

# HEFAT 2019

## Wicklow, Ireland

22 – 24 July 2019



### Heat Transfer, Fluid Mechanics and Thermodynamics

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## 14th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics

### Dates

21 July 2019 | Arrival, Registration & Welcome Function  
22 - 24 July 2019 | Conferencing & Banquet Dinner (24 July 2019)  
25 July 2019 | Checkout & Departure

### Venue

POWERSCOURT HOTEL RESORT & SPA, Wicklow, Ireland

### Purpose

The conference is broad in scope and provides a forum for specialists in heat transfer, fluid mechanics and thermodynamics from all corners of the globe to present the latest progress and developments in the field. The broad scope brings together a wide range of research areas from narrow fundamental work in nanofluids to import applications such as in the broad fields of energy, manufacturing, biomedical processes, production, education, instrumentation and control, and MEMS. This will not only allow the dissemination of the state of the art, but it will serve as a catalyst for discussions on future directions and priorities in these areas. The additional purpose of this conference is to initiate collaboration in research.

## Journal articles

It is the tradition of this conference that selected papers will be published in special issues of archival journals on the ISI list



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## Destination

### COUNTRY: IRELAND

Ireland is an island in the North Atlantic. It is separated from Great Britain to its east by the North Channel, the Irish Sea, and St George's Channel. Ireland is the third-largest island in Europe.



Politically, Ireland is divided between the Republic of Ireland (officially named Ireland), which covers five-sixths of the island, and Northern Ireland, which is part of the United Kingdom. In 2011, the population of Ireland was about 6.6 million, ranking it the second-most populous island in Europe after Great Britain.



The island's geography comprises relatively low-lying mountains surrounding a central plain, with several navigable rivers extending inland. Its lush vegetation is a product of its mild but changeable climate which is free of extremes in temperature.



## COUNTY: WICKLOW

County Wicklow was the last of the traditional 32 Irish counties to be formed and is part of the Mid-East Region, located in the province of Leinster. It is named after the town of Wicklow, which derives from the Old Norse name Víkingaló, which means "Vikings' Meadow".



Wicklow is colloquially known as the Garden of Ireland. It is the 17th-largest of Ireland's 32 counties by area, being thirty-three miles in length by twenty miles in breadth, and 16th-largest by population.



The adjoining counties are Wexford to the south, Carlow to the southwest, Kildare to the west and Dublin to the north.

## ADDITIONAL INFORMATION

### Do I require a visa in order to travel to Ireland?

Depending on where you are travelling from, and through which country/ies you will be transiting, you may require a visa or transit visa.

Please [click here](#) to check if you require a visa to enter Ireland.

For more information on visa requirements for entering Ireland, please [click here](#).

Feel free to contact us should you require an official invitation letter for visa application purposes.

### What currency is used in Ireland?

The currency used in Ireland is the Euro.

- **Symbol:** €
- Subunit: Cent
- Banknotes: €50, €10, €5, €200, €20, €100, €500
- Coins: 1 cent euro coin, 20 cent euro coin, 10 euro cent coin, 2 euro cent coin, €2, 50c, 5c, €1

## Which language is predominantly spoken in Ireland?

The two official languages of the Republic of Ireland are Irish and English. English has been chosen as the first language for a vast majority of the Irish population.

## What is the weather like in Ireland in July?

Summer in Ireland occurs during the months of May, June and July. In summer, the averages for highest temperatures are between 18°C - 20°C (64°F - 68°F).

The warmest months, July and August, get about 18 hours of daylight and it gets dark only after 11pm. Hence the well-worn phrase in Ireland; "sure there's a grand stretch in the evenings".



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## Venue & Accommodation

Please take note of the dates below in order to book your accommodation accordingly:

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### POWERSCOURT HOTEL RESORT & SPA

Powerscourt Hotel Resort & Spa is a totally immersive hotel resort experience. Offering 5 star luxury with genuine warmth, in breath-taking surroundings, delivered by people as individual as you are.



Powerscourt Hotel Resort & Spa has more than 1,111sq. metres/12,030 sq. feet of meeting and conference space. The conference area has its own private entrance, and complimentary high-speed 60MB Wifi is available throughout the hotel.



With 194 luxury rooms and suites to choose from, Powerscourt Hotel Resort & Spa offers possibly the finest Hotel accommodation in the entire Ireland.

## PHYSICAL ADDRESS

Powerscourt Hotel, Powerscourt, County Wicklow, A98 DR12, Ireland

## GPS COORDINATES

- North 53° 11.133

- West 6° 10.850
- Latitude 53.185555
- Longitude -6.180833

## ACCOMMODATION: ROOM TYPES

During the online registration process, you will have the option of booking one of the following room types:

### Classic & Mountain View Deluxe Rooms

At Powerscourt Hotel Resort & Spa, their 60 luxuriously finished Classic Deluxe rooms offer possibly the finest Hotel accommodation in Ireland. These are no ordinary entry level rooms. Located on different floors of the Hotel, several have the option of inter-connecting with Suites for maximum flexibility.



Quantity: 71

#### Single Occupancy Rates:

Classic Deluxe Rooms: € 285.00 per room per night including breakfast (1 person)

Mountain View Deluxe Rooms: € 305.00 per room per night including breakfast (1 person)

#### Double Occupancy Rate:

Classic Deluxe Rooms: € 302.00 per room per night including breakfast (2 people)

Mountain View Deluxe Rooms: € 322.00 per room per night including breakfast (2 people)

#### Room Features:

Signature linens and featherbeds, Many rooms have walk-in wardrobes, Marble bathroom and ESPA bath essentials, Separate Rainforest showers, Separate WC, Double vanities, Lighted make-up mirror and hair dryer, Fluffy bath robes, Recessed TV in the bathroom, Complimentary High-speed wireless Internet access, Electronic finger tip panels for controlling lighting and air-conditioning, Interactive TVs in the bedroom, Multi-line telephones with voicemail, Fully stocked honour bar, Safety deposit box, 24-hour

in-room dining, Daily housekeeping service and Complimentary newspaper.

## Superior Suites

Reflecting a heightened emphasis on comfort and spaciousness, the 31 elegant Superior Suites at Powerscourt Hotel Resort & Spa offer an additional lounge area to enhance your stay. Located across different floors of the hotel, the additional space is as delightful as the attention to detail.



Quantity: 31

Single Occupancy Rate: € 315.00 per room per night including breakfast (1 person)

Double Occupancy Rate: € 332.00 per room per night including breakfast (2 people)

### Room Features:

Substantial relaxed seating area, Marble bathroom and ESPA bath essentials, Separate Rainforest showers, Separate WC, Double vanities, Lighted make-up mirror and hair dryer, Fluffy bath robes, Recessed TV in the bathroom, Complimentary High-speed wireless Internet access, Electronic finger tip panels for controlling lighting and air-conditioning, Interactive TVs in the bedroom, Multi-line telephones with voicemail, Fully stocked Honour bar, Safety deposit box & 24-hour in-room dining.

## Classic Suites

The lap of luxury exemplified, these 53 impeccably appointed Classic Suites each enjoy ample separate living rooms, whilst several boast a charming terrace or balcony. Our impressive Classic Suites are available throughout the Hotel.



*Quantity:* 15

*Single Occupancy Rate:* € 325.00 per room per night including breakfast (1 person)

*Double Occupancy Rate:* € 342.00 per room per night including breakfast (2 people)

***Room Features:***

Signature linens and featherbeds, Many suites have walk-in wardrobes, Separate living room or spacious sitting area, some suites have ornamental fireplaces, Marble bathroom and ESPA bath essentials, Separate Rainforest showers, Separate WC, Double vanities, Lighted make-up mirror and hair dryer, Fluffy bath robes, Recessed TV in the bathroom, Complimentary High-speed wireless Internet access, Electronic finger tip panels for controlling lighting and air-conditioning, Interactive TVs in the bedroom and in the sitting room, Multi-line telephones with voicemail, Fully stocked honour bar, Safety deposit box, 24-hour in-room dining, Daily housekeeping service & Complimentary newspaper.

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**GLENVIEW HOTEL**



Enjoy a good relaxing and peaceful night's sleep in the beautiful surroundings and panoramic views of The Glen of The Downs. Our bedrooms are classically designed to reflect the traditional ambience of the hotel. Located approximately 10 – 20 minute drive from the Powerscourt Hotel Resort & Spa (depending on the traffic). Transfers to/from Powerscourt are not included in the accommodation rate.

## ACCOMMODATION: ROOM TYPES



Quantity: 30 units

Single Occupancy Rate: € 142.00 per room per night including breakfast (1 person)

Double Occupancy Rate: € 162.00 per room per night including breakfast (2 people)

Room Features:

All of our bedrooms include tea/coffee making facilities (Nespresso Coffee Machines), bottled water, ironing facilities, hairdryers & fragrant toiletries, computer and wireless broadband access (complimentary), and 24 hour room service.

Standard rooms include either a double bed or a twin with two single beds.



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## Travel Information

Please take note of the dates below in order to plan your arrival and departure travel:

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## GETTING TO IRELAND BY AIR

International flights into Ireland will arrive at the Dublin International Airport. Not only is this the main travel hub of Ireland, but the closest airport to the hotel and conference venue.

Code: DUB

Website: <https://www.dublinairport.com/>

## GETTING TO THE POWERSCOURT HOTEL RESORT & SPA

Road transfers from the Dublin International Airport, to the Powerscourt Hotel Resort & Spa, can be pre-booked during the online registration process.

You will have the following options to choose from:

### **Private Transfer:**

A private sedan transfer can be booked for yourself and/or your family/colleagues. You will be able to specify the pick-up date and time from the Dublin International Airport.

- Maximum Passengers: 3 Adults/Children
- Approx. Travel Time: 1 hour
- Vehicle Type: Audi A4 or similar (sedan)
- Rate: € 133.00 one-way (single transfer) per vehicle

### **Group Transfer:**

A seat/s can be booked on group a transfer for yourself and/or your family/colleagues. These will depart from the Dublin International Airport at specific times as seen below (the pick-up location at the airport will be confirmed in due course):

Sunday, 21 July 2019

Transfer 1 | 09h00 (9am)

Transfer 2 | 12h00 (12pm)

Transfer 3 | 15h00 (3pm)

- Maximum Passengers: 16 Adults/Children
- Approx. Travel Time: 1 hour
- Vehicle Type: Mercedes Vito or similar (van)
- Rate: € 45.00 one-way (single transfer) per person

#### Take note:

A minimum of 4 passengers is required per departure time in order to secure a group transfer vehicle. You will have the option of paying a surcharge (for the empty seats), or choosing an alternative transfer time, should there be less than 4 passengers booked on a particular transfer. We will contact you should this need arise.

## **HEADING HOME**

Both private transfer, and group transfer services, will be available on Thursday, 25 July 2019, in order to get back to the Dublin International Airport.



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## Previous HEFAT Conferences

|      |           |                         |
|------|-----------|-------------------------|
| 1st  | HEFAT2002 | Skukuza, South Africa   |
| 2nd  | HEFAT2003 | Victoria Falls, Zambia  |
| 3rd  | HEFAT2004 | Cape Town, South Africa |
| 4th  | HEFAT2005 | Cairo, Egypt            |
| 5th  | HEFAT2007 | Sun City, South Africa  |
| 6th  | HEFAT2008 | Pretoria, South Africa  |
| 7th  | HEFAT2010 | Antalya, Turkey         |
| 8th  | HEFAT2011 | Mauritius               |
| 9th  | HEFAT2012 | Malta                   |
| 10th | HEFAT2014 | Orlando, USA            |
| 11th | HEFAT2015 | Skukuza, South Africa   |
| 12th | HEFAT2016 | Costa Del Sol, Spain    |
| 13th | HEFAT2017 | Portorož, Slovenia      |



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## Conference Organising Committee

### Conference Chair

Prof JP Meyer, University of Pretoria, South Africa

### International Advisory Board

| Title | Initials | Surname  | Institution                                     | Country      |
|-------|----------|----------|-------------------------------------------------|--------------|
| Dr    | A        | Alfahaid | Deputy Minister of International Labour Affairs | Saudi Arabia |
| Prof  | AO       | Arnas    | Military Academy at West Point                  | USA          |
| Prof  | S        | Atalla   | Cairo University                                | Egypt        |
| Dr    | MM       | Awad     | Mansoura University                             | Egypt        |
| Dr    | PK       | Bansal   | The University of Auckland                      | New Zealand  |
| Prof  | A        | Bejan    | Duke University                                 | USA          |
| Prof  | ZB       | Bogdan   | University of Zagreb                            | Croatia      |
| Dr    | A        | Briggs   | University of London                            | UK           |
| Dr    | C        | Canpolat | Cukurova University                             | Turkey       |

|      |     |                   |                                                |                   |
|------|-----|-------------------|------------------------------------------------|-------------------|
| Dr   | I   | Carvajal-Mariscal | National Polytechnic Institute                 | Mexico            |
| Dr   | GP  | Celata            | ENEA, Institute of Thermal-Fluid Dynamics      | Italy             |
| Dr   | PC  | Chisale           | University of Zambia                           | Zambia            |
| Dr   | A   | Dayan             | Tel Aviv University                            | Israel            |
| Prof | M   | De Paepe          | Gent University                                | Belgium           |
| Prof | AAM | Delil             | Advanced Aerospace Thermal Control Systems     | The Netherlands   |
| Prof | MF  | El-Amin           | South Valley University                        | Egypt             |
| Prof | H   | El-Dessouky       | Al-Imam Mohammad Ibn Saud Islamic University   | Saudi Arabia      |
| Prof | RO  | Fagbenle          | University of Ibadan                           | Nigeria           |
| Dr   | F   | Farshad           | Lafayette Louisiana                            | USA               |
| Dr   | P   | Filip             | Insitute of Hydrodynamics                      | Czech Republic    |
| Prof | TR  | Fodemski          | Lodz Technical Univesity                       | Poland            |
| Prof | MEL | Ganaoui           | University de Limogs                           | France            |
| Prof | AJ  | Ghajar            | Oklahoma State University                      | USA               |
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| Dr   | MS  | Hamed             | McMaster University                            | Canada            |
| Prof | SC  | Gupta             | Indian Institution of Technology Roorkee       | India             |
| Prof | JG  | Gyls              | Kaunas University of Technology                | Lithuania         |
| Dr   | B   | Corcoran          | Dublin City University                         | Rep of Ireland    |
| Prof | AM  | Jacobi            | University of Illinois at Urbana-Champaign     | USA               |
| Prof | SG  | Kandlikar         | Rochester Institute of Technology              | USA               |
| Prof | AS  | Mujumdar          | National University of Singapore               | Singapore         |
| Prof | SM  | Murshed           | University of Lisbon                           | Portugal          |
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| Prof | KY  | Suh               | Seoul National University                      | Korea             |
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| Prof | JR  | Thome             | Swiss Federal Institute of Technology Lausanne | Switzerland       |
| Prof | PS  | Wei               | National Sun Yat-Sen University                | Republic of China |
| Prof | VDZ | Zimparov          | Gabrovo Technical University                   | Bulgaria          |

## Technical Program Committee (HEFAT 2019)

| Name                     | Institution                                                           | Country              |
|--------------------------|-----------------------------------------------------------------------|----------------------|
| Abbas Ghasemizad         | University of Guilan                                                  | Iran                 |
| Abhra Chatterjee         |                                                                       | United States        |
| Abraham Kribus           | Tel Aviv University                                                   | Israel               |
| Adekunle Adelaja         | University of Lagos                                                   | Nigeria              |
| Ademola Dare             | University of Ibadan                                                  | Nigeria              |
| Adriano Sciacovelli      | University of Birmingham                                              | United Kingdom       |
| Afshin Goharzadeh        | Khalifa University of Science and Technology                          | United Arab Emirates |
| Ahmed Elsayed            | Kingston University                                                   | United Kingdom       |
| Alan O'Donovan           | Limerick Institute of Technology                                      | Ireland              |
| Alexander Gelfgat        | Tel Aviv University                                                   | Israel               |
| Alexander Stroh          | Karlsruhe Institute of Technology (KIT)                               | Germany              |
| Alexis Coppalle          | CORIA Laboratory                                                      | France               |
| Alexis Cantizano         | Universidad Pontificia Comillas. Institute for Research in Technology | Spain                |
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| Ameziani Djamel Eddine   | University of Sciences and Technology Houari Boumediene               | Algeria              |
| Ana Moita                | Instituto Superior Tecnico Universidade de Lisboa                     | Portugal             |
| Anatoliy Levin           | Melentiev Energy Systems Institute                                    | Russia               |
| Arslan Zabirov           | NRU 'MPEI'                                                            | Russia               |
| Bamiji Adewole           | Obafemi Awolowo University                                            | Nigeria              |
| Bantwal R. (Rabi) Baliga | McGill University                                                     | Canada               |
| Biao Shen                | Kyushu University                                                     | Japan                |
| Bikash Sahoo             | National Institute of Technology Rourkela                             | India                |
| Brusly Solomon           | Karunya Institute of Technology and Sciences                          | India                |
| Carlos Eduardo L Nobrega | CEFET-Rio                                                             | Brazil               |
| Charl (Jat) Du Toit      | North-West University                                                 | South Africa         |
| Chin Pan                 | City University of Hong Kong                                          | Hong Kong            |
| Christian Hermes         | Federal University of Santa Catarina                                  | Brazil               |
| Chukwuemeka Diji         | University of Ibadan                                                  | Nigeria              |
| Claudia Pereira          | Universidade Federal de Minas Gerais                                  | Brazil               |
| Cristobal Cortes         | University of Zaragoza                                                | Spain                |
| Damián Crespi-Llorens    | Universidad Miguel Hernández                                          | Spain                |
| Dariusz Mikielawicz      | Gdańsk University of Technology                                       | Poland               |
| david dyer               | Auburn University                                                     | United States        |
| Dickson Ndenguma         | University of Malawi                                                  | Malawi               |

