

5th International Symposium on Convective Heat and Mass Transfer

CONV-22, Izmir, June 5-10, 2022

PROGRAM

Sunday, June 5, 2022

16:00 – 18:00	Registration
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Monday, June 6, 2022

08:00 – 08:40	Registration
08:50 – 09:10	Opening Session
09:10 – 09:50	Keynote Lecture 1: Luikov Medal Lecture
	COMPUTER MODELLING OF THERMALLY-DRIVEN MICROCLIMATE PHENOMENA Kemal Hanjalić Session Chair: Renato Cotta
	Session 1: Forced Convection 1 Session Chair :
09:50 – 10:10	A 28 The Capability Study of Practical Working Fluids in the Desktop-CPU Cooling System A. Pramuanjaroenkij * and S. Kakaç
10:10 – 10:30	A 67 Supersonic Nitrogen and Helium Jet Impingement on a Flat Stationary Surface Joseph M. Conahan, Ozan C. Ozdemir*, Mohammad E. Taslim and Sinan Muftu
10:30 – 10:50	A 65 Heat Transfer Intensification in Minichannel Cooling System K. Delendik*, O. Voitik, N. Kolyago, O. Penyazkov and L. Roshchin
10:50 – 11:10	Coffe Break
	Session 2: Phase Change 1 Session Chair :
11:10 – 11:30	A 57 Numerical Modeling of the Desublimation of CO ₂ Michael Adebayo Oyinloye*, Sreenivasa Rao Gubba, Marius-Gabriel Cojocar, Deoras Prabhudharwadkar and William L. Roberts
11:30 – 11:50	A 15 Effect of Subcooling and Pressure Over Nucleate Pool Boiling on Micro-Drilled Surfaces Tolga Emir*, Mete Budakli and Mehmet Arik
11:50 – 12:10	A 99 The Onset of Significant Void in Subcooled Flow Boiling H. Jeong* and W. Jaewoo Shim
12:10 – 12:30	A 71 Numerical Investigation of Critical Heat Flux under the Effect of Different Operating Conditions in Flow Boiling Saeid R. Angeneh* and Murat K. Aktas
12:30 – 12:50	A 60 The Regularities of the Convective Heating Water Droplets at the Transient Phase Change Regime When They Slipping in the Radiating Media Gintautas Miliuskas, Žygimantas Staliulionis and Monika Maziukienė*
12:50 – 14:00	Welcome Reception
14:00 – 14:40	Keynote Lecture 2

	TURBULENCE MEASUREMENTS IN A TURBINE CASCADE FLOW Terrence Simon <i>Session Chair:</i>
	Session 3: Thermal Process <i>Session Chair :</i>
14:40 – 15:00	A 19 Investigation of Nanoscale Droplet Evaporation by Molecular Dynamics Simulations <i>Ezgi Satiroglu* and Murat Barisik</i>
15:00 – 15:20	A 74 Study of Heptane Pool Fire in Well-Confined Military Vehicle Engine Compartment <i>Soleh F. Junjunan, Khaled Chetehouna*, Axel Cablé, Abdulhadi Abdlgwad, Antoine Oger and Romie O. Bura</i>
15:20 – 15:40	A 12 Drop-on-Demand Inkjet Printing Assessment of Graphene from Aqueous Graphene Dispersions <i>Elif Begum Elcioglu* and Erdem Ozyurt</i>
15:40 – 16:00	A 13 Activated Carbon Heat Sinks <i>Alperen Günay</i>
16:00 – 16:20	Coffe Break
	Session 4: Numerical Analysis (Virtual) <i>Session Chair :</i>
16:20 – 16:35	A 95 Laminar Natural Convection of Power-Law Fluids in a Trapezoidal Enclosure Heated from the Bottom <i>Sean P. Malkeson*, Saleh Alshaali and Nilanjan Chakraborty</i>
16:35 – 16:50	A 76 Effect of Variable Viscosity on Natural Convection Within a Semi-Cylindrical Cavity Filled with a Heat Generating Fluid <i>A. I. Kudrov* and M. A. Sheremet</i>
16:50 – 17:05	A 21 Numerical Heat Transfer Analysis of Two-Phase Flow in Horizontal and Inclined Flowlines using OpenFOAM <i>Nsidibe Sunday*, Abdelhakim Settar, Khaled Chetehouna and Nicolas Gascoin</i>
17:05 – 17:20	A 52 Effects of the Soil Properties on Canadian Wells Performance: Numerical Simulation <i>Islam Boukail, Louay Fenchouch, Nabil Kharoua* and Hamza Semmari</i>
17:20 – 17:35	A 42 Convective Heat Transfer in the Brest-OD-300 Nuclear Reactor Fuel Rod <i>D. Fedorovich* and I. Paramonova</i>
17:35 – 17:50	A 90 Simulation of Magnetic Field Effect on Heat Transfer Enhancement of Swirling Nanofluid <i>Brahim Mahfoud</i>

