

HEFAT 2019

Wicklow, Ireland

22 – 24 July 2019



Heat Transfer, Fluid Mechanics and Thermodynamics

OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“POSTER SESSION 1”

Presented to:

***CHARACTERISATION AND
MODELLING OF SMALL DIAMETER
MESH WICK HEAT PIPES FOR LOW
POWER APPLICATIONS***

Alison Clarke, Kate Smith and Tim Persoons

**Presented and published in
Proceedings of the 14th International
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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“NON-LINEAR THERMAL FLUID
PHENOMENA”

Presented to:

***BASIC FLOWS AND HEAT TRANSFER OF
THERMAL MARANGONI CONVECTION IN
RECTANGULAR LIQUID FILM***

Takahiro Tsukahara, Koya Yamasaki and Ichiro Ueno

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OUTSTANDING PAPER AWARD

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“TWO-PHASE FLOW 1”

Presented to:

***AN EXPERIMENTAL STUDY OF FLOW
BOILING IN FRACTAL-LIKE
MINICHANNELS FABRICATED BY
SELECTIVE LASER MELTING***

Yao Song See and Kai Choong Leong

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BEST PAPER IN THE SESSION ON
“AIR CONDITIONING & REFRIGERATION”

Presented to:

***QUANTIFICATION OF LOCAL AIR-SIDE
HEAT TRANSFER COEFFICIENT USING
COLOR-CHANGE COATINGS***

Stefan Elbel and Min Che

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BEST PAPER IN THE SESSION ON
“AERODYNAMICS 1”

Presented to:

***NON-UNIFORM HEATING
CORRECTION FOR TEMPERATURE
DECLINE THERMOGRAPHY***

Stefan Von Hoesslin, Juergen Gruendmayer
and Andreas Zeisberger

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“EXPERIMENTAL METHODS”

Presented to:

***NEAR-INFRARED TEMPERATURE
MEASUREMENT OF WATER NEAR MICRO-
MAGNETIC PARTICLES IN THE
MICROFLUIDIC CHANNEL UNDER HIGH-
FREQUENCY INDUCTION HEATING***

Han Van Cuong and Kakuta Naoto

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“HEAT EXCHANGERS 1”

Presented to:

***PRESSURE DROP CHARACTERISTICS OF
TRANSITIONAL FLOW THROUGH A
SMOOTH TUBE WITH PERIPHERAL U-CUT
TWISTED TAPE INSERTS***

Marilize Everts, Sogo Abolarin and Josua Meyer

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“MULTIPHASE FLOW 1”

Presented to:

***THE BEHAVIOR OF
AERODYNAMICALLY DRIVEN RIVULET
FLOWS***

Johannes Feldmann, Ilia Roisman and
Cameron Tropea

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“COMPUTATIONAL FLUID DYNAMICS 1”

Presented to:

***INVESTIGATIONS OF A PIPE-JET WITH
AN ANNULAR CAVITY INTO A
CROSSFLOW***

Jeremy Bonifacio, Hamid Rahai and Shahab
Taherian

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BEST PAPER IN THE SESSION ON
“SPRAYS”

Presented to:

***FAST SPRAY COOLING: EFFECT OF
THE LIQUID TEMPERATURE***

Fabian M. Tenzer, Ilia V. Roisman, Cameron
Tropea and Minh K. Pham

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OUTSTANDING PAPER AWARD

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“HEAT TRANSFER ENHANCEMENT 1”

Presented to:

NUMERICAL INVESTIGATION OF JET IMPINGEMENT HEAT TRANSFER IN SOLAR RECEIVERS

Ken Craig, Jesse Quick, Marcel Sootweg
and Josua Meyer

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“ENERGY STORAGE 1”

Presented to:

***LOW TEMPERATURE THERMAL STORAGE AS A
RANKINE CYCLE COOLING SOLUTION***

Alan O'Donovan, Ronan Grimes and Paul
Sikora

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“TURBULENCE & TURBULENCE FLOWS 1”

Presented to:

***BOUNDARY LAYER TURBULENCE AND
FREESTREAM TURBULENCE INTERFACE,
TURBULENT SPOT AND FREESTREAM
TURBULENCE INTERFACE, LAMINAR
BOUNDARY LAYER AND FREESTREAM
TURBULENCE INTERFACE***

Xiaohua Wu

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**BEST PAPER IN THE SESSION ON
“DUCT & CHANNEL FLOW”**

Presented to:

***THREE-DIMENSIONAL FLUID FLOW
STRUCTURE AND REATTACHMENT
CHARACTERISTICS OF A BACKWARD-
FACING STEP FLOW IN A
RECTANGULAR DUCT***

Zou Shuai, Yuji Kohara and Kyoji Inaoka

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“CONVECTION HEAT TRANSFER 1”

Presented to:

***EFFECT OF INCLINATION BUOYANCY ON
THE FULLY DEVELOPED FRICTION
FACTORS IN THE LAMINAR AND
TRANSITIONAL FLOW REGIMES OF
SMOOTH TUBE***

Marilize Everts, Abubakar Idris Bashir, Suvanjan
Bhattacharyya and Josua Meyer

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“BOILING”

Presented to:

***DETERIORATION OF BOILING HEAT
TRANSFER ON BIPHILIC SURFACES
UNDER VERY LOW PRESSURES***

Biao Shen, Tomosuke Mine, Sumitomo
Hidaka, Koji Takahashi and Yasuyuki
Takata

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“POROUS FLOWS & MEDIA”

Presented to:

***ENHANCEMENT OF PACKED BED
REACTOR PERFORMANCE WITH A
STATIC MIXER***

Abraham Kribus, Michael Epstein and
Michal Deckelbaum

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“MULTIPHASE FLOW 2”

Presented to:

***KEROSENE DROP IMPACT ONTO A
DEEP WATER POOL***

Parmod Kumar

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“THERMAL MANAGEMENT & CONTROL 1”

Presented to:

A ONE-DIMENSIONAL HEAT AND MASS TRANSFER MODEL OF SORPTION CELLS

Avshalom Davidesko and Nir Tzabar

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“ENERGY AND ENVIRONMENTAL SYSTEMS 1”

Presented to:

***ANALYTICAL OPTIMIZATION OF A SOLAR-
DRIVEN COOLING SYSTEM ENHANCED WITH
A PHOTOVOLTAIC EVAPORATIVE CHIMNEY***

Javier Ruiz Ramírez, Pedro Martínez Martínez,
Hosein Sadafi, Francisco Javier Aguilar Valero,
Francisco Javier Toledo Melero, José Manuel Blanes
Martínez, Manuel Lucas Miralles

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BEST PAPER IN THE SESSION ON
“NUMERICAL SIMULATION 1”

Presented to:

***NUMERICAL SIMULATION OF
THERMAL INKJET DROPLET EJECTION***

Sam Mallinson and Geordie, Tracie Barber
and Guan Yeoh

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“TWO-PHASE FLOW 2”

Presented to:

***PRESSURE DROP AND VOID FRACTION OF
HORIZONTAL AIR-WATER STRATIFIED
FLOWS AT ATMOSPHERIC PRESSURE***

Igor Matteo Carraretto, Luigi Pietro Maria
Colombo, Damiano Fasani and Manfredò
Guilizzoni

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BEST PAPER IN THE SESSION ON
“HEAT EXCHANGERS 2”

Presented to:

***STUDY OF CONVECTIVE
CONDENSATION IN A
THERMOSIPHON LOOP***

Majed Eddine Moustaid, Cyril Buttay and
Vincent Platel

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“TURBULENCE & TURBULENCE FLOWS 2”

Presented to:

***EFFECTS OF THE STREAMWISE EXTENT
OF PERIODIC COMPUTATIONAL DOMAINS
ON TURBULENT FLOW AND HEAT
TRANSFER IN RIB-ROUGHENED COOLING
CHANNELS***

Sebastian Ruck, Frederik Arbeiter, Björn
Brenneis and Hanna Wund

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“COMPUTATIONAL FLUID DYNAMICS 2”

Presented to:

AIR COOLING ENHANCEMENT OF A HIGH-PRECISION HIGH-VOLTAGE RESISTOR

Federico Favre, Diego Olivet, Pedro Curto,
Pedro Galione, Gabriel Usera and Daniel
Slomovitz

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BEST PAPER IN THE SESSION ON
“POSTER SESSION 3”

Presented to:

DROPLET BOILING ON A SUPERHEATED LIQUID INFUSED SURFACE

Patrick Sullivan, Tim Persoons and Ryan
Enright

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“NUMERICAL SIMULATION 2”

Presented to:

***CFD ANALYSIS OF AN INNOVATIVE
VACUUM MICRO-GRIPPER***

Adriano Lezzi, Dario Urbano, Gianmaria
Noventa, Antonio Ghidoni, Giovanni
Legnani, Serena Ruggeri, Irene Fassi and
Gianmauro Fontana