|                               |                                                    |                |
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| Dinesh Kumar                  | Govt. Polytechnic Nawada                           | India          |
| Doskhan Ybyraimkul            | King Abdullah University of Science and Technology | Saudi Arabia   |
| Dr. Shibani Khanra Jha        | Birla Institute of Technology and Science          | India          |
| Ean Hin Ooi                   | Monash University Malaysia                         | Malaysia       |
| Eldad Avital                  | Queen Mary University of London                    | United Kingdom |
| Eva Arenas                    | Universidad Pontificia Comillas                    | Spain          |
| Farhad Ein-Mozaffari          | Ryerson University                                 | Canada         |
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| Fei Duan                      | Nanyang Technological University                   | Singapore      |
| Fereidoun Jam                 | Ghiasuddin Jamshid Kashani University              | Iran           |
| Francesco Gallerano           | 'Sapienza' University of Rome                      | Italy          |
| Gary Rankin                   | University of Windsor                              | Canada         |
| Gautam Choubey                | MITS UGC AUTONOMOUS INSTITUTE                      | India          |
| Gordon Andrews                | University of Leeds                                | United Kingdom |
| Hadi Taghavifar               | Malayer University                                 | Iran           |
| Haegyun Lee                   | Dankook University                                 | South Korea    |
| haifa El-Sadi                 | Wentworth Institute of Technology                  | United States  |
| Haitao HU                     | Shanghai Jiao Tong University                      | China          |
| Hamid Rahai                   | California State Uinversity                        | United States  |
| Hasan Celik                   | Izmir University of Economics                      | Turkey         |
| Hee Moon                      | Chonnam National University                        | South Korea    |
| Huihe Qiu                     | The Hong Kong University of Science & Technology   | Hong Kong      |
| Ik-Tae Im                     | Chonbuk National University                        | South Korea    |
| Jaap Hoffmann                 | Stellenbosch University                            | South Africa   |
| Ji Hwan Jeong                 | Pusan National University                          | South Korea    |
| JIE HU                        | Kitami Institute of Technology                     | Japan          |
| Jiri Militky                  | Technical university of Liberec                    | Czech Republic |
| Jose Dangelo                  | University of Campinas                             | Brazil         |
| Juan Ignacio Corcoles Tendero | Castilla -La Mancha University                     | Spain          |
| Jussi Saari                   | LUT University                                     | Finland        |
| Kai Choong Leong              | Nanyang Technological University                   | Slovakia       |
| Ken Craig                     | University of Pretoria                             | South Africa   |
| Kentaro Kanatani              | Tsukuba University of Technology                   | Japan          |
| Khaled Sallam                 | Oklahoma State University                          | United States  |
| Kumaresan G                   | CEG, Anna University                               | India          |
| Lech Chmurzyński              | University of Gdańsk                               | Poland         |
| Leonid Dombrovsky             | Joint Institute for High Temperatures              | Russia         |
| Licheng SUN                   | Sichuan University                                 | China          |
| Madhu Agarwal                 | Malaviya National Institute of Technology Jaipur   | India          |

|                           |                                                    |                |
|---------------------------|----------------------------------------------------|----------------|
| Magdalena Piasecka        | Kielce University of Technology                    | Poland         |
| Maheandera Prabu Paulraj  | Indian Institute of Technology Indore              | India          |
| Manabendra Pathak         | Indian Institute of Technology Patna               | India          |
| Marc Miscevic             | University of Toulouse                             | France         |
| Marco Polo-Labarrios      | autonomous metropolitan university                 | Mexico         |
| Mariappan Dharmaraj Nadar | Pillai HOCL College of Engineering and Technology  | India          |
| Marilize Everts           | University of Pretoria                             | South Africa   |
| Mario Farrugia            | University of Malta                                | Malta          |
| Marouen Dghim             | University of sherbrooke                           | Canada         |
| Masayasu Shimura          | Tokyo Institute of Technology                      | Japan          |
| Mathieu Specklin          | Arts et Métiers ParisTech                          | France         |
| Michael Lubwama           | Makerere University                                | Uganda         |
| Mindaugas Valinčius       | Lithuanian Energy Institute                        | Lithuania      |
| Moghtada Mobedi           | Shizuoka University                                | Japan          |
| Mohammad Kamil            | AMU Aligarh                                        | India          |
| Mojtaba Tahani            | University of Tehran                               | Iran           |
| Moosun Kim                | Korea Railroad Research Institute                  | South Korea    |
| MRITYUNJAY KUMAR SINHA    | N. I. T. JAMSHEDPUR                                | India          |
| Muaaz Bhamjee             | University of Johannesburg                         | South Africa   |
| Muhammad Rahman           | Wichita State University                           | United States  |
| Muhammad Wakil Shahzad    | King Abdullah University of Science and Technology | Saudi Arabia   |
| Murat Aktas               | TOBB University of Economics and Technology        | Turkey         |
| Naoto Kakuta              | Tokyo Metropolitan University                      | Japan          |
| Nathan GRANGE             | Laboratoire PRISME/ INSA Centre Val de Loire       | France         |
| Naveen Balla              | Trinity College Dublin                             | Ireland        |
| Nicolas Tauveron          | CEA                                                | France         |
| odesola isaac             | University of Ibadan                               | Nigeria        |
| Olabode Olakoyejo         | University of Lagos                                | Nigeria        |
| Oliver Kinnane            | UCD                                                | Ireland        |
| Paolo Blecich             | University of Rijeka, Faculty of Engineering       | Croatia        |
| Parama Ghoshal            | Jadavpur University                                | India          |
| Parmod Kumar              | Indian Institute of Technology Mandi, Mandi, India | India          |
| Patrick Oosthuizen        | Queen's University                                 | Canada         |
| Peter Heidrich            | University of Applied Science of Kaiserslautern    | Germany        |
| Peter Collings            | University of Glasgow                              | United Kingdom |
| Pourya Forooghi           | Karlsruhe Institute of Technology                  | Germany        |
| Prabha Chand              | National Institute of Technology Jamshedpur        | India          |
| Prashant Singh            | North Carolina State University                    | United States  |
| Rached Ben-Mansour        | KFUPM                                              | Saudi Arabia   |

|                            |                                                              |                |
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| Rajeev Kumar Dohare        | Malaviya National Institute of Technology Jaipur             | India          |
| Ramesh Kate                | Dr Babasaheb Ambedkar Technological University Lonere Raigad | India          |
| Rashid Khan                | Al Imam Mohammad Ibn Saud Islamic University                 | Saudi Arabia   |
| Richard Gould              | North Carolina State University                              | United States  |
| Rijo Jacob Thomas          | TKM College of Engineering                                   | India          |
| Robert Derksen             | University of Manitoba                                       | Canada         |
| Roger Kempers              | York University                                              | Canada         |
| Sae Byul Kang              | Korea Institute of Energy Research                           | South Korea    |
| Saeed Shad                 | Sharif University of Technology                              | Iran           |
| Saheed Adewale Adio        | Obafemi Awolowo University                                   | Nigeria        |
| Sam Mallinson              | Memjet                                                       | Australia      |
| Sani Isa                   | Yobe State University, Damaturu. Nigeria.                    | Nigeria        |
| Santanu Prasad Datta       | BITS Pilani- Hyderabad Campus                                | India          |
| Seamus O'Shaughnessy       | University of Dublin, Trinity College                        | Ireland        |
| Sebastian Ruck             | Karlsruhe Institute of Technology (KIT)                      | Germany        |
| Senthilkumar Sundararaj    | SRM Institute of Science and Technology                      | India          |
| Seong Hyuk Lee             | Chung-Ang University                                         | South Korea    |
| Serge D'Alessio            | University of Waterloo                                       | Canada         |
| sergio quezada             | Universidad Nacional Autónoma de México                      | Mexico         |
| Sohel Murshed              | Instituto Superior Técnico                                   | Portugal       |
| Stefan Elbel               | University of Illinois at Urbana-Champaign                   | United States  |
| Stéphan Barbe              | Cologne University of Applied Sciences                       | Germany        |
| SUMANA GHOSH               | Indian Institute of Technology Roorkee                       | India          |
| Sunita Kruger              | University of Johannesburg                                   | South Africa   |
| Suvanjan Bhattacharyya     | University of Pretoria                                       | South Africa   |
| Swarup Kumar Mahapatra     | Indian Institute of Technology Bhubaneswar                   | India          |
| Tahir Yavuz                | Baskent University                                           | Turkey         |
| Tahsin Engin               | Sakarya University                                           | Turkey         |
| Takahiro Tsukahara         | Tokyo University of Science                                  | Japan          |
| Tawfiq Chekifi             | Research Center in Industrial Technologies CRTI              | Algeria        |
| Thomas Abadie              | Dublin City University                                       | Ireland        |
| Tomasz Zygmunt Kaczmarczyk | Institute of Fluid Flow Machinery Polish Academy of Sciences | Poland         |
| Vaclav Vacek               | CZech Technical University in Prague                         | Czech Republic |
| Victor-Manuel Soto-Frances | Universitat Politècnica València                             | Spain          |
| Vladimir Glazar            | University of Rijeka, Faculty of Engineering                 | Croatia        |
| Wenfu Situ                 | Technical University of Denmark                              | Denmark        |
| Xiaogang Yang              | University of Nottingham Ningbo China                        | China          |
| Xiaohua Wu                 | Royal Military College of Canada                             | Canada         |

|                       |                                                     |        |
|-----------------------|-----------------------------------------------------|--------|
| Xili Duan             | Memorial University of Newfoundland                 | Canada |
| Yan Wang              | Tsinghua University                                 | China  |
| Yuanyuan Wang         | Shanghai Polytechnic University                     | China  |
| Zhixan Ma             | Dalian University of Technology                     | China  |
| Ziya Uddin            | BML Munjal University Gurugram                      | India  |
| ZOU SHUAI             | Doshisha University                                 | Japan  |
| Digvijay Kulshreshtha | C K Pithawala College of Engineering and Technology | India  |



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## Keynotes of Previous Conferences

A list of previous keynote speakers is given below. The decision has been made in 2008 that keynote speakers that has already presented a keynote paper at HEFAT may not be considered again as keynote speakers for the following three HEFAT conferences. The previous keynote speakers were:

| Name               | Affiliation                                                             |
|--------------------|-------------------------------------------------------------------------|
| <b>HEFAT2002</b>   | <b>1st International Conference: Kruger National Park, South Africa</b> |
| Adrian Bejan       | Duke University, USA                                                    |
| Beric Skews        | University of the Witwatersrand, South Africa                           |
| Satish G Kandlikar | Rochester Institute of Technology, USA                                  |
| Antony Jacobi      | University of Illinois at Urbana-Champaign, USA                         |
| Jungho Kim         | University of Maryland, USA                                             |
| Liqiu Wang         | University of Hong Kong                                                 |
| AAM Delil          | National Aerospace Laboratory NLR, Netherlands                          |
| Detliv Kroger      | University of Stellenbosch, South Africa                                |
| <b>HEFAT2003</b>   | <b>2nd International Conference: Victoria Falls, South Africa</b>       |
| Kyoji Kamemoto     | Yokohama National University, Japan                                     |
| Dimos Poulikakos   | Swiss Federal Institute of Technology, Switzerland                      |
| KN Seetharamu      | USM Engineering, Malaysia                                               |

|                                 |                                                                           |
|---------------------------------|---------------------------------------------------------------------------|
| Pega Hrnjak                     | University of Illinois at Urbana-Champaign                                |
| <b>HEFAT2004</b>                | <b>3rd International Conference: Cape Town, South Africa</b>              |
| John R Thome                    | Swiss Federal Institute of Technology, Lausanne, Switzerland              |
| Afshin Ghajar                   | Oklahoma State University                                                 |
| H Hayami                        | Kyushu University, Japan                                                  |
| Leon Liebenberg                 | University of Pretoria, South Africa                                      |
| <b>HEFAT2005</b>                | <b>4th International Conference: Cairo, Egypt</b>                         |
| VK Dhir                         | University of California, USA                                             |
| Holger Martin                   | Karlsruhe University, Germany                                             |
| G Hetsroni                      | Israel Institute of Technology, Israel                                    |
| Y Tsujimoto                     | Osaka University, Japan                                                   |
| P Nithiarasu                    | University of Wales, Swansea, United Kingdom                              |
| AAM Delil                       | Advanced Aerospace Thermal Control Systems                                |
| <b>HEFAT2007</b>                | <b>5th International Conference: Sun City, South Africa</b>               |
| Yas Takata                      | Kyushu University, Japan                                                  |
| Peter Vadasz                    | Northern Arizona University, USA                                          |
| AS Majumdar                     | National University of Singapore                                          |
| AT Prata                        | Federal University of Santa Catarina, Brazil                              |
| IG Shekriladze                  | Georgian Technical University, Georgia                                    |
| Wen-Quan Tao                    | Xi'an Jiaotong University, China                                          |
| Bartoli Carlo                   | University of Pisa, Italy                                                 |
| John R Thome                    | Swiss Federal Institute of Technology, Lausanne, Switzerland              |
| <b>HEFAT2008</b>                | <b>6th International Conference: University of Pretoria, South Africa</b> |
| Adrian Bejan and Sylvie Lorente | Duke University, USA                                                      |
| Adrian Briggs                   | University of London, United Kingdom                                      |
| VV Kulish                       | Nanyang Technological University, Singapore                               |
| K Sefiane                       | University of Edinburgh, United Kingdom                                   |
| Peter Stehlik                   | Brno University of Technology, Czech Republic                             |
| <b>HEFAT2010</b>                | <b>7th International Conference: Antalya, Turkey</b>                      |
| Zahid Ayub                      | Isotherm, Inc., USA                                                       |
| Afshin Ghajar                   | Oklahoma State University, USA                                            |
| Thomas McKrell                  | MIT, USA                                                                  |
| Pradeep Bansal                  | University of Auckland, New Zealand                                       |
| Ranganathan Kumar               | University of Central Florida, USA                                        |
| Charles Ward                    | University of Toronto, Canada                                             |
| Oleg Kabov                      | Universite Libre de Bruxelles, Belgium                                    |
| <b>HEFAT2011</b>                | <b>8th International Conference: Mauritius</b>                            |
| Dongsheng Wen                   | Queen Mary University of London, UK                                       |
| John Thome                      | EPFL, Switzerland                                                         |

|                      |                                                                          |
|----------------------|--------------------------------------------------------------------------|
| Qiuwang Wang         | Xi'an Jiaotong University, China                                         |
| Michel de Paepe      | Ghent University, Belgium                                                |
| Gordon Mallinson     | The University of Auckland                                               |
| Pega Hrnjak          | University of Illinois, USA                                              |
| Md. Mahbub Alam      | University of Pretoria, South Africa                                     |
| <b>HEFAT2012</b>     | <b>9th International Conference: Malta</b>                               |
| Avi Bar-Cohen        | University of Maryland, USA                                              |
| Brian Spalding       | CHAM, UK                                                                 |
| Tilak Chandratilleke | Curtin University, Australia                                             |
| John Chai, UAE       | Petroleum Institute, UAE                                                 |
| Tunde Bello-Ochende  | University of Pretoria, South Africa                                     |
| Remi Revellin        | National Institute of Applied Sciences of Lyon, France                   |
| <b>HEFAT2014</b>     | <b>10th International Conference: Orlando</b>                            |
| Cees van der Geld    | Eindhoven University of Technology, Netherlands                          |
| Huihe Qiu            | Hong Kong University of Science and Technology, Hong Kong                |
| Zhixiong Guo         | Rutgers University, USA                                                  |
| Christos Markides    | Imperial College, UK                                                     |
| Ana Moita            | Lisbon University, Portugal                                              |
| Sebastian Volz       | CNRS, France                                                             |
| Rick de Lange        | Eindhoven University of Technology, Netherlands                          |
| Mikhail Liberman     | KTH Royal Institute of Technology, Sweden                                |
| Bale Reddy           | University of Ontario, Canada                                            |
| Martin Oberlack      | Technical University Darmstadt, Germany                                  |
| Dean Vucinic         | Vrije Universiteit Brussels, Belgium                                     |
| <b>HEFAT2015</b>     | <b>11th International Conference: Kruger National Park, South Africa</b> |
| Pega Hrnjak          | University of Illinois at Urbana-Champaign, USA                          |
| Alexander Yarin      | University of Illinois at Chicago, USA                                   |
| Sadik Kakac          | TOBB University Economics and Technology, Turkey                         |
| Stephane Lips        | INSA Lyon, France                                                        |
| Davide del Col       | University of Padova, Italy                                              |
| Patrick Oosthuizen   | Queen's University, Canada                                               |
| <b>HEFAT2016</b>     | <b>12th International Conference: Costa del Sol, Spain</b>               |
| Xianfan Xu           | Purdue University, USA                                                   |
| Koji Takahashi       | Kyushu University, Japan                                                 |
| Andrea Cioncolini    | University of Manchester, UK                                             |
| Luisa F Cabeza       | University of Lleida, Spain                                              |
| Ozer Arnas           | Military Academy of West Point, USA                                      |
| <b>HEFAT2017</b>     | <b>13th International Conference: Portorož, Slovenia</b>                 |
| Matjaž Hriberšek     | University of Marlbor, USA                                               |

|                  |                                                                    |
|------------------|--------------------------------------------------------------------|
| Igor Piori       | University of Ontario Institute of Technology, Canada              |
| Yulong Ding      | University of Birmingham, UK                                       |
| Mohammed Farid   | University of Auckland, New Zealand                                |
| Shoji Mori       | Yokohama National University, Japan                                |
| Catherine Colin  | INSA Lyon, France                                                  |
| Matteo Bucci     | Massachusetts Institute of Technology, USA                         |
| <b>HEFAT2019</b> | <b>14th International Conference: Wicklow, Ireland</b>             |
| Pamela Norris    | University of Virginia, United States                              |
| Kim Choon Ng     | King Abdullah University of Science and Technology, Saudi Arabia   |
| Prashant Valluri | School of Engineering, The University of Edinburgh, United Kingdom |
| Masayasu Shimura | Tokyo Institute of Technology, Japan                               |
| Fei Duan         | Nanyang Technological University, Singapore                        |
| Marcelo De Lemos | Instituto Tecnologico de Aeronautica - ITA, Brazil                 |



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#### FULL-LENGTH MANUSCRIPT SUBMISSIONS

Closes: 24h00 (GMT +2) on Thursday, 28 March 2019

**FINAL EXTENTION 24H00 (GMT +2) on THURSDAY, 11 APRIL 2019**

Full text papers (in PDF format only) will only be considered if submitted via the online submission system. In addition, manuscripts must follow the style of the conference and are subject to both peer review and editing.

The full-length manuscript must be submitted as a PDF file and should be limited to a maximum length of six pages. Keynote papers are limited to a maximum length of 15 pages.

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## Registration Information

### Registration on the website

The online registration portal for 14th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics is open!

**[CLICK HERE TO REGISTER](#)**

Once you have completed the step-by-step online registration, you will have the option of paying immediately online using a credit card, or alternatively, to download a copy of your invoice for payment via EFT / Wire Transfer.

Please don't hesitate to contact [Angus Morton](#) should you need any assistance.

### Maximum number of papers

The maximum number of papers a paying author may submit is two. Between two paying authors, four papers may be submitted. One author may submit more than two papers, but must then pay an additional 50% of the registration fee for every paper more than two.

## Who must pay the registration fee?

Every delegate attending the conference must pay the conference fee (a student must pay the student fee, a retired academic must pay the retired academic fee and all other delegates must pay the fee for delegates). For every paper that is accepted and published in the conference proceedings, at least one of the authors must pay the fee. One of the authors must present the paper in person at the conference.

## Payment of Conference Fees

### Early payment (before or on 1 April 2019)

- Delegate:€700
- Student:€650
- Retired academic:€650
- Accompanying person:€155 (partner/friend or child to also attend the Welcome and Banquet; but not the conference)

### Registration (after 1 April 2019 and not later than 22 May 2019)

- Delegate:€800
- Student:€750
- Retired academic:€750
- Accompanying person:€165 (partner or child to also attend the Welcome and Banquet; but not the conference)

### Registration fee includes:

- Welcome pack (delegate badge and accreditation, programme, and conference proceedings on a USB flash drive). Take note that the proceedings will be available only electronically. Only a programme booklet will be made available on paper.
- Tea/Coffee breaks
- Light lunch
- Welcome
- Awards ceremony and conference banquet.

### Registration fee for accompanying persons includes:

- Welcome function
- Awards ceremony and conference banquet.