Tuesday, June 7, 2022

	Keynote Lecture 3
08:50 – 09:30	SOLAR FUELS PRODUCTION USING HIGH TEMPERATURE SOLAR REACTORS UNDER TRANSIENT THERMAL RESPONSE Nesrin Özalp Session Chair:
	Session 5: Natural Convection Session Chair :
09:30 – 09:50	A 50 Fully Developed Mixed Convection in a Plane Vertical Microchannel <i>Jacques Padet* and Renato Cotta</i>
09:50 – 10:10	A 14 Natural Convection in a Cylindrical Enclosure with Different Internal Objects <i>Ibrahim Jarrah and Rizwan-uddin*</i>
10:10 – 10:30	A 48 Effects of Wall-Shearing on Weakly Turbulent Rayleigh-Bénard Convection <i>Ilyas Yilmaz*</i>
10:30 – 10:50	A 69 Effect of Prandtl and Richardson Numbers on Convection Heat Transfer from a Heated Circular Cylinder Immersed in a Wake of an Adiabatic Cylinder <i>Zaher Ramadan* and Chan Woo Park</i>
10:50 – 11:10	Coffe Break
11:10 – 11:50	Keynote Lecture 4
	THE PERFORMANCE ENHANCEMENT OF THE AGRICULTURAL POSTHARVEST COOLING SYSTEMS BY USING HEAT EXCHANGERS Anchasa Pramuanjaroenkij Session Chair:
	Session 6: Natural Convection 2 Session Chair :
11:50 – 12:10	A 30 Heat Transfer ReCtification for Energy Managment in Buildings <i>Abdulmajeed Mohamad*</i>
12:10 – 12:30	A 88 Natural Convection-Driven Phase Change Inside Cylindrical Annulus <i>Okan Gök*, Ersin Alptekin, Mehmet A. Ezan and Aytunç Erek</i>
12:30 – 12:50	A 18 Modeling of Thermal Conductivity of Bio-Based Building Composites <i>Fabian Dietrich, Piotr Łapka*, Piotr Furmański, Maris Sinka and Diana Bajare</i>
12:50 – 14:00	Lunch Break
14:00 – 14:40	Keynote Lecture 5
	PREMIXED FLAME-WALL INTERACTION AND HEAT TRANSFER CHARACTERISTICS IN TURBULENT BOUNDARY LAYERS: INSIGHTS BASED ON DIRECT NUMERICAL SIMULATIONS Nilanjan Chakraborty Session Chair:
	Session 7: Phase change 2 Session Chair :
14:40 – 15:00	A 16 Influence of Frost Formation on Heat Transfer Effectiveness of Extended Surfaces <i>Alper Saygin *,Ceyhun Topal, Altug M. Basol and Mehmet Arik</i>
15:00 – 15:20	A 47 Validation of a Heat-Pipe Experiment Using CFD <i>Höhne T.*</i>