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“CONDUCTION 1”

Presented to:

***NUMERICAL CHARACTERIZATION AND
VALIDATION OF THE THERMAL RESPONSE
OF A PARTIALLY FILLED ISO CONTAINER
EXPOSED TO REAL WEATHER
CONDITIONS***

Ken Blecker and Brian Hunter

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“ENERGY STORAGE 2”

Presented to:

***EFFECT OF CRYOGENIC HEAT TRANSFER AT
SUPERCRITICAL CONDITIONS ON LIQUID AIR
ENERGY STORAGE (LAES) PERFORMANCE - A
COMBINED EXPERIMENTAL AND NUMERICAL
ANALYSIS***

Adriano Sciacovelli, Ciprian Negoescu, Andrea Vecchi,
Yongliang Li and Reip A.

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BEST PAPER IN THE SESSION ON
“HYDRODYNAMICS”

Presented to:

***HEAT TRANSFER ENHANCEMENT
THROUGH THE USE OF AN OSCILLATORY
FLOW IN CIRCULAR-ORIFICE BAFFLED
TUBES: AN EXPERIMENTAL STUDY***

Damián Crespí-Llorens, Pedro V. Quiles, José
Muñoz and Juan Pedro Solano

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“MISCELLANEOUS 2”

Presented to:

***RADIATION EFFECT ON GROWTH OF
MIST DROPLETS***

Xinchang Li and Marcus Brewster

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“THERMAL MANAGEMENT & CONTROL 2”

Presented to:

***DROPLET THERMAL AND WETTING
FOOTPRINT ON A SUPERHEATED
SURFACE***

Vikash Kumar, David Newport and Ryan
Enright

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BEST PAPER IN THE SESSION ON
“CONVECTION HEAT TRANSFER 3”

Presented to:

***GRID INDEPENDENCE STUDY OF A 1D
THERMAL TOPOLOGY OPTIMIZATION
PROBLEM FOR HEAT SINKS***

Yang Zhou, Wouter Dekeyser and Martine
Baelmans

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“HEAT TRANSFER ENHANCEMENT 2”

Presented to:

***QUANTIFYING THERMAL CONDUCTANCE OF
THIN FILM THERMOELECTRICS USING
FREQUENCY DOMAIN THERMOREFLECTANCE***

David McCloskey, Naveen Balla, Kenny Yu, Gautam
Devendraprakash, Kafil Razeeb, Ronan Frizzel and
Ryan Enright

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BEST PAPER IN THE SESSION ON
“MISCELLANEOUS 3”

Presented to:

***EXPERIMENTS ON DENSITY
INTERFACE WITH SUCCESSIVE
VORTEX RINGS***

Advaith S and Saptarshi Basu

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“COMBUSTION”

Presented to:

***1D SIMULATION OF SODIUM-WATER
REACTION (SWR)***

Lucas David, Richard Saurel, François
Beauchamp and Alexandre Allou

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BEST PAPER IN THE SESSION ON
“COMPUTATIONAL FLUID DYNAMICS 3”

Presented to:

***INVESTIGATING THE FLOWFIELD
PHYSICS WITHIN COMPRESSIBLE
BOUNDARY LAYERS***

Frederick Ferguson

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OUTSTANDING PAPER AWARD

BEST PAPER IN THE SESSION ON
“CONDUCTION 2”

Presented to:

***HEATQUIZ: GAME-BASED LEARNING
IN HEAT AND MASS TRANSFER***

Wilko Rohlf, Sascha Welten, Manuel Rietz,
Enno Sabelberg, Claas Ehrenpreis, Patric
Figueiredo and Reinhold Kneer

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OUTSTANDING PAPER AWARD

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“BOILING 2”

Presented to:

***PRELIMINARY INVESTIGATION INTO
THE EFFECT OF STEP CHANGES IN
BOILING HEAT FLUX ON R134A IN A
HORIZONTAL MACRO TUBE***

Wilhelm Johann Van Den Bergh, Josua
Meyer, Jaco Dirker and Christos Markides

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OUTSTANDING PAPER AWARD

**BEST PAPER IN THE SESSION ON
“NUMERICAL SIMULATION 3”**

Presented to:

***PREDICTION OF THE POWER
COEFFICIENT OF STRAIGHT BLADED
VERTICAL AXIS WIND TURBINES AT
LOW WIND VELOCITIES***

Pedro Baracat, Kamal Abdel Radi Ismail

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