### Welcome function (Sunday, 22 July 2019, 18:00-19:00)

### Awards ceremony and conference banquet (Wednesday, 24 July 2019, 20:30-23:30)

*Certificate awards will be given to the best paper of every session.*

## CANCELLATION POLICY

Applicable to accommodation, transport & optional activity bookings only:

- 60 Days prior to arrival: 25% cancellation fee payable if cancelled on or after 21 May 2019.
- 45 Days prior to arrival: 50% cancellation fee payable if cancelled on or after 05 June 2019
- 30 Days prior to arrival: 100% cancellation fee payable if cancelled on or after 21 June 2019.

## TERMS, CONDITIONS AND RATES

All terms, conditions, dates and rates are subject to change (with changes to be made on the website only and without any other notifications).



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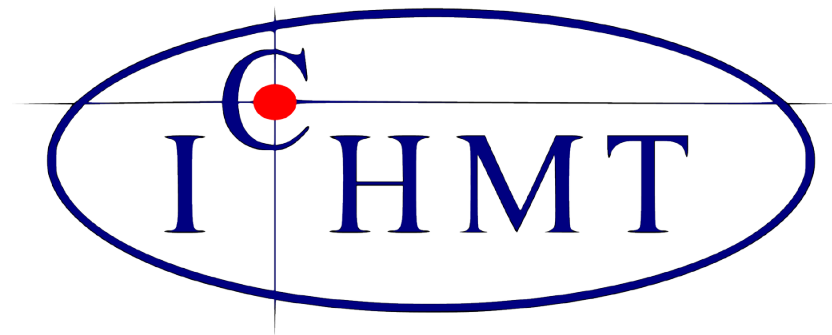


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## Contact Information

### SCHOLARLY MATTERS

For all queries pertaining to abstracts, manuscripts and the conference programme:

#### Conference Chair

**Prof. Josua Meyer**  
*University of Pretoria*  
South Africa  
[Josua.meyer@up.ac.za](mailto:Josua.meyer@up.ac.za)

### ADMINISTRATIVE MATTERS

**For all queries pertaining to payment of registration fees, travel, visas, accommodation and all other logistical issues:**

## Conference Co-ordinators

**africa****MASSIVE**

South Africa

[hefat@africamassive.co.za](mailto:hefat@africamassive.co.za)

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## Program: Overview

The following program displays a day-by-day overview of the complete conference schedule including a breakdown of the individual sessions. The *Poster Sessions* are not displayed on this page but can be viewed on both the *Program: My Agenda* page, as well as the *Program: Poster Sessions* page.

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*Additional Information:*

1. You can click on any title to open the presentation details.

2. The following details can be seen immediately below:

- *Presentation Title*
- *Venue*
- *Speaker*
- *Time*
- *Session / Track*

| 21/07/2019    |                                                    | Printable agenda |
|---------------|----------------------------------------------------|------------------|
| 12:00 - 17:00 | <b>CHECK-IN &amp; REGISTRATION</b><br>Venue: Foyer |                  |
| 18:00 - 19:00 | <b>WELCOME</b><br>Venue: Foyer                     |                  |

| 22/07/2019    |                                                                                                                                                                                    |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         | Printable agenda |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 07:00 - 08:30 | <b>REGISTRATION</b><br>Venue: Foyer                                                                                                                                                |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         |                  |
| 08:30 - 09:00 | <b>OPENING ADDRESS BY CONFERENCE CHAIR</b><br>Venue: Ballroom<br>Prof. Josua Meyer, University of Pretoria                                                                         |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         |                  |
| 09:00 - 09:40 | <b>KEYNOTE</b>                                                                                                                                                                     |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         |                  |
| 09:40 - 10:20 | <b>TURBULENCE CHARACTERISTICS AND BOUNDARY LAYER BEHAVIORS IN A TUMBLE-ENHANCED GASOLINE ENGINE</b><br>Venue: Ballroom<br>Prof. Masayasu Shimura, Tokyo Institute of Technology    |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         |                  |
|               | <b>SECRETIVE HYDRODYNAMICS DURING PHASE-CHANGE</b><br>Venue: Ballroom<br>Dr Prashant Valluri, University of Edinburgh                                                              |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         |                  |
| 10:20 - 10:40 | <b>MID-MORNING TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                                                |                                                                                                                                                                                           |                                                                                                                                                                                      |                                                                                                                                                                                                |                                                                                                                                                                         |                  |
| 10:40 - 11:00 | AERODYNAMICS 1                                                                                                                                                                     | TWO-PHASE FLOW 1                                                                                                                                                                          | AIR CONDITIONING AND REFRIGERATION                                                                                                                                                   | HEAT EXCHANGERS 1                                                                                                                                                                              | NON-LINEAR THERMAL FLUID PHENOMENA                                                                                                                                      |                  |
| 11:00 - 11:20 | <b>OVERVIEW OF MODELING FOR UNDEREXPANDED GAZ LEAK INTO A LIQUID</b><br>Venue: Ballroom<br>Mr Alexandre Allou, CEA                                                                 | <b>EXPERIMENTAL STUDY ON LIQUID DISTRIBUTION IN A VANE TYPE PROPELLANT TANK BY DROP TOWER TEST</b><br>Venue: Glencree & Roundwood<br>Dr. Wen Li, Beijing Institute of Control Engineering | <b>CFD MODELING OF AIRFLOWS INSIDE THE UPPER CABIN OF AN INDUSTRIAL BEVERAGE COOLER</b><br>Venue: Laragh & Glenealy<br>Dr Farzin Abbasian, Sheridan College                          | <b>PRESSURE DROP CHARACTERISTICS OF TRANSITIONAL FLOW THROUGH A SMOOTH TUBE WITH PERIPHERAL U-CUT TWISTED TAPE INSERTS</b><br>Venue: Enniskerry<br>Dr. Marilize Everts, University of Pretoria | <b>A NEW GENERALIZED IBL MODEL FOR FLOW DOWN AN INCLINE</b><br>Venue: Heritage Suite<br>Prof. Serge D'Alessio, University of Waterloo                                   |                  |
|               | <b>COMPARISON OF HYBRID MULTI-DIMENSIONAL NUMERICAL MODELS OF A BI-STABLE LOAD-SWITCHED SUPERSONIC FLUIDIC OSCILLATOR</b><br>Venue: Ballroom<br>Gary Rankin, University of Windsor | <b>EXPERIMENTAL ANALYSIS OF THE DEPOSITION OF MAGNETIC BEADS ON THE WALL OF MICROCHANNELS</b><br>Venue: Glencree & Roundwood<br>Dr Sylvana Varela Ballesta,                               | <b>ABOUT USING THE MINIMUM ENERGY DISSIPATION TO FIND THE STEADY-STATE FLOW DISTRIBUTION IN NETWORKS</b><br>Venue: Laragh & Glenealy<br>phD. Victor-Manuel Soto-Frances, Universitat | <b>INFLUENCE OF THE WORKING FLUID ON THE PERFORMANCES OF AN AIR TO AIR PULSATING HEAT PIPE COOLER</b><br>Venue: Enniskerry<br>Dr Bruno Agostini, ABB Switzerland Ltd.                          | <b>BASIC FLOWS AND HEAT TRANSFER OF THERMAL MARANGONI CONVECTION IN RECTANGULAR LIQUID FILM</b><br>Venue: Heritage Suite<br>Dr. Takahiro Tsukahara, Tokyo University of |                  |

|               |                                                                                                                                                                           |                                                                                                                                                                                              |                                                                                                                                                                                            |                                                                                                                                                                        |                                                                                              |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
|               |                                                                                                                                                                           | Universitat Rovira i Virgili                                                                                                                                                                 | Politécnica València                                                                                                                                                                       |                                                                                                                                                                        | Science                                                                                      |
| 11:20 - 11:40 | NON-UNIFORM HEATING CORRECTION FOR TEMPERATURE DECLINE THERMOGRAPHY<br>Venue: Ballroom<br>Mr Stefan von Hoesslin, MTU Aero Engines AG                                     | AN EXPERIMENTAL STUDY OF FLOW BOILING IN FRACTAL-LIKE MINICHANNELS FABRICATED BY SELECTIVE LASER MELTING<br>Venue: Glencree & Roundwood<br>Mr Yao Song See, Nanyang Technological University | QUANTIFICATION OF LOCAL AIR-SIDE HEAT TRANSFER COEFFICIENT USING COLOR-CHANGE COATINGS<br>Venue: Laragh & Glenealy<br>Prof. Stefan Elbel, University of Illinois at Urbana-Champaign       | INVESTIGATION OF AN INNOVATIVE ADSORBENT COATED ADSORPTION CYCLE<br>Venue: Enniskerry<br>Dr Muhammad Wakil Shahzad, King Abdullah University of Science and Technology | TEMPERATURE BEHAVIOR OF SALT-BITUMEN MIX<br>Venue: Heritage Suite<br>Dr Paul Jourda, CEA/DEN |
| 11:40 - 12:00 | COUNTER-ROTATING CENTRIFUGAL COMPRESSOR DESIGN AND OPTIMIZATION<br>Venue: Ballroom<br>Mr Cheikh Brahim Abed, Arts & Métiers ParisTech                                     | PRESSURE DROP OF HIGH-QUALITY AIR-WATER TWO-PHASE FOAM FLOW IN A VERTICAL CIRCULAR PIPE<br>Venue: Glencree & Roundwood<br>Prof Ji Hwan Jeong, Pusan National University                      | THE EFFECTS OF AIRFLOW NONUNIFORMITY ON FIN-AND-TUBE HEAT EXCHANGERS: AN EXPERIMENTAL STUDY<br>Venue: Laragh & Glenealy<br>Mr. Josip Batista, University of Rijeka, Faculty of Engineering | NUMERICAL SIMULATION OF THE HEAT TRANSFER PROCESS OF A NON-NEWTONIAN FLUID<br>Venue: Enniskerry<br>Dr Juan Ignacio Corcoles Tendero, Castilla -La Mancha University    |                                                                                              |
| 12:00 - 12:20 | FLOW-FIELDS FOR UPSTREAM FILM COOLING CONFIGURATION IN A VANE CASCADE<br>Venue: Ballroom<br>Mrs Barbara Huyssen, University of Pretoria                                   | REACTIVE AND NON-REACTIVE LIQUID-LIQUID DISPERSED FLOW IN A SERPENTINE MINI REACTOR<br>Venue: Glencree & Roundwood<br>Dr Sumana Ghosh, Indian Institute of Technology Roorkee                | CFD ANALYSIS OF SOLAR COLLECTOR WITH TRUNCATED HEMISPHERICAL VORTEX GENERATORS<br>Venue: Laragh & Glenealy<br>Mr. Parag Jyoti Bezbaruah, National Institute of Technology Meghalaya        | IMPROVEMENTS OF HEAT EXCHANGERS SUITED FOR THE HIGH-TECH ELECTRONICS<br>Venue: Enniskerry<br>Prof Vaclav Vacek, CZech Technical University in Prague                   |                                                                                              |
| 12:20 - 12:40 | MEANDERING MECHANISMS OF AN ACTUATED WING-TIP VORTEX USING PROPER ORTHOGONAL DECOMPOSITION (POD)<br>Venue: Ballroom<br>Mohsen Ferchichi, Royal Military College of Canada |                                                                                                                                                                                              | MICROCHANNEL HEAT EXCHANGER AIR SIDE HEAT TRANSFER ANALYSIS AND OPTIMIZATION<br>Venue: Laragh & Glenealy<br>Dr. Vladimir Glazar, University of Rijeka                                      | SHELL-AND-TUBE HEAT EXCHANGER OPTIMIZATION - IMPACT OF PROBLEM FORMULATION AND COST FUNCTION<br>Venue: Enniskerry<br>Dr Jussi Saari, LUT University                    |                                                                                              |
| 12:40 - 13:40 | LUNCH<br>Venue: Foyer                                                                                                                                                     |                                                                                                                                                                                              |                                                                                                                                                                                            |                                                                                                                                                                        |                                                                                              |
| 13:40 - 14:00 | MULITPHASE FLOW 1                                                                                                                                                         | EXPERIMENTAL METHODS                                                                                                                                                                         | CONDENSATION                                                                                                                                                                               | COMPUTATIONAL FLUID DYNAMICS 1                                                                                                                                         | SPRAYS                                                                                       |
|               |                                                                                                                                                                           |                                                                                                                                                                                              |                                                                                                                                                                                            |                                                                                                                                                                        |                                                                                              |

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|               | <p>USING COUPLED CFD-PBM AND TOMOGRAPHY TO ANALYZE GAS DISPERSION IN AN AERATED TANK EQUIPPED WITH A COAXIAL MIXER</p> <p>Venue: Ballroom</p> <p>Professor Farhad Ein-Mozaffari, Ryerson University</p> | <p>ADVANCED PRESSURE SWING ADSORPTION DESALINATION CYCLE COMBINED WITH THERMAL VAPOR COMPRESSION</p> <p>Venue: Glencree &amp; Roundwood</p> <p>Dr. Doskhan Ybyraiymkul, King Abdullah University of Science and Technology</p>                                         | <p>MICRO-STRUCTURED SURFACES IN CONDENSATION: EXPERIMENTAL APPROACH AND HEAT TRANSFER ANALYSIS</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Mr. Prof. Dr. Mehmet Arik, Özyegin University</p>              | <p>A NUMERICAL STUDY ON THE FINITE-VOLUME BASED TOPOLOGY OPTIMIZATION FOR THE AERO-THERMAL PERFORMANCE OF A FIN-SHAPED STRUCTURE</p> <p>Venue: Enniskerry</p> <p>Mr Jun Seok Lee, Pusan National University</p> | <p>EXPERIMENTAL STUDY ON THE HEATTRANSFER CHARACTERISTICS OF CRYOGEN SPRAY COOLING COUPLED WITH COLD AIRJET</p> <p>Venue: Heritage Suite</p> <p>Ms Guo Xiaoxing, Xi'an Jiaotong University</p>                                                                           |
| 14:00 - 14:20 | <p>EFFECTS OF GRAVITATIONAL FORCES ON SELF-PROPELLED DROPLET JUMPING</p> <p>Venue: Ballroom</p> <p>Mr. Patric Figueiredo, RWTH Aachen University</p>                                                    | <p>CONJUGATE NATURAL CONVECTION AND SURFACE RADIATION IN A PARTIALLY OPEN DIFFERENTIALLY HEATED CAVITY WITH A DISCRETE HEAT SOUCE AT BOTTOM</p> <p>Venue: Glencree &amp; Roundwood</p> <p>Prof. Swarup Kumar Mahapatra, Indian Institute of Technology Bhubaneswar</p> | <p>AN EFFECT OF EXTERNAL ELECTRIC FIELD ON DYNAMICS OF A LEVITATING CLUSTER OF WATER DROPLETS</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Dr Leonid Dombrovsky, Joint Institute for High Temperatures</p> | <p>NUMERICAL INVESTIGATION OF NATURAL CONVECTION HEAT TRANSFER FROM BENT PLATE WITH CONSTANT WALL HEAT FLUX</p> <p>Venue: Enniskerry</p> <p>Mr Shibajee Behera, IIT Kharagpur</p>                               | <p>EXPERIMENTAL INVESTIGATION OF HYDRODYNAMICS AND HEAT TRANSPORT DURING VERTICAL COALESCENCE OF TWO DROPS CONSEQUENTLY IMPACTING ONTO A HOT WALL</p> <p>Venue: Heritage Suite</p> <p>Apl. Prof. Dr. Sc. Tatiana Gambaryan-Roisman, Technische Universität Darmstadt</p> |
| 14:20 - 14:40 | <p>THE BEHAVIOR OF AERODYNAMICALLY DRIVEN RIVULET FLOWS</p> <p>Venue: Ballroom</p> <p>Mr Johannes Feldmann, TU Darmstadt</p>                                                                            | <p>EXPERIMENTAL ANALYSIS OF PARAMETERS INFLUENCING THE HUMIDIFICATION OF AIR IN BUBBLE COLUMNS FOR THERMAL WATER TREATMENT SYSTEMS</p> <p>Venue: Glencree &amp; Roundwood</p> <p>Mr Elias Eder, Vorarlberg University of Applied Sciences</p>                          | <p>LAMINAR FILM CONDENSATION ON A VERTICAL SURFACE WITH AN UPWARD VAPOR FLOW</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Dr. Kentaro Kanatani, Tsukuba University of Technology</p>                       | <p>EFFECT OF FLOW AND GEOMETRIC CONFIGURATION ON OXYGEN SEPARATION PRODUCTIVITY OF ION TRANSPORT MEMBRANES</p> <p>Venue: Enniskerry</p> <p>Prof. Rached Ben-Mansour, KFUPM</p>                                  | <p>FAST SPRAY COOLING: EFFECT OF THE LIQUID TEMPERATURE</p> <p>Venue: Heritage Suite</p> <p>Mr Fabian M. Tenzer, TU Darmstadt</p>                                                                                                                                        |
| 14:40 - 15:00 | <p>TREND OF EXPERIMENTAL NATURAL CONVECTION OF NANOFLUIDS</p> <p>Venue: Ballroom</p> <p>Prof Soheli Murshed, Instituto Superior Técnico</p>                                                             | <p>NEAR-INFRARED TEMPERATURE MEASUREMENT OF WATER NEAR MICRO-MAGNETIC PARTICLES IN THE MICROFLUIDIC CHANNEL UNDER HIGH-</p>                                                                                                                                            | <p>EXPERIMENTAL STUDY OF A HEAT EXCHANGER INTEGRATING THE PUMPING FUNCTION</p> <p>Venue: Enniskerry</p> <p>Dr. Marc Miscevic, University of Toulouse</p>                                                 | <p>INVESTIGATIONS OF A PIPE-JET WITH AN ANNULAR CAVITY INTO A CROSSFLOW</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Mr. Jeremy Bonifacio, California State University</p>                                        |                                                                                                                                                                                                                                                                          |