15:20 – 15:40	<p style="text-align: center;">A 98</p> <p style="text-align: center;">Numerical Investigation of the Refining Process in a Glass Melting Furnace Containing Gas Bubbles <i>Tolga Altinoluk*, Altug M. Basol, M. Pinar Menguc and Adnan Karadag</i></p>
15:40 – 16:00	<p style="text-align: center;">A 43</p> <p style="text-align: center;">Enhancing DCMD Efficiency For Desalination at Module Scale Through Dual Heat Recovery and Retentate Recirculation <i>Emerson B. dos Anjos*, Abdul O. Cárdenas Gómez, Luz E. Peñaranda Chenche, João A. Lima, Carolina P. Naveira-Cotta, Renato M. Cotta and Kleber M. Lisboa</i></p>
16:00 – 16:20	Coffe Break
16:20 – 17:40	<p>Poster Session</p> <p>Session Chair :</p>
	Gala Dinner

Wednesday, June 8, 2022

	Keynote Lecture 6
08:50 – 09:30	DIRECT SIMULATIONS AND INVERSE PROBLEMS INVOLVING NONUNIFORMLY HEATED PALLADIUM NANOFLUIDS Helcio Orlande <i>Session Chair:</i>
	Session 9: Heat Exchangers <i>Session Chair :</i>
09:30 – 09:50	A 20 Experimental Thermal Performance Evaluation of Plate Heat Exchanger Made from Green-Poxy Resin-Based Bio-Composite and SiC Powder <i>Abdelhakim Settar*, Jean-Loup Sarrat, Khaled Chetehouna and Asih Melati</i>
09:50 – 10:10	A 34 Thermal Performance Characterization of a Flat-Grooved Heat Pipe Integrated Cold Plate <i>Kaan Atak, Öykü Çoşar, A. Cem Gözükara, Mustafa Ocak, Ahmet Özdemir, Mustafa Karakoç, Zafer Dursunkaya and Barbaros Çetin*</i>
10:10 – 10:30	A 83 On The Correct Modeling of Flow Characteristics in Double Pipe Heat Exchangers with Inner Dimpled Tube <i>Nur Çobanoğlu* and Ziya H. Karadeniz</i>
10:30 – 10:50	A 35 Experimental Analysis of Shell and Tube Heat Exchanger <i>Berk Cevrim*, Murat K. Aktas and Sadık Kakac</i>
10:50 – 11:05	A 46 A Review of Flammable Gases from Human Waste Sludge as a Potential Source of Energy <i>Maryam Ghaffari*, Shazia Ali, Maria Mavroulidou and Alex Paurine</i>
11:05 – 11:30	Coffe Break
	Keynote Lecture 7
	NATURAL CONVECTION IN SHALLOW AND TALL ENCLOSURES Yıldız Bayazıtöğlü <i>Session Chair:</i>
12:10 – 12:50	Keynote Lecture 8
	ANALYTICAL-COMPUTATIONAL METHODS IN ENERGY EFFICIENCY AND SUSTAINABLE ENERGIES Renato Cotta <i>Session Chair:</i>
12:50 – 14:00	Lunch Break
	FREE AFTERNOON

