methods:**

Multiscale Simulation of Transport Phenomenon Across a Reactive Interface, *by Dr. Dongsheng Wen, Technical University of Munich, Germany*

**Chairperson: Nazlı Dönmezer**

**09:45 - 10:15**

**Coffee Break**

**10:20 - 12:20**

**Technical Session 4-2-B: Combustion:**

**Chairperson: TBA**

**CHT-24-137**

Hydrogen Under-Expanded Jet Flames: Validation of CFD Model Against Experimentally Measured Data, *By Mina Kazemi, Sile Brennan, and Vladimir Molkov*

**CHT-24-169**

On The Effect of Spray Modelling of a Turbulent Swirl-Stabilized Flame in a Model Spray Combustor, *By Ozgur Ertunc, Deniz Imamoglu.*

**CHT-24-193**

Propagation Speeds of Hydrogen-Enriched Fuel-Air Mixtures, *By Venera Giurcan, Codina Movileanu, Maria Mitu*

**CHT-24-263**

Incorporating The Itnfs Efficiency Function in Modeling of Flame-Generated Turbulence and Counter-Gradient Diffusion in Stagnating Turbulent Premixed Flames, *By Ahmed Neche,*

**CHT-24-270**

Multi-Scale Modelling: Thermophysical Properties Prediction During High-Temperature Pyrolysis of Composites and Thermal Response Evaluation by Scale-Bridging Reactive Molecular Dynamics, *By Ju Tang*

**CHT-24-274**

Ignition And Quenching of Multifuel-Air Explosions in Deflagration Regime, *By Codina Movileanu, Venera Giurcan*

**12:20 - 14:15**

**Free Time**

## Lecture Hall

**14:15 - 15:00**

**Keynote Lecture 4-3: Single and Multiphase Flow:**

Advances in Numerical Modelling of Multiphase Transport Phenomena in High-Temperature Solar Thermal Systems, *by Dr. Wojciech Lipinski, The Cyprus Institute, Cyprus*

**Chairperson: Oronzio Manca**

**15:00 - 15:30**

**Coffee Break**

**15:30- 17:30**

**Technical Session 4-4-A: Solidification and Melting:**

**Chairperson: Mikhail Sheremet**

**CHT-24-176**

Thermal Performance of Buildings Using Phase Change Materials: Cellular Automata Modeling, *By Yasser Khaddor, Abdes-Samed Bernoussi*

**CHT-24-188**

Energy Consumption Performances of a Dynamic Snow-Melting Process Using a Novel Heat and Mass Transfer Model, *By Wenke Zhao, Kaihan Xie, Yaning Zhang, Wei Wang and Bingxi Li*

**CHT-24-191**

Simultaneous Close-Contact Melting at Different Melting Temperatures in A Cylindrical Enclosure, *By Özgür Bayer, Seyedmohsen Baghaei Oskouei, and Elyas Salamatbakhsh*

## **D-104**

**14:15 - 15:00**

### **Keynote Lecture 4-4: Radiation:**

Radiative Heat Transfer in Particulate Medium: Methods, Metrics and Revised Regime Map, *by Dr. Hakan Erturk, Bogazici University, Turkiye*

**Chairperson: Tuba Okutucu-Özyurt**

**15:00 - 15:30**

**Coffee Break**

**15:30- 17:30**

**Technical Session 4-4-B: Radiation 2:**

**Chairperson: Hakan Erturk**

**CHT-24-133**

Inverse Design of a Selective Emitter for a Multijunction Thermophotovoltaic System, *By Hakan Erturk, Yigithan Mehmet Kose*

**CHT-24-150**

Inverse Design of The Ideal Emitter for a Multi-Junction Thermophotovoltaic System, *By Yigithan Mehmet Kose, Hakan Erturk*

**CHT-24-199**

Radiative Thermal Diode Driven by Nonreciprocal Surface Models in A Nanowire, *By Yong Zhang*

**CHT-24-277**

DNI Prediction Using Deep Learning for Optimization of Concentrated Solar Power (CSP) Plants, *By Kashif Liaqat, Kashif Liaqat, Muhammad Saud Ul Hassan, Laura Schaefer, And Alexander J. Zolan.*

**17:40 - 18:00**

**Closing Ceremony at Lecture Hall**