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|               |                                                                                                                                                                     | <b>FREQUENCY INDUCTION HEATING</b><br>Venue: Glencree & Roundwood<br>Mr Han Van Cuong, Tokyo Metropolitan University                                                                                                         |                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                |
| 15:00 - 15:20 |                                                                                                                                                                     |                                                                                                                                                                                                                              | <b>NUMERICAL INVESTIGATION OF THE EFFECT OF CONJUGATE HEAT TRANSFER ON SULFURIC ACID CONDENSATION IN A LARGE TWO-STROKE MARINE DIESEL ENGINE</b><br>Venue: Laragh & Glenealy<br>Jiun Cai Ong, Technical University of Denmark | <b>NUMERICAL SIMULATION OF FREEZING PROCESS OF STRAWBERRY UNDER COLD NITROGEN BLAST</b><br>Venue: Enniskerry<br>Prof. Hongbo Xu, Technical Institute of Physics and Chemistry, CAS                                                                              |                                                                                                                                                                                |
| 15:20 - 15:40 | <b>MID-AFTERNOON TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                               |                                                                                                                                                                                                                              |                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                |
| 15:40 - 16:00 | <b>HEAT TRANSFER ENHANCEMENT 1</b>                                                                                                                                  | <b>COOLING, CRYOGENICS AND ELECTRONIC COOLING</b>                                                                                                                                                                            | <b>ENERGY STORAGE 1</b>                                                                                                                                                                                                       | <b>TURBULENCE AND TURBULENCE FLOWS 1</b>                                                                                                                                                                                                                        | <b>UNSTEADY FLOWS</b>                                                                                                                                                          |
| 16:00 - 16:20 | <b>AIR FREE CONVECTION OVER A TWO-SIDED PLATE EXTENDED BY RECTANGULAR HOLLOW BLOCKS</b><br>Venue: Ballroom<br>Dr Vadim Dubovsky, Ben-Gurion University of the Negev | <b>SIMULATION OF HEAT TRANSFER AND PRESSURE DROP IN FLOW BOILING CO2 FOR COOLING SYSTEMS OF PARTICLE PHYSICS DETECTORS</b><br>Venue: Glencree & Roundwood<br>Prof. Dr. Stéphan Barbe, Cologne University of applied Sciences | <b>LOW TEMPERATURE THERMAL STORAGE AS A RANKINE CYCLE COOLING SOLUTION</b><br>Venue: Laragh & Glenealy<br>Dr. Alan O'Donovan, Limerick Institute of Technology                                                                | <b>BOUNDARY LAYER TURBULENCE AND FREESTREAM TURBULENCE INTERFACE, TURBULENT SPOT AND FREESTREAM TURBULENCE INTERFACE, LAMINAR BOUNDARY LAYER AND FREESTREAM TURBULENCE INTERFACE</b><br>Venue: Enniskerry<br>Prof. Xiaohua Wu, Royal Military College of Canada | <b>INFLUENCE OF PULSATION FREQUENCIES ON THE HEAT TRANSFER IN LAMINAR FREE SURFACE JET IMPINGEMENT</b><br>Venue: Heritage Suite<br>Mr Claas Ehrenpreis, RWTH Aachen University |
|               | <b>COZYCAR: DESIGN AND ANALYSIS</b><br>Venue: Ballroom<br>Dr. haifa El-Sadi, Wentworth Institute of Technology                                                      | <b>NUMERICAL INVESTIGATION OF MULTI-PULSED CRYOGEN SPRAY COOLING FOR SKIN COLD PROTECTION IN LASER LIPOLYSIS</b><br>Venue: Glencree & Roundwood<br>Ms Hui Xin, Xi'an Jiaotong University                                     | <b>INVESTIGATION INTO HEAT TRANSFER OF A FLUID-COOLED BATTERY DEPENDING ON DRIVING PROFILE OF ELECTRIC BUSES VIA THERMAL IMPULSE RESPONSE TECHNIQUE</b><br>Venue: Laragh & Glenealy<br>Mr. Sebastian Angermeier,              | <b>MEASUREMENT OF TURBULENT WALL SKIN FICTION IN AN 8 DEGREE CONICAL DIFFUSER</b><br>Venue: Enniskerry<br>Dr. Robert Derksen, University of Manitoba                                                                                                            | <b>COMPUTATIONAL FLUID DYNAMIC MODEL OF A SYNTHETIC JET EJECTOR AND TEST FACILITY</b><br>Venue: Heritage Suite<br>Gary Rankin, University of Windsor                           |

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| 16:20 - 16:40 | NUMERICAL INVESTIGATION OF JET IMPINGEMENT HEAT TRANSFER IN SOLAR RECEIVERS<br>Venue: Ballroom<br>Prof Ken Craig, University of Pretoria                                              | EXERGY-BASED METHODS APPLIED TO THE LOW-TEMPERATURE PROCESSES<br>Venue: Glencree & Roundwood<br>Prof. Tatiana Morosuk, Technical University Berlin                                               | PERFORMANCE CHARACTERISTICS OF PHASE CHANGE ENERGY STORAGE CYLINDRICAL ANNULUS<br>Venue: Laragh & Glenealy<br>Mohamed Alnakeeb, Faculty of Engineering | TURBULENT SCALAR FIELDS AND HEAT OR MASS TRANSFER EQUATIONS FOR TUBE FLOWS WITH LARGE RANGE OF PRANDTL OR SCHMIDT NUMBER<br>Venue: Enniskerry<br>Mr Houjian Zhao, Tsinghua University | INVESTIGATIONS OF UNSTEADY CONDENSATION OF R134A IN A HORIZONTAL PIPE<br>Venue: Heritage Suite<br>Ms Diksha Juggurnath, University of Mauritius |
| 16:40 - 17:00 | CORRELATION BETWEEN DIFFERENT PARAMETERS OF THE VORTEX TUBE AND THE REYNOLDS NUMBER OF THE VORTEX TUBE<br>Venue: Ballroom<br>Ms Rutika Godbole, Indian Institute of Technology Madras | NUMERICAL STUDY OF THE CRYOGENIC COOLING OF AMPLIFIERS FOR HIGH POWER LASERS<br>Venue: Glencree & Roundwood<br>Dr. Morgane Bellec, Univ. Grenoble Alpes, CEA, INAC, SBT                          | EXPERIMENTAL STUDY OF THERMAL PROCESSING LUNAR REGOLITH SIMULANT<br>Venue: Laragh & Glenealy<br>DR Chao Wang, China Academy of Space Technology        | NUMERICAL STUDY OF PROPANE AND HYDROGEN TURBULENT PREMIXED FLAMES IN A SMALL SCALE OBSTRUCTED CHAMBER<br>Venue: Enniskerry<br>Mr. Mohamed Elshimy, Loughborough University            |                                                                                                                                                 |
| 16:40 - 17:00 | HEAT TRANSFER OF LIQUID-LIQUID TWO-PHASE FLOW IN MICROCHANNELS<br>Venue: Ballroom<br>Mr. Ayoub Abdollahi, UoA                                                                         | EXPERIMENTAL INVESTIGATION ON THE START-UP TIME OF A SMALL-SCALE DIFFUSION ABSORPTION REFRIGERATION (DAR) UNIT<br>Venue: Glencree & Roundwood<br>Prof Christos Markides, Imperial College London | EXPERIMENTAL EVALUATION OF NOVEL FABRIC THERMAL STORE<br>Venue: Laragh & Glenealy<br>Dr Ahmed Elsayed, Kingston University                             | FLOW PAST A ROUGH HEMISPHERE MOUNTED ON HORIZONTAL SURFACE IN A CONFINED CHANNEL<br>Venue: Enniskerry<br>Dr. Afshin Goharzadeh, Khalifa University of Science and Technology          |                                                                                                                                                 |

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| 23/07/2019    |                                                                                                                                                                            | Printable agenda |
| 08:00 - 09:00 | REGISTRATION<br>Venue: Foyer                                                                                                                                               |                  |
| 09:00 - 09:40 | KEYNOTE                                                                                                                                                                    |                  |
|               | ADVANCES IN MODELING AND SIMULATION OF TRANSPORT PHENOMENA IN HETEROGENEOUS MEDIA<br>Venue: Ballroom<br>Prof. Marcelo De Lemos, Instituto Tecnologico de Aeronautica - ITA |                  |
| 09:40 - 10:20 | TUNING PHONON TRANSPORT: FROM INTERFACES TO NANOSTRUCTURES<br>Venue: Ballroom<br>Prof Pamela Norris, University of Virginia                                                |                  |
| 10:20 - 10:40 | MID-MORNING TEA/COFFEE BREAK                                                                                                                                               |                  |

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|               | Venue: Foyer                                                                                                                                                                                              |                                                                                                                                                                                                                  |                                                                                                                                                                                                 |                                                                                                                                                                |                                                                                                                                                                                                                    |
| 10:40 - 11:00 | DUCT AND CHANNEL FLOW                                                                                                                                                                                     | CONVECTION HEAT TRANSFER 1                                                                                                                                                                                       | BOILING 1                                                                                                                                                                                       | POROUS FLOWS AND MEDIA                                                                                                                                         | GAS TURBINES                                                                                                                                                                                                       |
|               | EXPERIMENTAL ANALYSIS OF FLUID FLOW FLUCTUATIONS IN THE INTAKE PORT OF A SMALL INTERNAL COMBUSTION ENGINE<br>Venue: Ballroom<br>Prof. Dr. Peter Heidrich, University of Applied Science of Kaiserslautern | EFFECT OF INCLINATION BUOYANCY ON THE FULLY DEVELOPED FRICTION FACTORS IN THE LAMINAR AND TRANSITIONAL FLOW REGIMES OF SMOOTH TUBE<br>Venue: Glencree & Roundwood<br>Dr. Marilize Everts, University of Pretoria | ENHANCEMENT OF POOL BOILING HEAT TRANSFER USING 3D PRINTED POLYMER FIXTURES<br>Venue: Laragh & Glenealy<br>Dr. Roger Kempers, York University                                                   | PRESSURE DROP THROUGH RANDOMLY PACKED BEDS OF ELLIPSOIDAL PARTICLES<br>Venue: Enniskerry<br>Dr Jaap Hoffmann, Stellenbosch University                          | THERMALLY DRIVEN CHILLER AND POWER GENERATION TO ENHANCE GAS TURBINE PRODUCTION DURING PEAK DEMAND<br>Venue: Heritage Suite<br>Dr. Nicolas Tauveron, CEA                                                           |
| 11:00 - 11:20 | EVALUATION OF THE 1D MODELLING OF FORCED CONVECTION HEAT TRANSFER IN DUCTS<br>Venue: Ballroom<br>Prof Charl Du Toit, North-West University                                                                | EXTENSIONS OF NODAL INTEGRAL METHODS FOR HEAT AND MASS TRANSFER PROBLEMS IN ARBITRARY GEOMETRIES<br>Venue: Glencree & Roundwood<br>Prof. Rizwan Uddin, University of Illinois                                    | COOLING OF MOLTEN MATERIAL IN THE BOTTOM OF THE VESSEL OF A NUCLEAR REACTOR DURING A SEVERE ACCIDENT<br>Venue: Laragh & Glenealy<br>Dr. Sergio Quezada, Universidad Nacional Autónoma de México | DETERMINATION OF AN OPTIMAL INITIAL CONDITION FOR THERMALLY STABLE DEEP DISPOSAL OF HIGH LEVEL RADIOACTIVE WASTE<br>Venue: Enniskerry<br>Mr Minseop Kim, KAIST | ENDWALL ADIABATIC FILM-COOLING EFFECTIVENESS WITH UPSTREAM FILM COOLING SCHEMES IN A FILLETED VANE CASCADE<br>Venue: Heritage Suite<br>Mrs Barbara Huyssen, University of Pretoria                                 |
| 11:20 - 11:40 | CONJUGATE HEAT TRANSFER IN THERMAL INJKET PRINTHEADS<br>Venue: Ballroom<br>Dr Sam Mallinson, Memjet                                                                                                       | CONVONICS: ACOUSTIC FIELD ASSISTED CONFINED NATURAL CONVECTIVE HEAT TRANSFER<br>Venue: Glencree & Roundwood<br>Miss Akshita Swaminathan, SRM Institue of Science and Technology                                  | EXPERIMENTAL STUDY OF THE COOLING OF MOVING STRIP<br>Venue: Laragh & Glenealy<br>Prof. Jean-Marie Buchlin, von Karman Institute for Fluid Dynamics                                              | ENHANCEMENT OF PACKED BED REACTOR PERFORMANCE WITH A STATIC MIXER<br>Venue: Enniskerry<br>Prof. Abraham Kribus, Tel Aviv University                            | A NUMERICAL STUDY ON NON-PREMIXED COMBUSTION OF LIQUID FUEL WITH SWIRL FLOW AND DILUTION AT HIGH PRESSURE CONDITIONS<br>Venue: Heritage Suite<br>Mr. Subhankar Mohapatra, Indian Institute of Technology Kharagpur |
| 11:40 - 12:00 | THREE-DIMENSIONAL FLUID FLOW STRUCTURE AND REATTACHMENT CHARACTERISTICS OF A BACKWARD-FACING STEP FLOW IN A                                                                                               | REGIMES OF VALIDITY OF THE BOUSSINESQ APPROXIMATION FOR NATURAL CONVECTION FROM A VERTICAL CYLINDER IN POWER-                                                                                                    | DETERIORATION OF BOILING HEAT TRANSFER ON BIPHILIC SURFACES UNDER VERY LOW PRESSURES<br>Venue: Laragh & Glenealy                                                                                | NUMERICAL SIMULATION OF HEAT TRANSFER AND FLUID FLOW IN PRESENCE OF NANO FLUIDIC ENCLOSURE PLACED INSIDE A FLUID                                               |                                                                                                                                                                                                                    |

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|               | RECTANGULAR DUCT<br>Venue: Ballroom<br>Dr Zou Shuai, Doshisha University                                                                                                   | LAW FLUIDS<br>Venue: Glencree & Roundwood<br>Mr. Subhasisa Rath, Indian Institute of Technology Kharagpur                                                                                                                            | Dr. Biao Shen, Kyushu University                                                                                                                                                                            | SATURATED POROUS CAVITY<br>Venue: Enniskerry<br>Prof. Swarup Kumar Mahapatra, Indian Institute of Technology Bhubaneswar                                                                                           |                                                                                                                                               |
| 12:00 - 12:20 | NAVIER-STOKES CFD ASSESSMENT OF TWO MULTI-NOZZLE ANNULAR JET PUMPS WITH A DESIGN OPTIMISATION STUDY<br>Venue: Ballroom<br>Mr Andrew Morrall, Lancaster University          | AUGMENTATION OF NON-BOUSSINESQ EFFECTS DUE TO SHEAR-RATE DEPENDENT VISCOSITY IN NATURAL CONVECTION FROM FINS<br>Venue: Glencree & Roundwood<br>Mr. Subhasisa Rath, Indian Institute of Technology Kharagpur                          | SURFACE PROPERTIES INFLUENCE ON HEAT TRANSFER DURING COOLING OF HIGH-TEMPERATURE CYLINDRICAL BODIES IN LIQUIDS<br>Venue: Laragh & Glenealy<br>Dr. Arslan Zabirov, NRU                                       | THERMAL EFFECTS OF MATERIALS CONTAINING PCM<br>Venue: Ballroom<br>prof. Jiri Militky, Technical university of Liberec                                                                                              |                                                                                                                                               |
| 12:20 - 12:40 | THERMOHYDRAULIC CHARACTERISTICS OF TRANSITIONAL FLOW IN A CIRCULAR TUBE WITH INLET DISTURBANCES<br>Venue: Enniskerry<br>Dr. Suvanjan Bhattacharyya, University of Pretoria | PILOT SCALE EXPERIMENTS OF A PILLOW PLATE THERMOSIPHON REBOILER<br>Venue: Glencree & Roundwood<br>Prof. Dr.-Ing. Stephan Scholl, Technische Universität Braunschweig                                                                 | ANALYTICAL CALCULATION OF HEAT TRANSFER UNDER UNSTEADY NUCLEATE BOILING<br>Venue: Laragh & Glenealy<br>Dr. Anatoliy Levin, Melentiev Energy Systems Institute                                               | EXPERIMENTAL INVESTIGATION OF FULLY DEVELOPED FLOWS OF AIR IN STRAIGHT RECTANGULAR DUCTS WITH ADJACENT OPEN AND POROUS-METAL-FOAM DOMAINS<br>Venue: Enniskerry<br>Professor Bantwal Rabi Baliga, McGill University |                                                                                                                                               |
| 12:40 - 13:40 | LUNCH<br>Venue: Foyer                                                                                                                                                      |                                                                                                                                                                                                                                      |                                                                                                                                                                                                             |                                                                                                                                                                                                                    |                                                                                                                                               |
| 13:40 - 14:00 | MULITPHASE FLOW 2<br><br>SUBCOOLED POOL BOILING OF SODIUM CHLORIDE SOLUTIONS<br>Venue: Ballroom<br>Prof. Chin Pan, City University of Hong Kong                            | THERMAL MANAGEMENT AND CONTROL 1<br><br>EXPERIMENTAL COMPARISON OF THE REFRIGERATION PERFORMANCE OF R32 AND R410A IN FULL AND PARTIALLY FILLED CONDITIONS<br>Venue: Glencree & Roundwood<br>Prof Mario Farrugia, University of Malta | ENERGY AND ENVIRONMENTAL SYSTEMS 1<br><br>EXPERIMENTAL STUDY AND MODELLING OF A HIGH-PRESSURE RATIO LIQUID PISTON COMPRESSOR<br>Venue: Laragh & Glenealy<br>Dr. Mathieu Specklin, Arts et Métiers ParisTech | NUMERICAL SIMULATION 1<br><br>NEW 3D GUI ADVANCE OF THE RELAPSCDAPSIM 3.4 CODE<br>Venue: Enniskerry<br>Ms. Heriberto Sánchez-Mora, Universidad Nacional Autónoma de México                                         | MISCELLANEOUS 1<br><br>INSTABILITIES OF STEADY FLOWS IN HELICAL PIPES<br>Venue: Heritage Suite<br>Prof Alexander Gelfgat, Tel Aviv University |
| 14:00 - 14:20 | KEROSENE DROP IMPACT                                                                                                                                                       | EXPERIMENTAL                                                                                                                                                                                                                         | ANALYTICAL                                                                                                                                                                                                  | A NUMERICAL STUDY OF                                                                                                                                                                                               | MICRO LIQUID JET                                                                                                                              |