Thursday, June 9, 2022

	Session 10: Thermal Systems <i>Session Chair :</i>
08:50 – 09:10	A 96 Effect of Thermal Interface Materials for High-Power Led Lighting Applications <i>Ömer Refik Sözbir*</i>
09:10 – 09:30	A 64 Micropillar Wick Structure for Ultrathin Vapor Chamber <i>K. Delendik*, O. Voitik, N. Kolyago, O. Penyazkov and L. Roshchin</i>
09:30 – 09:50	A 33 Isogeometric and Nurbs-Enhanced Boundary Element Analysis of a Heat Conduction Problem <i>Özgür Can Gümüş, Besim Baranoğlu and Barbaros Çetin*</i>
09:50 – 10:10	A 73 The Effect of Permanent Magnet Location on the Performance of Ferrofluid Based SPNCmL <i>Selim Can Bozkır*, Nur Çobanoğlu, Serkan Doğanay, Ziya Haktan Karadeniz and Alpaslan Turgut</i>
10:10 – 10:50	Keynote Lecture 9
	INNOVATIVE APPROACH FOR COOLING USING WATER AND NANOFLUIDS IN MINI CHANNELS <i>Ziad Saghir</i> <i>Session Chair:</i>
10:50 – 11:10	Coffe Break
	Session 11: Forced Convection 2 <i>Session Chair :</i>
11:10 – 11:30	A 25 Investigation of the Thermohydraulics of an EGS Project in Turkey: Comparative Assessment of Water and CO ₂ As Heat Transfer Fluid <i>A. C. Benim* and A. Çiçek</i>
11:30 – 11:50	A 38 Ferrohydrodynamics in Laminar Pipe Flow <i>Matthias H. Buschmann*</i>
11:50 – 12:10	A 63 Numerical Investigations of Heating/Cooling Effects on Laminar-Turbulent Transition Delay in High-Speed Flows <i>M. Celep, S. Sharma, A. Hadjadj* and M. S. Shadloo</i>
12:10 – 12:30	A 26 Computational and Experimental Investigation of Flow and Convective Heat Transfer along Rough Surfaces <i>C. Özman, F. Gül, M. Diederich, A. C. Benim* and U. Janoske</i>
12:30 – 12:50	A 86 Experimental Energy Balance of Turbulent Forced Convection in Thick-Walled Heat Generating Tube with Temperature Dependent Properties <i>Aziz H. Altun and Eyub Canli*</i>
12:50 – 14:00	Lunch Break
14:00 – 14:40	Keynote Lecture 10
	REGENERATIVE STIRLING MACHINES FOR THE PRODUCTION OF WORK, HEATING AND COOLING: THERMO-PHYSICAL PHENOMENA AND TECHNOLOGICAL CONSIDERATIONS <i>François Lanzetta</i> <i>Session Chair:</i>
	Session 12: Virtual <i>Session Chair :</i>
14:40 – 14:55	A 29 SVR Based Temperature Prediction of Cylindrical Tube Banks in Cross Flow Having Arbitrary Heaters <i>Rojo Kurian Daniels, Vikas Kumar, Satyendra Singh Chouhan and Aneesh Prabhakar*</i>
14:55 – 15:10	A 55 Effect of Nanoparticle Shape on Nanofluid Flow in Conical Helical Tube <i>Fethi M. Altunay, Majdi A. M. Ali, Mehmet Gurdal*, Hayati Kadir Pazarlioğlu, Kamil Arslan And Engin Gedik</i>

15:10 – 15:25	A 44 An Entropy Study of Water in Carbon Nanotube Surface with Uneven Hydrophobicity <i>Hamed Esmaeilzadeh*, Majid Charmchi and Hongwei Su</i>
15:25 – 15:40	A 93 Effect of the Surface Radiation on Jet Impingement Cooling of a Concave Surface <i>Melisa Albayrak, Bugra Sarper*, Soner Birinci, Mehmet Saglam and Orhan Aydin</i>
15:40 – 15:55	A 51 On the Thermal Interaction Between Geothermal Boreholes with Groundwater Flows Using Asymptotic Expansion Techniques <i>Javier Rico* and Miguel Hermanns</i>
15:55 – 16:10	A 58 A Velocity-Vorticity Approach to Analyze the Solid and Porous Fins Effect on Heat Transfer Performance in a Differentially Heated Cubical Cavity <i>Xuan Hoang Khoa Le and Mikhail A. Sheremet</i>
16:10 – 16:30	Coffe Break
	Session 13: Virtual Session Chair :
16:30 – 16:45	A 59 Numeriacal Study of The Melting Behaviour of a Biobased Phase Change Material <i>M, Djenane*, T. Boukelia, El Wakil , Y. Kabar and M. Rebay</i>
16:45 – 17:00	A 36 Thermal Modelling of Hydrothermal Carbonization Pilot-Scale Reactor for Bio-Waste Processing <i>B. Morrone*, M.L. Mastellone, D. Battaglia, A. Capone and L. Zaccariello</i>
17:00 – 17:15	A 61 Non-gray Radiation Modeling of Methanol Swirling Flame <i>N. Kumar* and A. Bansal</i>
17:15 – 17:30	A 97 Transient Behavior of Non-Uniform Pulsating Heat Pipes Under Different Heat Loads <i>Burak Markal* and Alperen Evcimen</i>
17:30 – 17:45	A 82 Improvement of a PV Panel Cooling by Using a Microchannel Heat Sink <i>B, Bouhabel, T. Boukelia, Y. Kabar* and M. Rebay</i>
17:45 – 18:00	A 40 NUMERICAL Simulations of Mass Transfer in Turbulent Pipe Flow at High Schmidt Numbers <i>J. Chen, D. Wang, D. Ewing and C.Y. Ching*</i>