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|               | <p>ONTO A DEEP WATER POOL</p> <p>Venue: Ballroom</p> <p>Dr. Parmod Kumar, Indian Institute of Technology Mandi</p>                                                                                                                  | <p>EVALUATION OF REFRIGERATION PERFORMANCE OF DEGASSING AND REGASSING OF AN INVERTER DRIVEN R410A SYSTEM</p> <p>Venue: Glencree &amp; Roundwood</p> <p>Prof Mario Farrugia, University of Malta</p> | <p>OPTIMIZATION OF A SOLAR-DRIVEN COOLING SYSTEM ENHANCED WITH A PHOTOVOLTAIC EVAPORATIVE CHIMNEY</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Dr Javier Ruiz Ramírez, Miguel Hernández University</p>                             | <p>THE EFFECT OF A PLANE HORIZONTAL COVERING SURFACE ON NATURAL CONVECTIVE HEAT TRANSFER FROM A DOWNWARD FACING CIRCULAR HORIZONTAL HEATED ISOTHERMAL SURFACE</p> <p>Venue: Enniskerry</p> <p>Dr. Patrick Oosthuizen, Queen's University</p> | <p>PINCH-OFF IN IMMISCIBLE LIQUID-LIQUID SYSTEMS</p> <p>Venue: Heritage Suite</p> <p>Dr. Khaled Sallam, Oklahoma State University</p>                                                                                   |
| 14:20 - 14:40 | <p>MODELLING OF BUBBLY FLOW IN BUBBLE COLUMN REACTORS WITH A MODIFIED BUBBLE BREAKAGE MODEL COUPLED WITH BUBBLE-INDUCED TURBULENCE</p> <p>Venue: Ballroom</p> <p>Professor Xiaogang Yang, University of Nottingham Ningbo China</p> | <p>A ONE-DIMENSIONAL HEAT AND MASS TRANSFER MODEL OF SORPTION CELLS</p> <p>Venue: Glencree &amp; Roundwood</p> <p>Mr Avshalom Davidesko, Ariel university</p>                                       | <p>PERFOMANCE ANALYSIS OF DIFFERENT TWO-STAGE TRANSCRITICAL CARBON DIOXIDE CYCLES FOR RESIDENTIAL APPLICATIONS FOR COLD CLIMATE</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Mr. Ahmad Mhanna, Ryerson University</p>              | <p>NUMERICAL AND EXPERIMENTAL STUDIES OF NATURAL CONVECTIVE HEAT TRANSFER FROM TWO-SIDED DIAGONALLY INCLINED SQUARE PLATES HAVING A FINITE THICKNESS</p> <p>Venue: Enniskerry</p> <p>Dr. Patrick Oosthuizen, Queen's University</p>          | <p>AN INVESTIGATION INTO PHASE CHANGE MATERIALS FOR THERMAL MANAGEMENT AND EFFICIENCY IMPROVEMENT OF PHOTOVOLTAIC POWER HARVESTING SYSTEMS</p> <p>Venue: Heritage Suite</p> <p>Mr Veli Cosar, Ozyegin University</p>    |
| 14:40 - 15:00 | <p>LES SIMULATION OF BUBBLY FLOW IN A CYLINDRICAL BUBBLE COLUMN REACTOR</p> <p>Venue: Ballroom</p> <p>Ms Shanshan Long, University of Nottingham Ningbo China</p>                                                                   | <p>CONTROL OF THERMAL DEMAND IN THE RESIDENTIAL SECTOR THROUGH THE MANAGEMENT OF SHADE DEVICES AND ZONING HVAC SYSTEM</p> <p>Venue: Glencree &amp; Roundwood</p>                                    | <p>AN EXERGY ANALYSIS OF SINGLE TO MULTI-STAGE EVAPORATIVE COOLING SYSTEMS FOR DIFFERENT CLIMATIC CONDITIONS ACROSS INDIA</p> <p>Venue: Laragh &amp; Glenealy</p> <p>Dr. Santanu Prasad Datta, BITS Pilani- Hyderabad Campus</p> | <p>IMPROVING SAMPLING DEPTH OF LASER SPECKLE IMAGING FOR SKIN TISSUE: AN THEORETICAL STUDY</p> <p>Venue: Enniskerry</p> <p>Ms Hui Xin, Xi'an Jiaotong University</p>                                                                         | <p>EXPERIMENTAL INVESTIGATION OF THE EFFECT OF CAVITATION ON THE PERFORMANCE OF A CENTRIFUGAL PUMP WORKING AT HIGH ROTATION SPEEDS</p> <p>Venue: Heritage Suite</p> <p>Ing Ludovic Lamoot, INSA Centre Val de Loire</p> |
| 15:00 - 15:20 | <p>DAMPING OF GAS BUBBLE SMALL RADIAL OSCILLATIONS IN FLUID</p> <p>Venue: Ballroom</p> <p>Ms Mariana Lopushanski, Moscow Institute of Physics and Technology</p>                                                                    | <p>AN EFFICIENT THERMAL ANALYSIS SYSTEM FOR ASSEMBLED BATTERY MANAGEMENT</p> <p>Venue: Glencree &amp; Roundwood</p> <p>Mr Godine Raja Sekhar, Ritsumeikan University</p>                            | <p>A 75+ POINT PLAN FOR RETRO-COMMISSIONING FACILITIES</p> <p>Venue: Laragh &amp; Glenealy</p> <p>dr David Dyer, Auburn University</p>                                                                                           | <p>NUMERICAL SIMULATION OF THERMAL INKJET DROPLET EJECTION</p> <p>Venue: Enniskerry</p> <p>Dr Sam Mallinson, Memjet</p>                                                                                                                      | <p>EXPERIMENTAL STUDY ON IMPACT AND SPREADING OF DROPLET FLOW UNDER DIFFERENT TUBE SPACINGS</p> <p>Venue: Heritage Suite</p> <p>Mr. Shanlin Liu, Dalian University of Technology</p>                                    |

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| 15:20 - 15:40 | <b>MID-AFTERNOON TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                                                                 |                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                            |                                                                                                                                                                                     |                                                                                                                                                                                                              |
| 15:40 - 16:00 | TWO-PHASE FLOW 2                                                                                                                                                                                      | HEAT EXCHANGERS 2                                                                                                                                                                                                                      | TURBULENCE AND TURBULENCE FLOWS 2                                                                                                                                                                                                          | COMPUTATIONAL FLUID DYNAMICS 2                                                                                                                                                      | CONVECTION HEAT TRANSFER 2                                                                                                                                                                                   |
|               | <b>OPTIMIZATION OF GEOMETRIC AND FLOW PARAMETERS OF HORIZONTAL RECTANGULAR MICROCHANNELS IN SUBCOOLED TWO-PHASE FLOW</b><br>Venue: Ballroom<br>Professor Tunde Bello-Ochende, University of Cape Town | <b>PREDICTION OF THE HEAT TRANSFER RATE OF A FIN AND TUBE HEAT EXCHANGER – USING ARTIFICIAL NEURAL NETWORK TRAINED AND TESTED WITH EXPERIMENTAL DATA</b><br>Venue: Glencree & Roundwood<br>Ms Feyza Sahin, FRITERM Thermal Devices Co. | <b>NUMERICAL ASSESSMENT OF CONFINEMENT EFFECT AND FLOW STRUCTURE IN CASE OF HYDROGEN RELEASE IN A TWO-VENTED CAVITY</b><br>Venue: Laragh & Glenealy<br>Mr. Yanshu Wang, CEA - Saclay DEN / LIMSI - CNRS                                    | <b>AN ENERGY EFFICIENT THERMAL MANAGEMENT STRATEGY OF A LITHIUM-ION BATTERY FOR HYBRID VEHICLES</b><br>Venue: Enniskerry<br>Dr. Santanu Prasad Datta, BITS Pilani- Hyderabad Campus | <b>NEAR-INFRARED MEASUREMENT OF TEMPERATURE AND FLOW FIELD FORMED BY FREE CONVECTION FROM A SMALL HEATING SPHERE IN WATER</b><br>Venue: Heritage Suite<br>Prof Naoto Kakuta, Tokyo Metropolitan University   |
| 16:00 - 16:20 | <b>PRESSURE DROP AND VOID FRACTION OF HORIZONTAL AIR-WATER STRATIFIED FLOWS AT ATMOSPHERIC PRESSURE</b><br>Venue: Ballroom<br>Mr Igor Matteo Carraretto, Politecnico di Milano                        | <b>SHELL-AND-TUBE HEAT EXCHANGER OPTIMIZATION – CONSIDERING PROBLEM FORMULATION AND TUNING FOR DIFFERENT TYPES OF METHODS</b><br>Venue: Glencree & Roundwood<br>Dr Jussi Saari, LUT University                                         | <b>SENSITIZATION OF EDDY-VISCOSITY MODELS TO BUOYANCY EFFECTS FOR PREDICTING NATURAL CONVECTION FLOWS</b><br>Venue: Laragh & Glenealy<br>Mr syed mohd saad jameel, University of Pau                                                       | <b>AIR COOLING ENHANCEMENT OF A HIGH-PRECISION HIGH-VOLTAGE RESISTOR</b><br>Venue: Enniskerry<br>Dr Federico Favre, Universidad de la República Uruguay                             | <b>DIRECT NUMERICAL SIMULATION OF CONVECTION HEAT TRANSFER OVER SCANNED AND MATHEMATICALLY GENERATED SURFACE ROUGHNESS</b><br>Venue: Heritage Suite<br>Dr Pourya Forooghi, Karlsruhe Institute of Technology |
| 16:20 - 16:40 | <b>EXPERIMENTAL INVESTIGATION OF TWO PHASE FLOW AND CONDENSATION OF PROPYLENE IN HORIZONTAL TUBES OF INDUSTRIAL SCALE</b><br>Venue: Ballroom<br>Mr. Simon Fries, University of Kassel                 | <b>STUDY OF CONVECTIVE CONDENSATION IN A THERMOSIPHON LOOP</b><br>Venue: Glencree & Roundwood<br>Mr Majededdine Moustaid, LaTEP                                                                                                        | <b>EFFECTS OF THE STREAMWISE EXTENT OF PERIODIC COMPUTATIONAL DOMAINS ON TURBULENT FLOW AND HEAT TRANSFER IN RIB-ROUGHENED COOLING CHANNELS</b><br>Venue: Laragh & Glenealy<br>Dr. Sebastian Ruck, Karlsruhe Institute of Technology (KIT) | <b>TOWARDS THE GASDYNAMICS OF A PULSED ELECTRIC ARC IN THE A TRANSVERSAL MAGNETIC FIELD</b><br>Venue: Enniskerry<br>Dr. Ivan Moralev, Joint Institute for High Temperatures RAS     | <b>THE EFFECTS OF OPERATING CONDITIONS ON THE HIGH-TEMPERATURE STEAM GENERATOR FOR HYDROGEN PRODUCTION</b><br>Venue: Heritage Suite<br>Dr Seong-Ryong Park, Korea Institute of Energy Research               |
| 16:40 - 17:00 | <b>AN EXPERIMENTAL INVESTIGATION OF STEAM PRESSURE DROP IN A PARTIAL</b>                                                                                                                              | <b>AN EXPERIMENTAL INVESTIGATION OF THE CONFINEMENT EFFECT ON DIFFUSION FLAME</b>                                                                                                                                                      | <b>CORE BREAKUP OF TURBULENT ANNULAR LIQUID SHEETS</b><br>Venue: Laragh & Glenealy                                                                                                                                                         | <b>MAGNETO-HYDRODYNAMIC FLOW OF NANOFLUID IN A SEMI POROUS CHANNEL:</b>                                                                                                             | <b>PLANAR DUCT HEAT TRANSFER WITH TURBULATORS: ENTRY LENGTH</b>                                                                                                                                              |

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|               | <b>CONDENSER FOR THE DESIGN OF PRACTICAL CONDENSERS.</b><br>Venue: Ballroom<br>Mr Jacques Du Plessis, Stellenbosch University                   | <b>IMPINGING THE CEILING IN A COMPARTMENT FIRE</b><br>Venue: Glencree & Roundwood<br>Miss Aijuan Wang, INSA Centre Val de Loire                                                   | Dr. Khaled Sallam, Oklahoma State University                                                                                                                                                        | <b>NUMERICAL INVESTIGATION USING SOFT COMPUTING TECHNIQUE</b><br>Venue: Enniskerry<br>Dr Ziya Uddin, BML Munjal University Gurugram, India                                                         | <b>REGION</b><br>Venue: Heritage Suite<br>Prof. Gordon Andrews, University of Leeds |
| 17:00 - 17:20 | <b>EXPERIMENTAL AND NUMERICAL STUDY OF INTERACTION OF ULTRASOUND WITH MICROBUBBLES</b><br>Venue: Ballroom<br>Mr. Saikat Chakraborty, IIT Madras | <b>HIGH-EFFICIENCY MINI AND MICRO HEAT EXCHANGERS FOR DISPERSED POWER GENERATION</b><br>Venue: Glencree & Roundwood<br>Prof. Dariusz Mikielewicz, Gdańsk University of Technology | <b>SECONDARY FLOW IMPACT ON VELOCITY AND THERMAL FIELDS OF A STRUCTURED TURBULENT CHANNEL FLOW</b><br>Venue: Laragh & Glenealy<br>Dr.-Ing. Alexander Stroh, Karlsruhe Institute of Technology (KIT) | <b>NUMERICAL INVESTIGATION OF NATURAL CONVECTION HEAT TRANSFER OF A VERTICAL SOLID FRUSTUM SUSPENDED IN AIR</b><br>Venue: Enniskerry<br>Mr Avishek Padhi, Indian Institute of Technology Kharagpur |                                                                                     |

| 24/07/2019    |                                                                                                                                                                                  |                                                                                                                                                                                             |                                                                                                                                                                                                        |                                                                                                                                                          |                                                                                                                      | Printable agenda |
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| 08:00 - 09:00 | <b>REGISTRATION</b><br>Venue: Foyer                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                                        |                                                                                                                                                          |                                                                                                                      |                  |
| 09:00 - 09:40 | <b>KEYNOTE</b>                                                                                                                                                                   |                                                                                                                                                                                             |                                                                                                                                                                                                        |                                                                                                                                                          |                                                                                                                      |                  |
| 09:40 - 10:20 | <b>LIQUEFIED NATURAL GAS POWER GENERATION FROM GAS TURBINE AND STIRLING ENGINE</b><br>Venue: Ballroom<br>Professor Fei Duan, Nanyang Technological University                    |                                                                                                                                                                                             |                                                                                                                                                                                                        |                                                                                                                                                          |                                                                                                                      |                  |
|               | <b>A DISRUPTIVE TECHNOLOGY TO IMPROVING ENERGY EFFICIENCY OF AIR CONDITIONING</b><br>Venue: Ballroom<br>Professor Kim Choon Ng, King Abdullah University of Science & Technology |                                                                                                                                                                                             |                                                                                                                                                                                                        |                                                                                                                                                          |                                                                                                                      |                  |
| 10:20 - 10:40 | <b>MID-MORNING TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                                        |                                                                                                                                                          |                                                                                                                      |                  |
| 10:40 - 11:00 | <b>NUMERICAL SIMULATION 2</b>                                                                                                                                                    | <b>CONDUCTION 1</b>                                                                                                                                                                         | <b>ENERGY STORAGE 2</b>                                                                                                                                                                                | <b>HYDRODYNAMICS</b>                                                                                                                                     | <b>MISCELLANEOUS 2</b>                                                                                               |                  |
|               | <b>CFD ANALYSIS OF AN INNOVATIVE VACUUM MICRO-GRIPPER</b><br>Venue: Ballroom<br>Prof. Adriano Lezzi, University of Brescia                                                       | <b>EVALUATION OF A NEW OPTIMIZATION METHODOLOGY APPLIED TO PARAMETERS OF HEAT SOURCES IN NUMERICAL SIMULATIONS OF THE GTAW WELDING PROCESS OF LAP JOINTS</b><br>Venue: Glencree & Roundwood | <b>HEAT TRANSFER CHARACTERISTICS OF A TOPOLOGY OPTIMIZED STRUCTURE FOR PCM-BASED THERMAL MANAGEMENT DEVICES</b><br>Venue: Laragh & Glenealy<br>Prof Kai Choong Leong, Nanyang Technological University | <b>APPLICATION OF AN IMPLICIT DISCONTINUOUS GALERKIN SCHEME FOR SHALLOW WATER EQUATIONS</b><br>Venue: Enniskerry<br>Prof Haegyun Lee, Dankook University | <b>BASIS FOR BOILER CONDITION ASSESSMENT</b><br>Venue: Heritage Suite<br>Mr. Salamah Al-Anizi, Saudi Boilers Company |                  |

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|               |                                                                                                                                                                                                                           | Msc Rodrigo Martins Farias,<br>Federal University of<br>Uberlandia                                                                                                                                                          |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                           |                                                                                                                                                                                                                                                             |
| 11:00 - 11:20 | FINITE ELEMENT IMPLEMENTATION OF THE EIGENFUNCTION SERIES SOLUTION FOR A TRANSIENT HEAT CONDUCTION PROBLEM IN THERMO-MECHANICAL SYSTEMS<br>Venue: Ballroom<br>Dr. Abdullah Al Shabibi,<br>Sultan Qaboos University        | NUMERICAL CHARACTERIZATION AND VALIDATION OF THE THERMAL RESPONSE OF A PARTIALLY FILLED ISO CONTAINER EXPOSED TO REAL WEATHER CONDITIONS<br>Venue: Glencree & Roundwood<br>Mr. Ken Blecker, Stevens Institute of Technology | EFFECT OF CRYOGENIC HEAT TRANSFER AT SUPERCRITICAL CONDITIONS ON LIQUID AIR ENERGY STORAGE (LAES) PERFORMANCE - A COMBINED EXPERIMENTAL AND NUMERICAL ANALYSIS<br>Venue: Laragh & Glenealy<br>Dr Adriano Sciacovelli,<br>University of Birmingham | EXPERIMENTAL AND NUMERICAL STUDY OF TOLUENE-WATER SLUG FLOW IN SERPENTINE MINICHANNEL<br>Venue: Enniskerry<br>Dr Sumana Ghosh, Indian Institute of Technology Roorkee                                     | INVESTIGATING THE EFFECTS OF HEAT INPUT ON MECHANICAL PROPERTIES AND MICROSTRUCTURE OF A DISSIMILAR WELDED JOINT OF A283 GR C TO A240 304L STAINLESS STEEL WITH TWO METHODS OF SMAW AND GTAW<br>Venue: Heritage Suite<br>Mr. Amir Khaledi, Oil Refinery CO. |
| 11:20 - 11:40 | NUMERICAL ANALYSIS OF THE THERMOPHYSICAL PROPERTIES OF R600A REFRIGERANT ENHANCED WITH DIAMOND NANOPARTICLES IN VAPOUR COMPRESSION REFRIGERATING SYSTEM<br>Venue: Ballroom<br>Dr Moradeyo Odunfa,<br>University of Ibadan | 1D AND 3D CFD MODELS OF THE HEAT TRANSFER IN A PRISMATIC BLOCK OF A VHTR<br>Venue: Glencree & Roundwood<br>Mr. Gert Nel, North-West University                                                                              | NANOPARTICLE-PARAFFIN-TAILING CERAMIC COMPOSITE PHASE CHANGE MATERIALS FOR THERMAL ENERGY STORAGE<br>Venue: Laragh & Glenealy<br>Dr Xili Duan, Memorial University of Newfoundland                                                                | ASYMPTOTIC ANALYSIS OF THE UNDULAR HYDRAULIC JUMP OVER VANISHING BOTTOM SLOPE<br>Venue: Enniskerry<br>Mr. Dominik Murschenhofer, TU Wien                                                                  | RADIATION EFFECT ON GROWTH OF MIST DROPLETS<br>Venue: Heritage Suite<br>Ms. Xinchang Li, University of Illinois                                                                                                                                             |
| 11:40 - 12:00 | MODELING AND ESTIMATION OF THE VISCOSITY OF TiO2-AI2O3/EG COMPOSITE NANOFLUID BY ARTIFICIAL NEURAL NETWORK AND CORRELATION<br>Venue: Ballroom<br>Dr Moradeyo Odunfa,<br>University of Ibadan                              | COUPLED 3D AND 1D MODELS OF THE HEAT TRANSFER IN A PRISMATIC BLOCK OF A VHTR<br>Venue: Glencree & Roundwood<br>Mr. Ockert Koekemoer, North-West University                                                                  | TRANSIENTS OF THERMAL PLUME IN SHALLOW GEOTHERMAL ENERGY RESERVOIR OF PUGA, LADAKH, INDIA<br>Venue: Laragh & Glenealy<br>Dr Shibani Khanra Jha, Birla Institute of Technology and Science                                                         | HEAT TRANSFER ENHANCEMENT THROUGH THE USE OF AN OSCILLATORY FLOW IN CIRCULAR-ORIFICE BAFFLED TUBES: AN EXPERIMENTAL STUDY<br>Venue: Enniskerry<br>Dr. Damián Crespí-Llorens, Universidad Miguel Hernández | A CORRELATION OF CONDENSATION HEAT TRANSFER COEFFICIENT IN FALLING FILM HORIZONTAL TUBES EXCHANGER BY USING ARTIFICIAL NEURAL NETWORK (ANN)<br>Venue: Heritage Suite<br>Dr. Mama Chacha, University of Wollongong in Dubai                                  |
| 12:00 - 12:20 | THERMAL CHARACTERISATION OF                                                                                                                                                                                               | A PARAMETRIC STUDY ON THE OPERATION OF                                                                                                                                                                                      | DYNAMICS OF HEAT AND MASS TRANSPORT                                                                                                                                                                                                               | EQUILIBRIUM FORMS OF ELLIPSOID DROPS                                                                                                                                                                      | HYBRID ABSORPTOIN CYCLE FOR FLEXIBLE                                                                                                                                                                                                                        |

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|               | <p>THE UMBILICAL CORD AT BIRTH THROUGH NON INVASIVE METHODS</p> <p>Venue: Ballroom<br/>Ms Andrea Caravia,<br/>Facultad de Ingeniería - UdelAR</p>                       | <p>AN ANODE BAKING FURNACE USING A PROCESS MODEL</p> <p>Venue: Glencree &amp; Roundwood<br/>Dr. Yasar Kocaefe,<br/>University of Quebec at Chicoutimi</p>                                                                                                                                              | <p>DURING HYDRATE DISSOCIATION AND REFORMATION IN SEDIMENTS</p> <p>Venue: Laragh &amp; Glenealy<br/>Ms Mojdeh Zarifi, University of Bergen</p>                                                                                                                   | <p>Venue: Enniskerry<br/>Ms Mariana Lopushanski,<br/>Moscow Institute of Physics and Technology</p>                                                                          | <p>USE OF HEAT PUMP AND REFRIGERATION SYSTEM</p> <p>Venue: Foyer<br/>Dr. Sung Joo Hong,<br/>Chonbuk National University</p>                                                                            |
| 12:20 - 13:20 | <p><b>LUNCH</b></p> <p>Venue: Foyer</p>                                                                                                                                 |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                              |                                                                                                                                                                                                        |
| 13:20 - 13:40 | <p>THERMAL MANAGEMENT AND CONTROL 2</p>                                                                                                                                 | <p>RENEWABLE ENERGY</p>                                                                                                                                                                                                                                                                                | <p>CONVECTION HEAT TRANSFER 3</p>                                                                                                                                                                                                                                | <p>HEAT TRANSFER ENHANCEMENT 2</p>                                                                                                                                           | <p>MISCELLANEOUS 3</p>                                                                                                                                                                                 |
|               | <p>THE DELETERIOUS EFFECT OF THERMAL CYCLING ON THERMOELECTRIC GENERATORS</p> <p>Venue: Ballroom<br/>Seamus O'Shaughnessy,<br/>University of Dublin Trinity College</p> | <p>HEAT TRANSFER MODEL FOR A PARABOLIC SOLAR CONCENTRATOR</p> <p>Venue: Glencree &amp; Roundwood<br/>Dr. Sergio Quezada,<br/>Universidad Nacional Autónoma de México</p>                                                                                                                               | <p>COUPLED TRANSIENT CFD-FE SIMULATION FOR HEAT TRANSFER INVESTIGATIONS FOR A LARGE GAS ENGINE</p> <p>Venue: Laragh &amp; Glenealy<br/>Mr Martin Kober, LEC</p>                                                                                                  | <p>THE DYNAMIC BEHAVIOR OF NATURAL CONVECTION OF WATER IN OPEN ENDED TALL VERTICAL ANNULUS</p> <p>Venue: Enniskerry<br/>Dr Saeed Alqaed, Najran University</p>               | <p>HIGH-TEMPERATURE HEAT PUMPS – POTENTIAL TECHNOLOGY FOR HEAT RECOVERY AND PRODUCTION OF PROCESS HEAT</p> <p>Venue: Heritage Suite<br/>Prof. Dariusz Mikielewicz, Gdańsk University of Technology</p> |
| 13:40 - 14:00 | <p>FINE-TUNING LIQUID PHASE SEPARATION TOWARDS BREATH FIGURE FORMATION IN POLYMER THIN-FILMS</p> <p>Venue: Ballroom<br/>Mr. Philip Darragh, Trinity College Dublin</p>  | <p>EXPERIMENTAL INVESTIGATION OF THE EFFECT OF COOLING THE HIGH-SPEED GENERATOR OF A RADIAL-FLOW MICROTURBINE ON THE ELECTRIC POWER OF AN ORC SYSTEM</p> <p>Venue: Glencree &amp; Roundwood<br/>PhD, Eng. Tomasz Zygmunt Kaczmarczyk, Institute of Fluid Flow Machinery Polish Academy of Sciences</p> | <p>EFFECTS OF PRANDTL NUMBER AND SEPARATION DISTANCE ON LAMINAR NATURAL CONVECTION HEAT TRANSFER FROM TWO VERTICALLY ALIGNED HORIZONTAL CYLINDERS.</p> <p>Venue: Laragh &amp; Glenealy<br/>Mr Manoj Kumar Dash,<br/>Indian Institute of Technology Kharagpur</p> | <p>EXPERIMENTAL STUDY OF HEAT TRANSFER ENHANCEMENT BY PULSATING FLOW IN A RECTANGULAR MINICHANNEL</p> <p>Venue: Enniskerry<br/>Mr. Parth Kumavat, Trinity College Dublin</p> | <p>TECHNO - ECONOMIC ASSESSMENT OF HYBRID ENERGY COMBINATION OPTIONS FOR A MAJOR EDUCATIONAL INSTITUTION IN NIGERIA</p> <p>Venue: Heritage Suite<br/>Dr Chukwuemeka Diji,<br/>University of Ibadan</p> |
| 14:00 - 14:20 | <p>AN INVESTIGATION ON APPLICABILITY OF SELF-SIMILARITY HEAT SINK TO A THERMO-ELECTRIC MODUL</p> <p>Venue: Ballroom<br/>Prof. Licheng SUN, Sichuan University</p>       | <p>DEVELOPMENT OF A SIMULATION ENVIRONMENT FOR ANALYZING MULTI-ENERGY NETWORKS</p> <p>Venue: Glencree &amp; Roundwood<br/>Mr. Dennis Cronbach,</p>                                                                                                                                                     | <p>NUMERICAL INVESTIGATION OF HEAT TRANSFER AND SINGLE-PHASE FLOW IN A MANIFOLD MICROCHANNEL HEAT SINK</p> <p>Venue: Laragh &amp; Glenealy</p>                                                                                                                   | <p>QUANTIFYING THERMAL CONDUCTANCE OF THIN FILM THERMOELECTRICS USING FREQUENCY DOMAIN THERMOREFLECTANCE</p> <p>Venue: Enniskerry<br/>Prof. David McCloskey,</p>             | <p>EXPERIMENTS ON DENSITY INTERFACE WITH SUCCESSIVE VORTEX RINGS</p> <p>Venue: Heritage Suite<br/>Mr. Advait S, Indian Institute of Science</p>                                                        |

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|               |                                                                                                                                                                                                                         | Fraunhofer Institute for Energy Economics and Energy System Technology                                                                                                          | Dr Xiaochen Lv, China Academy of Space Technology                                                                                                                                                    | Trinity College Dublin                                                                                                                                                              |                                                                                                                                                                               |
| 14:20 - 14:40 | NUMERICAL ANALYSIS OF 2-D LAMINAR NATURAL CONVECTION HEAT TRANSFER FROM SOLID HORIZONTAL CYLINDRICAL HEAT SINKS WITH LONGITUDINAL FINS<br>Venue: Ballroom<br>Mr Avishek Padhi, Indian Institute of Technology Kharagpur | COMPARISON OF SODIUM AND MOLTEN SALT RECEIVER OUTPUT THROUGH DIURNAL CSP PLANT OPERATION<br>Venue: Glencree & Roundwood<br>Dr Ronan Grimes, University of Limerick              | NUMERICAL OPTIMIZATION OF COMBINED COOLING OF MICROCHANNEL HEAT EXCHANGERS WITH HOLLOW AND SOLID VERTICAL FINS<br>Venue: Laragh & Glenealy<br>Professor Tunde Bello-Ochende, University of Cape Town | PREDICTING THE HEAT TRANSFER BETWEEN A LAMINAR IMPINGING JET AND AN INHOMOGENEOUSLY HEATED SURFACE<br>Venue: Enniskerry<br>MSc. Enno Sabelberg, RWTH Aachen University              | AERODYNAMICS OF GRID PLATE FLAME STABILIZERS<br>Venue: Heritage Suite<br>José Ramón Quiñonez Arce, School of Chemical and Process Engineering<br>University of Leeds          |
| 14:40 - 15:00 | DROPLET THERMAL AND WETTING FOOTPRINT ON HEATED SURFACE<br>Venue: Ballroom<br>Ryan Enright, NOKIA                                                                                                                       | HEAT TRANSFER ENHANCEMENT IN A SOLAR RECIEVER TUBE USING POROUS MEDIA<br>Venue: Glencree & Roundwood<br>Dr. Manabendra Pathak, Indian Institute of Technology Patna             | EFFECT OF BENCHES ON THE NATURAL CONVECTION IN A SINGLE-SPAN THREE-DIMENSIONAL GREENHOUSE<br>Venue: Laragh & Glenealy<br>Dr. Sunita Kruger, University of Johannesburg                               | AUGMENTATION OF HEAT TRANSFER IN AIR HEATING FLAT PLATE COLLECTOR BY FINS AND TWISTED TAPES<br>Venue: Enniskerry<br>Prof. Prabha Chand, National Institute of Technology Jamshedpur | HYDRODYNAMIC PERFORMANCE OF JOUKOWSKI BASED HYDROKINETIC TURBINE FOR USE IN THE AMAZON RIVERS<br>Venue: Heritage Suite<br>Mr Pedro Baracat, UNICAMP                           |
| 15:00 - 15:20 |                                                                                                                                                                                                                         | DESIGN AND ANALYSIS OF RADIAL AND AXIAL TURBOMACHINERY OF SUPERCRITICAL CO2 POWER CYCLES<br>Venue: Glencree & Roundwood<br>Dr Alexis Cantizano, Universidad Pontificia Comillas | GRID INDEPENDENCE STUDY OF A 1D THERMAL TOPOLOGY OPTIMIZATION PROBLEM FOR HEAT SINKS<br>Venue: Laragh & Glenealy<br>Mr Yang Zhou, KU Leuven                                                          | HEAT TRANSFER IN SUPERCRITICAL FLUIDS: RECONCILING THE RESULTS OF PULSE AND STATIONARY EXPERIMENTS<br>Venue: Enniskerry<br>Prof. Pavel Skripov, Russian Academy of Sciences         | DIRECT STEAM CONDENSATION AT SUB-ATMOSPHERIC PRESSURE: EXPERIMENTAL TESTS AND SIMILITUDE ANALYSIS<br>Venue: Heritage Suite<br>Mr Guglielmo Giambartolomei, University of Pisa |
| 15:20 - 15:40 | MID-AFTERNOON TEA/COFFEE BREAK<br>Venue: Foyer                                                                                                                                                                          |                                                                                                                                                                                 |                                                                                                                                                                                                      |                                                                                                                                                                                     |                                                                                                                                                                               |
| 15:40 - 16:00 | COMBUSTION                                                                                                                                                                                                              | COMPUTATIONAL FLUID DYNAMICS 3                                                                                                                                                  | CONDUCTION 2                                                                                                                                                                                         | BOILING 2                                                                                                                                                                           | NUMERICAL SIMULATION 3                                                                                                                                                        |
|               | MODELING URBAN FIRE SPREAD BASED ON SPECIFIC CHARACTERISTICS OF SUBSTANDARD HOUSING IN SPAIN<br>Venue: Ballroom                                                                                                         | OBSERVATIONS ON FIXED-GRID NUMERICAL SIMULATIONS OF STEADY ICE-WATER SYSTEMS IN RECTANGULAR PLATE-FIN GEOMETRIES WITH LAMINAR NATURAL                                           | 3D PRINTING OF PITCH CARBON FIBER COMPOSITES FOR HEAT EXCHANGER APPLICATIONS<br>Venue: Laragh & Glenealy<br>Dr. Roger Kempers, York                                                                  | PRELIMINARY INVESTIGATION INTO THE EFFECT OF STEP CHANGES IN BOILING HEAT FLUX ON R134A IN A HORIZONTAL MACRO TUBE                                                                  | ANALYSIS OF THE SEVERE ACCIDENT WITH CORIUM SLUMPING IN A BWR<br>Venue: Heritage Suite<br>Dr Mindaugas Valinčius, Lithuanian Energy                                           |

|               |                                                                                                                                                             |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                               |                                                                                                                                                                                                       |                                                                                                                                                                                              |
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|               | Dr Alexis Cantizano,<br>Universidad Pontificia<br>Comillas                                                                                                  | CONVECTION IN THE<br>LIQUID<br>Venue: Glencree &<br>Roundwood<br>Mr Osaid Matar, McGill<br>University                                                                                                                                                                             | University                                                                                                                                                                                                                                    | Venue: Enniskerry<br>Mr. Wilhelm Johann van den<br>Bergh, University of Pretoria                                                                                                                      | Institute                                                                                                                                                                                    |
| 16:00 - 16:20 | EMISSIONS REDUCTION<br>FROM PELLET STOVES<br>THROUGH BURNER POT<br>MODIFICATIONS<br>Venue: Ballroom<br>Prof. Adriano Lezzi,<br>University of Brescia        | DESIGN OF A<br>LABORATORY UNIT FOR<br>ALUMINUM FILTRATION<br>THROUGH PHYSICAL AND<br>MATHEMATICAL<br>MODELLING<br>Venue: Glencree &<br>Roundwood<br>Prof. Duygu Kocaefer,<br>University of Quebec at<br>chicoutimi                                                                | HEATQUIZ: GAME-BASED<br>LEARNING IN HEAT AND<br>MASS TRANSFER<br>Venue: Laragh & Glenealy<br>Dr. Wilko Rohlfes, RWTH<br>Aachen University                                                                                                     | EFFECT OF PATTERN<br>GEOMETRY ON BUBBLE<br>DYNAMICS AND HEAT<br>TRANSFER ON BIPHILIC<br>SURFACES<br>Venue: Enniskerry<br>Mr Pedro Pontes, IN+<br>Instituto Superior Tecnico<br>Universidade de Lisboa | PREDICTION OF THE<br>POWER COEFFICIENT<br>OF STRAIGHT BLADED<br>VERTICAL AXIS WIND<br>TURBINES AT LOW<br>WIND VELOCITIES<br>Venue: Heritage Suite<br>Mr Pedro Baracat,<br>UNICAMP            |
| 16:20 - 16:40 | 1D SIMULATION OF<br>SODIUM-WATER<br>REACTION (SWR)<br>Venue: Ballroom<br>Mr Lucas David, CEA                                                                | NUMERICAL<br>INVESTIGATION OF A<br>TWO-DIMENSIONAL<br>MULTI-SPAN NATURALLY<br>VENTILATED<br>GREENHOUSE<br>CONTAINING STACKED<br>BENCHES<br>Venue: Glencree &<br>Roundwood<br>Dr. Sunita Kruger, University<br>of Johannesburg<br>Mr Awikal Dwivedi,<br>University of Johannesburg | UNDERSTANDING THE<br>PARTICLE-SCALE HEAT<br>TRANSFER MECHANISMS<br>IN PACKED BEDS USING<br>PARTICLE-RESOLVED<br>DIRECT NUMERICAL<br>SIMULATIONS (PR-DNS)<br>Venue: Laragh & Glenealy<br>Dr. Richard Gould, North<br>Carolina State University | IMPACT OF SURFACE<br>MODIFICATION AND<br>ELECTROHYDRODYNAMIC<br>ENHANCEMENT ON<br>NUCLEATE POOL BOILING<br>Venue: Enniskerry<br>Mr. Mark Edward Newton,<br>University of Kassel                       | DEVELOPMENT OF A<br>SMALL MODULAR<br>REACTOR OF NHR-200<br>II IN CHINA<br>Venue: Heritage Suite<br>Dr. Yan Wang, Tsinghua<br>University                                                      |
| 16:40 - 17:00 | IMPACT OF SWIRL<br>NUMBER ON HEAT<br>TRANSFER<br>ENHANCEMENT TO AN<br>AXIAL LAMINAR FLOW<br>Venue: Ballroom<br>Dr Jie Hu, Kitami Institute of<br>Technology | NUMERICAL MODELLING<br>OF EVAPORATING<br>BUBBLES IN<br>MICROCHANNELS<br>Venue: Glencree &<br>Roundwood<br>Dr. Thomas Abadie, Dublin<br>City University                                                                                                                            | CFD-DEM<br>CHARACTERIZATION OF<br>EFFECTIVE THERMAL<br>CONDUCTIVITY IN<br>PACKED BEDS<br>Venue: Laragh & Glenealy<br>Dr. Richard Gould, North<br>Carolina State University                                                                    | BUBBLE NUCLEATORS TO<br>ENHANCE POOL BOILING<br>IN TUBE BUNDLES<br>Venue: Enniskerry<br>Mr Roy Bartle, University of<br>Oxford                                                                        | FUNDAMENTAL STUDY<br>ON ELEMENTAL<br>ANALYSIS OF METAL<br>IN AQUEOUS<br>SOLUTION USING<br>ULTRASOUND<br>Venue: Heritage Suite<br>Dr. Hideharu Takahashi,<br>Tokyo Institute of<br>Technology |
| 17:00 - 17:20 |                                                                                                                                                             | INVESTIGATING THE<br>FLOWFIELD PHYSICS<br>WITHIN COMPRESSIBLE<br>BOUNDARY LAYERS<br>Venue: Glencree &                                                                                                                                                                             | THERMAL STABILITY OF<br>COMPRESSION MOLDED<br>RICE AND COFFEE HUSK<br>FIBER REINFORCED<br>POLYPROPYLENE                                                                                                                                       |                                                                                                                                                                                                       |                                                                                                                                                                                              |

|               |                                          |                                                                                  |                                                                                      |  |  |
|---------------|------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|--|
|               |                                          | Roundwood<br>Prof. Frederick Ferguson,<br>North Carolina A&T State<br>University | COMPOSITES<br>Venue: Laragh & Glenealy<br>Dr Michael Lubwama,<br>Makerere University |  |  |
| 19:30 - 20:30 | <b>PRE-DINNER DRINKS</b><br>Venue: Foyer |                                                                                  |                                                                                      |  |  |
| 20:30 - 22:30 | <b>BANQUET DINNER</b><br>Venue: Ballroom |                                                                                  |                                                                                      |  |  |