Friday, June 10, 2022

Session 14: Convection with and without Phase Change (Virtual)	
<i>Session Chair :</i>	
08:50 – 09:05	A 85 Influence of Pillar Surfaces on Enhanced Ice Plug Melting Performance in Flow Channel of Proton Exchange Membrane Fuel Cell <i>Sheng Xu, Bifeng Yin* and Fei Dong</i>
09:05 – 09:20	A 62 Thermo-Fluid Analysis of Mini-channel Heat Sinks for High Flux Dissipation <i>Nabil Bessanane*, Mohamed Si-Ameur and Mourad Rebay</i>
09:20 – 09:35	A 70 Natural Convection in a Porous Cavity: The Roads to Chaos <i>Saad Adjal*, Sabiha Aklouche-Benouaguef and Belkacem Zeghmati</i>
09:35 – 09:50	A 56 A Numerical Investigation on the Thermo-Hydraulic Performance of Dimpled Fin Configurations in a Rectangular Channel <i>Pazarlıoğlu. H.K., Gürdal. M.*, Tekir. M., Altunay, F.M. and Arslan. K.</i>
09:50 – 10:05	A 72 Thermal and Dynamic Similarity Between a Transitional Spot and Fully Developed Turbulent Wall Flow <i>B. Arrondeau*, S. Tardu and O. Doche</i>
10:05 – 10:20	A 23 Experimental Comparison of Heat and Flow Characteristics of Rectangular Finned Heat Sink and Flat Plate Using Single Nozzle Impingement Air Jet <i>Altug Karabey* and Denizhan Bozdogan</i>
10:20 – 10:40	Coffe Break
Session 15: Micro/Nanoscale Heat Transfer (Virtual)	
<i>Session Chair :</i>	
10:40 – 10:55	A 81 Aspect Ratio Influence on Natural Convection in a Rotating Differentially-Heated Cavity <i>S.A. Mikhailenko* and M.A. Sheremet</i>
10:55 – 11:10	A 80 Effect of Heat-Generated Element Location on Natural Convection of Nanofluid with Temperature-Dependent Thermal Properties in a Cavity <i>Marina S. Astanina* and Mikhail A. Sheremet</i>
11:10 – 11:25	A 41 Enhancement of Heat Transfer Using Nanofluid in Minichannel Heat Exchanger with Cavities <i>S. Djellouli* and EG. Filali</i>
11:25 – 11:40	A 78 Influence of a Ribbed Structure on the Pseudoplastic Nanofluid Thermogravitational Convection in a Cavity with a Heat-Generated Element <i>Daria S. Loenko* and Mikhail A. Sheremet</i>
11:40 – 11:55	A 68 Effect of Nanoparticles in a Polar/Non-Polar Liquid of an Evaporating Thin-Film Meniscus <i>Ritesh Dwivedi, Saumya Singh and Pawan K. Singh*</i>