# HEFAT 2019

## Wicklow, Ireland

22 – 24 July 2019



### Heat Transfer, Fluid Mechanics and Thermodynamics

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| 22/07/2019    |                                                       | <a href="#">Printable agenda</a> |
|---------------|-------------------------------------------------------|----------------------------------|
| 10:40 - 10:50 | POSTER SESSION 1                                      |                                  |
|               | THERMAL COHERENCE OF CONCAVE SPACES FORMED BY VARIOUS |                                  |

|               |                                                                                                                                                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <p><b>AIRNODES WITH COUPLING BY MEANS OF TRNSYS</b><br/> Venue: Foyer<br/> Mr Raúl Briones-Llorente, Universidad de Burgos</p>                                                                                            |
| 10:50 - 11:00 | <p><b>HOW TO IMPROVE A TEMPERATURE DISTRIBUTION INSIDE A HEATED BLOCK IN A TYPICAL POOL-BOILING APPARATUS</b><br/> Venue: Foyer<br/> Ing. Viktor Vajc, Czech Technical University in Prague</p>                           |
| 11:00 - 11:10 | <p><b>ADVANTAGE OF SOIL VOLATILE CONTAMINANTS EXTRACTION BY HOT AIR INJECTION</b><br/> Venue: Foyer<br/> Prof Abraham Dayan, Tel Aviv University</p>                                                                      |
| 11:10 - 11:20 | <p><b>CHARACTERISATION AND MODELLING OF SMALL DIAMETER MESH WICK HEAT PIPES FOR LOW POWER APPLICATIONS</b><br/> Venue: Foyer<br/> Miss Alison Clarke, Trinity College Dublin</p>                                          |
| 11:20 - 11:30 | <p><b>A SCIENTOMETRIC STUDY OF LITERATURE OF MEM/NEM FROM 1987 TO 2018</b><br/> Venue: Foyer<br/> Prof. Ming-yueh Tsay, Graduate Institute of Library, Information and Archival Studies, National Chengchi University</p> |
| 11:30 - 11:40 | <p><b>MOLECULAR SIMULATION OF BOILING PROCESS IN ULTRATHIN FILM</b><br/> Venue: Foyer<br/> Mr Li Ao, Kyoto university</p>                                                                                                 |
| 11:40 - 11:50 | <p><b>THERMODYNAMIC ANALYSIS OF COMBINED CYCLE POWER PLANT</b><br/> Venue: Foyer<br/> Dr. Vladimir Glazar, University of Rijeka</p>                                                                                       |
| 11:50 - 12:00 | <p><b>FLUID MOTION AND PHASE CHANGE IN THIN GAP</b><br/> Venue: Foyer<br/> Prof. Mitsuhiro Matsumoto, Kyoto University</p>                                                                                                |
| 12:00 - 12:10 | <p><b>EXPERIMENTAL STUDIES ON SINGLE AND BLENDED AMINES FOR CO<sub>2</sub> CAPTURE IN CERAMIC HOLLOW FIBER MEMBRANE CONTACTORS</b><br/> Venue: Foyer<br/> Prof. Jung Hoon Park, Dongguk University</p>                    |
| 12:10 - 12:20 | <p><b>THE ELECTROLESS DEPOSITION OF Pd LAYERS ON STRUCTURED Al<sub>2</sub>O<sub>3</sub> HOLLOW FIBER SUBSTRATE FOR HYDROGEN SEPARATION</b><br/> Venue: Foyer<br/> Prof. Jung Hoon Park, Dongguk University</p>            |
| 12:20 - 12:30 | <p><b>NUMERICAL SIMULATION OF CONVECTIVE AIR DRYING OF DEFORMABLE POROUS MEDIA BY PARALLEL HYBRID LATTICE BOLTZMANN AND FINITE ELEMENT METHODS</b><br/> Venue: Foyer<br/> Mr Xinzhu Mou, Southeast University</p>         |

|               |                                                                                                                                                                                                                      |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:40 - 10:50 | POSTER SESSION 2                                                                                                                                                                                                     |
|               | EFFECTS OF BUILDING ORIENTATION ON THERMAL CHARACTERISTICS OF AISi10Mg STRUCTURE MANUFACTURED BY SELECTIVE LASER MELTING<br>Venue: Foyer<br>Dr Moosun Kim, Korea Railroad Research Institute                         |
| 10:50 - 11:00 | THERMOGRAVIMETRIC ANALYSIS (TGA) STUDY OF A WOOD PELLET, A RICE HUSK PELLET, AN EMPTY FRUIT BUNCH PELLET AND PALM KERNEL SHELL<br>Venue: Foyer<br>Dr Sae Byul Kang, Korea Institute of Energy Research               |
| 11:00 - 11:10 | AN HYBRID DESICCANT VAPOR COMPRESSION CYCLE FOR AIR-CONDITIONING SYSTEMS<br>Venue: Foyer<br>Prof Carlos Eduardo L Nobrega, CEFET-Rio                                                                                 |
| 11:10 - 11:20 | THE ENTROPY ROLE IN POWER AND REFRIGERATION CYCLES<br>Venue: Foyer<br>Prof Carlos Eduardo L Nobrega, CEFET-Rio                                                                                                       |
| 11:20 - 11:30 | LOCAL VALUES OF HEAT TRANSFER COEFFICIENT AT THE BOTTOM OF AN AGITATED VESSEL MEASURED WITH TOIRT METHOD<br>Venue: Foyer<br>Mr. Stanislav Solnař, Czech Technical Univesity in Prague                                |
| 11:30 - 11:40 | IMPROVEMENT OF THE ENERGY EFFICIENCY OF AIR CONDITIONING SYSTEMS IN BUILDINGDS THROUGH THE USE OF A SOLAR CHIMNEY<br>Venue: Foyer<br>Dr Antonio S. Káiser, Universidad Politécnica de Cartagena                      |
| 11:40 - 11:50 | TURBULENT HEAT TRANSFER IN TRANSITIONAL ANNULAR POISEUILLE FLOW<br>Venue: Foyer<br>Dr. Takahiro Tsukahara, Tokyo University of Science                                                                               |
| 11:50 - 12:00 | ADSORPTION OF PHOSPHATE ON AMINE-GRAFTED AND MAGNETIZED MESOPOROUS SILICA MATERIALS<br>Venue: Foyer<br>Professor Hee Moon, Chonnam National University                                                               |
| 12:00 - 12:10 | (P, VE, T) MEASUREMENTS OF BINARY MIXTURES HFE-7100 OR HFE-7200 + 2-PROPANOL AT PRESSURES UP TO 140 MPA AND AT TEMPERATURES FROM 298.15 TO 393.15 K<br>Venue: Foyer<br>Dr Natalia Muñoz-Rujas, Universidad de Burgos |
| 12:10 - 12:20 | MELTING TEMPERATURE MEASUREMENTS OF FATTY ACID MIXTURES AS POTENTIAL BIO-BASED PHASE CHANGE MATERIALS FOR LOW TEMPERATURE ENERGY STORAGE<br>Venue: Foyer<br>Dr Natalia Muñoz-Rujas, Universidad de Burgos            |
| 12:20 - 12:30 |                                                                                                                                                                                                                      |

| 24/07/2019    |                                                                                                                                                                                                                              | Printable agenda |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 10:40 - 10:50 | POSTER SESSION 3                                                                                                                                                                                                             |                  |
|               | MOLECULAR DYNAMICS SIMULATION OF THE THERMAL TRANSPORT ON HOLEY COPPER SUBSTRATES<br>Venue: Foyer<br>Dr Wenfu Situ, Technical University of Denmark                                                                          |                  |
| 10:50 - 11:00 | CCD - THERMOREFLECTANCE – APPLICATIONS IN MICROTHERMAL CHARACTERISATION<br>Venue: Foyer<br>Robert Smyth, Trinity College Dublin                                                                                              |                  |
| 11:00 - 11:10 | THERMAL MEASUREMENTS AT SOLID-LIQUID INTERFACES TRANSPORTING HIGH HEAT FLUXES USING FREQUENCY DOMAIN THERMOREFLECTANCE<br>Venue: Foyer<br>Mr Kenny Yu, Nokia Bell Labs/Trinity College Dublin                                |                  |
| 11:10 - 11:20 | REACTIVE CONVECTIVE-DISSOLUTION IN A HELE-SHAW CELL<br>Venue: Foyer<br>Dr Parama Ghoshal, Jadavpur University                                                                                                                |                  |
| 11:20 - 11:30 | DROPLET BOILING ON A SUPERHEATED LIQUID INFUSED SURFACE<br>Venue: Foyer<br>Mr Patrick Sullivan, Trinity College Dublin                                                                                                       |                  |
| 11:30 - 11:40 | SOLITARY WAVE PROPAGATING AROUND CIRCULAR STRUCTURES IN LEVEL-SET FINITE ELEMENT FRAMEWORK<br>Venue: Foyer<br>Prof Haegyun Lee, Dankook University                                                                           |                  |
| 11:40 - 11:50 | COORDINATION PROPERTIES OF OXYDIACETATE AND THIODIACETATE LIGANDS TOWARDS COBALT(II) AND NICKEL(II) IONS IN SOLUTIONS – EXPERIMENTAL AND THEORETICAL STUDIES<br>Venue: Foyer<br>Prof. Lech Chmurzyński, University of Gdańsk |                  |
| 11:50 - 12:00 | MICROSCALE HEAT TRANSFER MODULATION FOR SERVER CPU COOLING USING MOVABLE STRUCTURES<br>Venue: Foyer<br>Mr Eoin Oude Essink, Trinity College Dublin                                                                           |                  |
| 12:00 - 12:10 | HYBRID ABSORPTOIN CYCLE FOR FLEXIBLE USE OF HEAT PUMP AND REFRIGERATION SYSTEM<br>Venue: Foyer<br>Dr. Sung Joo Hong, Chonbuk National University                                                                             |                  |
| 12:10 - 12:20 |                                                                                                                                                                                                                              |                  |

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### Best Paper Certificates

| Session                            | Paper Title                                                                                                          | Authors                                                         |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| POSTER SESSION 1                   | CHARACTERISATION AND MODELLING OF SMALL DIAMETER MESH WICK HEAT PIPES FOR LOW POWER APPLICATIONS                     | Alison Clarke, Kate Smith and Tim Persoons                      |
| AERODYNAMICS 1                     | NON-UNIFORM HEATING CORRECTION FOR TEMPERATURE DECLINE THERMOGRAPHY                                                  | Stefan Von Hoesslin, Juergen Gruendmayer and Andreas Zeisberger |
| TWO-PHASE FLOW 1                   | AN EXPERIMENTAL STUDY OF FLOW BOILING IN FRACTAL-LIKE MINICHANNELS FABRICATED BY SELECTIVE LASER MELTIN              | Yao Song See and Kai Choong Leong                               |
| AIR CONDITIONING & REFRIGERATION   | QUANTIFICATION OF LOCAL AIR-SIDE HEAT TRANSFER COEFFICIENT USING COLOR-CHANGE COATINGS                               | Stefan Elbel and Min Che                                        |
| HEAT EXCHANGERS 1                  | PRESSURE DROP CHARACTERISTICS OF TRANSITIONAL FLOW THROUGH A SMOOTH TUBE WITH PERIPHERAL U-CUT TWISTED TAPE INSERTS  | Marilize Everts, Sogo Abolarin and Josua Meyer                  |
| NON-LINEAR THERMAL FLUID PHENOMENA | BASIC FLOWS AND HEAT TRANSFER OF THERMAL MARANGONI CONVECTION IN RECTANGULAR LIQUID FILM                             | Takahiro Tsukahara, Koya Yamasaki and Ichiro Ueno               |
| MULITPHASE FLOW 1                  | THE BEHAVIOR OF AERODYNAMICALLY DRIVEN RIVULET FLOWS                                                                 | Johannes Feldmann, Ilia Roisman and Cameron Tropea              |
| EXPERIMENTAL                       | NEAR-INFRARED TEMPERATURE MEASUREMENT OF WATER NEAR MICRO-MAGNETIC PARTICLES IN THE MICROFLUIDIC CHANNEL UNDER HIGH- | Han Van Cuong and Kakuta Naoto                                  |

|                                    |                                                                                                                                                                               |                                                                                                                                                                                  |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| METHODS                            | FREQUENCY INDUCTION HEATING                                                                                                                                                   |                                                                                                                                                                                  |
| COMPUTATIONAL FLUID DYNAMICS 1     | INVESTIGATIONS OF A PIPE-JET WITH AN ANNULAR CAVITY INTO A CROSSFLOW                                                                                                          | Jeremy Bonifacio, Hamid Rahai and Shahab Taherian                                                                                                                                |
| SPRAYS                             | FAST SPRAY COOLING: EFFECT OF THE LIQUID TEMPERATURE                                                                                                                          | Fabian M. Tenzer, Ilia V. Roisman, Cameron Tropea and Minh K. Pham                                                                                                               |
| HEAT TRANSFER ENHANCEMENT 1        | NUMERICAL INVESTIGATION OF JET IMPINGEMENT HEAT TRANSFER IN SOLAR RECEIVERS                                                                                                   | Ken Craig, Jesse Quick, Marcel Slootweg and Josua Meyer                                                                                                                          |
| ENERGY STORAGE 1                   | LOW TEMPERATURE THERMAL STORAGE AS A RANKINE CYCLE COOLING SOLUTION                                                                                                           | Alan O'Donovan, Ronan Grimes and Paul Sikora                                                                                                                                     |
| TURBULENCE & TURBULENCE FLOWS 1    | BOUNDARY LAYER TURBULENCE AND FREESTREAM TURBULENCE INTERFACE, TURBULENT SPOT AND FREESTREAM TURBULENCE INTERFACE, LAMINAR BOUNDARY LAYER AND FREESTREAM TURBULENCE INTERFACE | Xiaohua Wu                                                                                                                                                                       |
| DUCT & CHANNEL FLOW                | 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                                                                                                                                          |
| CONVECTION HEAT TRANSFER 1         | 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                                                                                                   |
| BOILING                            | DETERIORATION OF BOILING HEAT TRANSFER ON BIPHILIC SURFACES UNDER VERY LOW PRESSURES                                                                                          | Biao Shen, Tomosuke Mine, Sumitomo Hidaka, Koji Takahashi and Yasuyuki Takata                                                                                                    |
| POROUS FLOWS & MEDIA               | ENHANCEMENT OF PACKED BED REACTOR PERFORMANCE WITH A STATIC MIXER                                                                                                             | Abraham Kribus, Michael Epstein and Michal Deckelbaum                                                                                                                            |
| MULITPHASE FLOW 2                  | KEROSENE DROP IMPACT ONTO A DEEP WATER POOL                                                                                                                                   | Parmod Kumar                                                                                                                                                                     |
| THERMAL MANAGEMENT & CONTROL 1     | A ONE-DIMENSIONAL HEAT AND MASS TRANSFER MODEL OF SORPTION CELLS                                                                                                              | Avshalom Davidesko and Nir Tzabar                                                                                                                                                |
| ENERGY AND ENVIRONMENTAL SYSTEMS 1 | 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 |
| NUMERICAL SIMULATION 1             | NUMERICAL SIMULATION OF THERMAL INKJET DROPLET EJECTION                                                                                                                       | Sam Mallinson and Geordie, Tracie Barber and Guan Yeoh                                                                                                                           |
| TWO-PHASE FLOW 2                   | PRESSURE DROP AND VOID FRACTION OF HORIZONTAL AIR-WATER STRATIFIED FLOWS AT ATMOSPHERIC PRESSURE                                                                              | Igor Matteo Carraretto, Luigi Pietro Maria Colombo, Damiano Fasani and Manfredo Guilizzoni                                                                                       |
| HEAT EXCHANGERS 2                  | STUDY OF CONVECTIVE CONDENSATION IN A THERMOSIPHON LOOP                                                                                                                       | Majed Eddine Moustaid, Cyril Buttay and Vincent Platel                                                                                                                           |
| TURBULENCE & TURBULENCE FLOWS 2    | 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                                                                                                                 |
| COMPUTATIONAL FLUID DYNAMICS 2     | 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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| POSTER SESSION 3               | DROPLET BOILING ON A SUPERHEATED LIQUID INFUSED SURFACE                                                                                                        | Patrick Sullivan, Tim Persoons and Ryan Enright                                                                                      |
| NUMERICAL SIMULATION 2         | 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 |
| CONDUCTION 1                   | NUMERICAL CHARACTERIZATION AND VALIDATION OF THE THERMAL RESPONSE OF A PARTIALLY FILLED ISO CONTAINER EXPOSED TO REAL WEATHER CONDITIONS                       | Ken Blecker and Brian Hunter                                                                                                         |
| ENERGY STORAGE 2               | 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.                                                       |
| HYDRODYNAMICS                  | 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                                                             |
| MISCELLANEOUS 2                | RADIATION EFFECT ON GROWTH OF MIST DROPLETS                                                                                                                    | Xinchang Li and Marcus Brewster                                                                                                      |
| THERMAL MANAGEMENT & CONTROL 2 | DROPLET THERMAL AND WETTING FOOTPRINT ON A SUPERHEATED SURFACE                                                                                                 | Vikash Kumar, David Newport and Ryan Enright                                                                                         |
| CONVECTION HEAT TRANSFER 3     | GRID INDEPENDENCE STUDY OF A 1D THERMAL TOPOLOGY OPTIMIZATION PROBLEM FOR HEAT SINKS                                                                           | Yang Zhou, Wouter Dekeyser and Martine Baelmans                                                                                      |
| HEAT TRANSFER ENHANCEMENT 2    | 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                        |
| MISCELLANEOUS 3                | EXPERIMENTS ON DENSITY INTERFACE WITH SUCCESSIVE VORTEX RINGS                                                                                                  | Advaith S and Saptarshi Basu                                                                                                         |
| COMBUSTION                     | 1D SIMULATION OF SODIUM-WATER REACTION (SWR)                                                                                                                   | Lucas David, Richard Saurel, François Beauchamp and Alexandre Allou                                                                  |
| COMPUTATIONAL FLUID DYNAMICS 3 | INVESTIGATING THE FLOWFIELD PHYSICS WITHIN COMPRESSIBLE BOUNDARY LAYERS                                                                                        | Frederick Ferguson                                                                                                                   |
| CONDUCTION 2                   | HEATQUIZ: GAME-BASED LEARNING IN HEAT AND MASS TRANSFER                                                                                                        | Wilko Rohlf, Sascha Welten, Manuel Rietz, Enno Sabelberg, Claas Ehrenpreis, Patric Figueiredo and Reinhold Kneer                     |
| BOILING 2                      | 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                                                         |
| NUMERICAL SIMULATION 3         | 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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# HEFAT 2019