POSTER PRESENTATIONS

Tuesday, June 7, 2022

P 66 F to F	Calculation of Reliability on Justification Cooling of the Vver-1200 Core During the Operation of Passive Heat Removal System Through Steam Generator <i>Nurberk Sungur* and Irina Lvovna Paramonova</i>
P 91 F to F	Analysis of Possibilities of Increasing Convective Heat Transfer Intensity in PEX Pipes for Applications in Ground Heat Exchangers <i>Piotr Łapka* and Juliusz Wachnicki</i>
P 06 F to F	Visualizing the Evaporation/Boiling Heat Transfer of a 3D-Printed Wick For Heat Pipe Applications <i>Davoud Jafari* and Wessel W. Wits</i>
P 07 Virtual	Numerical Study of Temperature Stratification for Plate Heat Exchangers with Different Heat Transfer Areas <i>Jeong-gyun Ham, Hong-hyun Cho, Dong-wook Oh and Gong-hee Lee*</i>
P 08 F to F	Stability Measurements of Hybrid Magnetic Nanofluids Using a 3D Helmholtz Coil System Setup <i>R. Alsangur*, S. Doganay, İ. Ates, A. Turgut, L. Cetin and M. Rebay</i>
P 09	Simulation of Heat Transfer of Al ₂ O ₃ /Water Nanofluid- Effect Volume Fraction <i>AmirReza Radmanesh and Nihad Dukhan*</i>
P 100 Virtual	The Modeling of Decay Heat Removal by Natural Convection from a Spent Nuclear Fuel Storage Container <i>Robertas Poskas*, Kęstutis Račkaitis, Povilas Poskas and Svitlana Alyokhina</i>
P 101 F to F	Solar Thermal Energy Storage with Phase Change Material for Domestic Active Space Heating Applications <i>Pushpendra Kumar Shukla* and P. Anil Kishan</i>
P 103 Virtual	Interphase Heat Transfer in the Process of Bulk Condensation in the Dust-Laden Flow <i>N.M. Kortsenshteyn and A.K. Yastrebov*</i>
P 104 F to F	Time-Resolved Tomographic PIV Measurements in the Near Field of a Confined Wake <i>M.V. Shestakov* and D.M. Markovich</i>
P 106 F to F	Prediction of Flow Patterns of Liquid-Liquid Flows on T-Shaped Microchannels Using Machine Learning Approaches <i>Anna A. Yagodnitsyna*, Ivan A. Plohih, Alexander V. Kovalev and Artur V. Bilsky</i>
P 107 F to F	Potential Ecodesign Requirements for Household Refrigerating Appliances: Implementation of EU Energy Regulation <i>Halil Doğan Koca*</i>
P 17 Virtual	Numerical Analysis of Conjugate Convective-Radiative Heat Transfer in a Cavity with Two Heated Elements <i>N.S. Gibanov* and M.A. Sheremet</i>
P 32	Mesoscopic Numerical Study of Nanoscale Convective Heat in MOS Transistor System <i>Abdelmalek Atia* and Oussama Zobiri</i>
P 37 F to F	Thermo-Mechanical Behavior Analysis of Shape Memory Alloys – Smart Materials - and Estimation of Their Strain Energy Absorption Under Different Applied External Loads <i>Brahim Necib*, Abdelaziz Lebied and Mohamed Sahli</i>
P 77 F to F	CFD Modeling of the Thermal State of a House In Moscow (Russia) at Various Thermal Resistance Coefficients of the Buildings Envelope and Various Parameters of Outdoor Air <i>D. Kruglikov* and I. Sultanguzin</i>
P 84 Virtual	Numerical Investigation of Heat Transfer in Building Brick Containing a New Bio-Based Phase Change Material <i>Z. Guermat, T. Boukelia and Y. Kabar*</i>
P 39	Heat Transfer Improvements in Nanofluid Synthesis, Stability, and Thermophysical Properties: A Review <i>B.S. Mashishi*, Z. Huan, T. Sithebe and V.R Veeredhi</i>
P 79	Convective Heat Transfer over Bank of Oscillating Slotted Tubes <i>Zahra Shomali*, Jafar Ghazanfarian and Haleh Soheibi</i>
P 89	Numerical Study of Heat Transfer Characteristic and Optimization of a Car Radiator Using Nanofluids (H ₂ O/Al ₂ O ₃) As Coolant <i>Oyedepo, S.O*, Ezeuduji D, Araoyinbo, A.O, Kilanko, O, Efewikekwe, U. K, Dirisu, J.1, Aworinde, A.K, Babalola, P.O, Leramo, R.O and B. Saleh</i>