Wicklow, Ireland

22 – 24 July 2019



Heat Transfer, Fluid Mechanics and Thermodynamics

## 21/07/2019

12:00 - 17:00

### **CHECK-IN & REGISTRATION**

Venue: Foyer

18:00 - 19:00

### **WELCOME**

Venue: Foyer

## 22/07/2019

07:00 - 08:30

### **REGISTRATION**

Venue: Foyer

08:30 - 09:00

### **OPENING ADDRESS BY CONFERENCE CHAIR**

Venue: Ballroom

Prof. Josua Meyer, University of Pretoria

09:00 - 09:40

### **KEYNOTE**

TURBULENCE CHARACTERISTICS AND BOUNDARY LAYER BEHAVIORS IN A TUMBLE-ENHANCED GASOLINE ENGINE

Venue: Ballroom

Prof. Masayasu Shimura, Tokyo Institute of Technology

09:40 - 10:20

### **SECRETIVE HYDRODYNAMICS DURING PHASE-CHANGE**

Venue: Ballroom

Dr Prashant Valluri, University of Edinburgh

10:20 - 10:40

### **MID-MORNING TEA/COFFEE BREAK**

Venue: Foyer

|               |                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                                    |                                                                                                                                                                                                                              |                                                                                                                                                                                        |
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| 10:40 - 11:00 | <p>AERODYNAMICS 1</p> <p>OVERVIEW OF MODELING FOR UNDEREXPANDED GAZ LEAK INTO A LIQUID</p> <p>Venue: Ballroom<br/>Mr Alexandre Allou, CEA</p>                                           | <p>TWO-PHASE FLOW 1</p> <p>EXPERIMENTAL STUDY ON LIQUID DISTRIBUTION IN A VANE TYPE PROPELLANT TANK BY DROP TOWER TEST</p> <p>Venue: Glencree &amp; Roundwood<br/>Dr. Wen Li, Beijing Institute of Control Engineering</p> | <p>AIR CONDITIONING AND REFRIGERATION</p> <p>CFD MODELING OF AIRFLOWS INSIDE THE UPPER CABIN OF AN INDUSTRIAL BEVERAGE COOLER</p> <p>Venue: Laragh &amp; Glenealy<br/>Dr Farzin Abbasian, Sheridan College</p>     | <p>HEAT EXCHANGERS 1</p> <p>PRESSURE DROP CHARACTERISTICS OF TRANSITIONAL FLOW THROUGH A SMOOTH TUBE WITH PERIPHERAL U-CUT TWISTED TAPE INSERTS</p> <p>Venue: Enniskerry<br/>Dr. Marilize Everts, University of Pretoria</p> | <p>NON-LINEAR THERMAL FLUID PHENOMENA</p> <p>A NEW GENERALIZED IBL MODEL FOR FLOW DOWN AN INCLINE</p> <p>Venue: Heritage Suite<br/>U-Prof. Serge D'Alessio, University of Waterloo</p> |
| 11:00 - 11:20 | <p>COMPARISON OF HYBRID MULTI-DIMENSIONAL NUMERICAL MODELS OF A BI-STABLE LOAD-SWITCHED SUPERSONIC FLUIDIC OSCILLATOR</p> <p>Venue: Ballroom<br/>Gary Rankin, University of Windsor</p> | <p>EXPERIMENTAL ANALYSIS OF THE DEPOSITION OF MAGNETIC BEADS ON THE WALL OF MICROCHANNELS</p> <p>Venue: Glencree &amp; Roundwood<br/>Dr Sylvana Varela Ballesta, Universitat Rovira i Virgili</p>                          | <p>ABOUT USING THE MINIMUM ENERGY DISSIPATION TO FIND THE STEADY-STATE FLOW DISTRIBUTION IN NETWORKS</p> <p>Venue: Laragh &amp; Glenealy<br/>phD. Victor-Manuel Soto-Frances, Universitat Politècnica València</p> | <p>INFLUENCE OF THE WORKING FLUID ON THE PERFORMANCES OF AN AIR TO AIR PULSATING HEAT PIPE COOLER</p> <p>Venue: Enniskerry<br/>Dr Bruno Agostini, ABB Switzerland Ltd.</p>                                                   | <p>BASIC FLOWS AND HEAT TRANSFER OF THERMAL MARANGONI CONVECTION IN RECTANGULAR LIQUID FILM</p> <p>Venue: Heritage Suite<br/>Dr. Takahiro Tsukahara, Tokyo University of Science</p>   |
| 11:20 - 11:40 | <p>NON-UNIFORM HEATING CORRECTION FOR TEMPERATURE DECLINE THERMOGRAPHY</p> <p>Venue: Ballroom<br/>Mr Stefan von Hoesslin, MTU Aero Engines AG</p>                                       | <p>AN EXPERIMENTAL STUDY OF FLOW BOILING IN FRACTAL-LIKE MINICHANNELS FABRICATED BY SELECTIVE LASER MELTING</p> <p>Venue: Glencree &amp; Roundwood<br/>Mr Yao Song See, Nanyang Technological University</p>               | <p>QUANTIFICATION OF LOCAL AIR-SIDE HEAT TRANSFER COEFFICIENT USING COLOR-CHANGE COATINGS</p> <p>Venue: Laragh &amp; Glenealy<br/>Prof. Stefan Elbel, University of Illinois at Urbana-Champaign</p>               | <p>INVESTIGATION OF AN INNOVATIVE ADSORBENT COATED ADSORPTION CYCLE</p> <p>Venue: Enniskerry<br/>Dr Muhammad Wakil Shahzad, King Abdullah University of Science and Technology</p>                                           | <p>TEMPERATURE BEHAVIOR OF SALT-BITUMEN MIX</p> <p>Venue: Heritage Suite<br/>Dr Paul Jourda, CEA/DEN</p>                                                                               |
| 11:40 - 12:00 | <p>COUNTER-ROTATING CENTRIFUGAL COMPRESSOR DESIGN AND OPTIMIZATION</p> <p>Venue: Ballroom<br/>Mr Cheikh Brahim Abed, Arts &amp; Métiers ParisTech</p>                                   | <p>PRESSURE DROP OF HIGH-QUALITY AIR-WATER TWO-PHASE FOAM FLOW IN A VERTICAL CIRCULAR PIPE</p> <p>Venue: Glencree &amp; Roundwood<br/>Prof Ji Hwan Jeong, Pusan National University</p>                                    | <p>THE EFFECTS OF AIRFLOW NONUNIFORMITY ON FIN-AND-TUBE HEAT EXCHANGERS: AN EXPERIMENTAL STUDY</p> <p>Venue: Laragh &amp; Glenealy<br/>Mr. Josip Batista, University of Rijeka, Faculty of Engineering</p>         | <p>NUMERICAL SIMULATION OF THE HEAT TRANSFER PROCESS OF A NON-NEWTONIAN FLUID</p> <p>Venue: Enniskerry<br/>Dr Juan Ignacio Corcoles Tendero, Castilla -La Mancha University</p>                                              |                                                                                                                                                                                        |
| 12:00 - 12:20 | <p>FLOW-FIELDS FOR</p>                                                                                                                                                                  | <p>REACTIVE AND NON-</p>                                                                                                                                                                                                   | <p>CFD ANALYSIS OF SOLAR</p>                                                                                                                                                                                       | <p>IMPROVEMENTS OF HEAT</p>                                                                                                                                                                                                  |                                                                                                                                                                                        |

|               |                                                                                                                                                                                          |                                                                                                                                                                                                             |                                                                                                                                                                                       |                                                                                                                                                                                                  |                                                                                                                                                                                  |
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|               | UPSTREAM FILM COOLING CONFIGURATION IN A VANE CASCADE<br>Venue: Ballroom<br>Mrs Barbara Huyssen, University of Pretoria                                                                  | REACTIVE LIQUID-LIQUID DISPERSED FLOW IN A SERPENTINE MINI REACTOR<br>Venue: Glencree & Roundwood<br>Dr Sumana Ghosh, Indian Institute of Technology Roorkee                                                | COLLECTOR WITH TRUNCATED HEMISPHERICAL VORTEX GENERATORS<br>Venue: Laragh & Glenealy<br>Mr. Parag Jyoti Bezbaruah, National Institute of Technology Meghalaya                         | EXCHANGERS SUITED FOR THE HIGH-TECH ELECTRONICS<br>Venue: Enniskerry<br>Prof Vaclav Vacek, CZech Technical University in Prague                                                                  |                                                                                                                                                                                  |
| 12:20 - 12:40 | MEANDERING MECHANISMS OF AN ACTUATED WING-TIP VORTEX USING PROPER ORTHOGONAL DECOMPOSITION (POD)<br>Venue: Ballroom<br>Mohsen Ferchichi, Royal Military College of Canada                |                                                                                                                                                                                                             | MICROCHANNEL HEAT EXCHANGER AIR SIDE HEAT TRANSFER ANALYSIS AND OPTIMIZATION<br>Venue: Laragh & Glenealy<br>Dr. Vladimir Glazar, University of Rijeka                                 | SHELL-AND-TUBE HEAT EXCHANGER OPTIMIZATION - IMPACT OF PROBLEM FORMULATION AND COST FUNCTION<br>Venue: Enniskerry<br>Dr Jussi Saari, LUT University                                              |                                                                                                                                                                                  |
| 12:40 - 13:40 | <b>LUNCH</b><br>Venue: Foyer                                                                                                                                                             |                                                                                                                                                                                                             |                                                                                                                                                                                       |                                                                                                                                                                                                  |                                                                                                                                                                                  |
| 13:40 - 14:00 | MULTIPHASE FLOW 1                                                                                                                                                                        | EXPERIMENTAL METHODS                                                                                                                                                                                        | CONDENSATION                                                                                                                                                                          | COMPUTATIONAL FLUID DYNAMICS 1                                                                                                                                                                   | SPRAYS                                                                                                                                                                           |
|               | USING COUPLED CFD-PBM AND TOMOGRAPHY TO ANALYZE GAS DISPERSION IN AN AERATED TANK EQUIPPED WITH A COAXIAL MIXER<br>Venue: Ballroom<br>Professor Farhad Ein-Mozaffari, Ryerson University | ADVANCED PRESSURE SWING ADSORPTION DESALINATION CYCLE COMBINED WITH THERMAL VAPOR COMPRESSION<br>Venue: Glencree & Roundwood<br>Dr. Doskhan Ybyraiymkul, King Abdullah University of Science and Technology | MICRO-STRUCTURED SURFACES IN CONDENSATION: EXPERIMENTAL APPROACH AND HEAT TRANSFER ANALYSIS<br>Venue: Laragh & Glenealy<br>Mr. Prof. Dr. Mehmet Arik, Özyegin University              | A NUMERICAL STUDY ON THE FINITE-VOLUME BASED TOPOLOGY OPTIMIZATION FOR THE AERO-THERMAL PERFORMANCE OF A FIN-SHAPED STRUCTURE<br>Venue: Enniskerry<br>Mr Jun Seok Lee, Pusan National University | EXPERIMENTAL STUDY ON THE HEAT TRANSFER CHARACTERISTICS OF CRYOGEN SPRAY COOLING COUPLED WITH COLD AIRJET<br>Venue: Heritage Suite<br>Ms Guo Xiaoxing, Xi'an Jiaotong University |
| 14:00 - 14:20 | EFFECTS OF GRAVITATIONAL FORCES ON SELF-PROPELLED DROPLET JUMPING<br>Venue: Ballroom<br>Mr. Patric Figueiredo, RWTH Aachen University                                                    | CONJUGATE NATURAL CONVECTION AND SURFACE RADIATION IN A PARTIALLY OPEN DIFFERENTIALLY HEATED CAVITY WITH A DISCRETE HEAT SOURCE AT BOTTOM<br>Venue: Glencree & Roundwood<br>Prof. Swarup Kumar              | AN EFFECT OF EXTERNAL ELECTRIC FIELD ON DYNAMICS OF A LEVITATING CLUSTER OF WATER DROPLETS<br>Venue: Laragh & Glenealy<br>Dr Leonid Dombrovsky, Joint Institute for High Temperatures | NUMERICAL INVESTIGATION OF NATURAL CONVECTION HEAT TRANSFER FROM BENT PLATE WITH CONSTANT WALL HEAT FLUX<br>Venue: Enniskerry<br>Mr Shibajee Behera, IIT Kharagpur                               | EXPERIMENTAL INVESTIGATION OF HYDRODYNAMICS AND HEAT TRANSPORT DURING VERTICAL COALESCENCE OF TWO DROPS CONSEQUENTLY IMPACTING ONTO A HOT WALL<br>Venue: Heritage Suite          |

Mahapatra, Indian Institute of  
Technology Bhubaneswar

Apl. Prof. Dr. Sc. Tatiana  
Gambaryan-Roisman,  
Technische Universität  
Darmstadt

14:20 - 14:40

THE BEHAVIOR OF  
AERODYNAMICALLY  
DRIVEN RIVULET FLOWS  
Venue: Ballroom  
Mr Johannes Feldmann, TU  
Darmstadt

EXPERIMENTAL ANALYSIS  
OF PARAMETERS  
INFLUENCING THE  
HUMIDIFICATION OF AIR IN  
BUBBLE COLUMNS FOR  
THERMAL WATER  
TREATMENT SYSTEMS  
Venue: Glencree &  
Roundwood  
Mr Elias Eder, Vorarlberg  
University of Applied Sciences

LAMINAR FILM  
CONDENSATION ON A  
VERTICAL SURFACE WITH  
AN UPWARD VAPOR FLOW  
Venue: Laragh & Glenealy  
Dr. Kentaro Kanatani,  
Tsukuba University of  
Technology

EFFECT OF FLOW AND  
GEOMETRIC  
CONFIGURATION ON  
OXYGEN SEPARATION  
PRODUCTIVITY OF ION  
TRANSPORT MEMBRANES  
Venue: Enniskerry  
Prof. Rached Ben-Mansour,  
KFUPM

FAST SPRAY COOLING:  
EFFECT OF THE LIQUID  
TEMPERATURE  
Venue: Heritage Suite  
Mr Fabian M. Tenzer, TU  
Darmstadt

14:40 - 15:00

TREND OF EXPERIMENTAL  
NATURAL CONVECTION OF  
NANOFLUIDS  
Venue: Ballroom  
Prof Sohel Murshed, Instituto  
Superior Técnico

NEAR-INFRARED  
TEMPERATURE  
MEASUREMENT OF WATER  
NEAR MICRO-MAGNETIC  
PARTICLES IN THE  
MICROFLUIDIC CHANNEL  
UNDER HIGH-FREQUENCY  
INDUCTION HEATING  
Venue: Glencree &  
Roundwood  
Mr Han Van Cuong, Tokyo  
Metropolitan University

EXPERIMENTAL STUDY OF  
A HEAT EXCHANGER  
INTEGRATING THE  
PUMPING FUNCTION  
Venue: Enniskerry  
Dr. Marc Miscevic, University  
of Toulouse

INVESTIGATIONS OF A  
PIPE-JET WITH AN  
ANNULAR CAVITY INTO A  
CROSSFLOW  
Venue: Laragh & Glenealy  
Mr. Jeremy Bonifacio,  
California State University

15:00 - 15:20

NUMERICAL  
INVESTIGATION OF THE  
EFFECT OF CONJUGATE  
HEAT TRANSFER ON  
SULFURIC ACID  
CONDENSATION IN A  
LARGE TWO-STROKE  
MARINE DIESEL ENGINE  
Venue: Laragh & Glenealy  
Jiun Cai Ong, Technical  
University of Denmark

NUMERICAL SIMULATION  
OF FREEZING PROCESS  
OF STRAWBERRY UNDER  
COLD NITROGEN BLAST  
Venue: Enniskerry  
Prof. Hongbo Xu, Technical  
Institute of Physics and  
Chemistry, CAS

15:20 - 15:40

**MID-AFTERNOON TEA/COFFEE BREAK**  
Venue: Foyer

15:40 - 16:00

HEAT TRANSFER  
ENHANCEMENT 1

COOLING, CRYOGENICS  
AND ELECTRONIC

ENERGY STORAGE 1

TURBULENCE AND  
TURBULENCE FLOWS 1

UNSTEADY FLOWS

|               |                                                                                                                                                              |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                                                                         |
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|               | AIR FREE CONVECTION OVER A TWO-SIDED PLATE EXTENDED BY RECTANGULAR HOLLOW BLOCKS<br>Venue: Ballroom<br>Dr Vadim Dubovsky, Ben-Gurion University of the Negev | COOLING<br>SIMULATION OF HEAT TRANSFER AND PRESSURE DROP IN FLOW BOILING CO2 FOR COOLING SYSTEMS OF PARTICLE PHYSICS DETECTORS<br>Venue: Glencree & Roundwood<br>Prof. Dr. Stéphan Barbe, Cologne University of applied Sciences | LOW TEMPERATURE THERMAL STORAGE AS A RANKINE CYCLE COOLING SOLUTION<br>Venue: Laragh & Glenealy<br>Dr. Alan O'Donovan, Limerick Institute of Technology                                                                            | BOUNDARY LAYER TURBULENCE AND FREESTREAM TURBULENCE INTERFACE, TURBULENT SPOT AND FREESTREAM TURBULENCE INTERFACE, LAMINAR BOUNDARY LAYER AND FREESTREAM TURBULENCE INTERFACE<br>Venue: Enniskerry<br>Prof. Xiaohua Wu, Royal Military College of Canada | INFLUENCE OF PULSATION FREQUENCIES ON THE HEAT TRANSFER IN LAMINAR FREE SURFACE JET IMPINGEMENT<br>Venue: Heritage Suite<br>Mr Claas Ehrenpreis, RWTH Aachen University |
| 16:00 - 16:20 | COZYCAR: DESIGN AND ANALYSIS<br>Venue: Ballroom<br>Dr. haifa El-Sadi, Wentworth Institute of Technology                                                      | NUMERICAL INVESTIGATION OF MULTI-PULSED CRYOGEN SPRAY COOLING FOR SKIN COLD PROTECTION IN LASER LIPOLYSIS<br>Venue: Glencree & Roundwood<br>Ms Hui Xin, Xi'an Jiaotong University                                                | INVESTIGATION INTO HEAT TRANSFER OF A FLUID-COOLED BATTERY DEPENDING ON DRIVING PROFILE OF ELECTRIC BUSES VIA THERMAL IMPULSE RESPONSE TECHNIQUE<br>Venue: Laragh & Glenealy<br>Mr. Sebastian Angermeier, MAHLE International GmbH | MEASUREMENT OF TURBULENT WALL SKIN FRICTION IN AN 8 DEGREE CONICAL DIFFUSER<br>Venue: Enniskerry<br>Dr. Robert Derksen, University of Manitoba                                                                                                           | COMPUTATIONAL FLUID DYNAMIC MODEL OF A SYNTHETIC JET EJECTOR AND TEST FACILITY<br>Venue: Heritage Suite<br>Gary Rankin, University of Windsor                           |
| 16:20 - 16:40 | NUMERICAL INVESTIGATION OF JET IMPINGEMENT HEAT TRANSFER IN SOLAR RECEIVERS<br>Venue: Ballroom<br>Prof Ken Craig, University of Pretoria                     | EXERGY-BASED METHODS APPLIED TO THE LOW-TEMPERATURE PROCESSES<br>Venue: Glencree & Roundwood<br>Prof. Tatiana Morosuk, Technical University Berlin                                                                               | PERFORMANCE CHARACTERISTICS OF PHASE CHANGE ENERGY STORAGE CYLINDRICAL ANNULUS<br>Venue: Laragh & Glenealy<br>Mohamed Alnaakeeb, Faculty of Engineering                                                                            | TURBULENT SCALAR FIELDS AND HEAT OR MASS TRANSFER EQUATIONS FOR TUBE FLOWS WITH LARGE RANGE OF PRANDTL OR SCHMIDT NUMBER<br>Venue: Enniskerry<br>Mr Houjian Zhao, Tsinghua University                                                                    | INVESTIGATIONS OF UNSTEADY CONDENSATION OF R134A IN A HORIZONTAL PIPE<br>Venue: Heritage Suite<br>Ms Diksha Juggurnath, University of Mauritius                         |
| 16:40 - 17:00 | CORRELATION BETWEEN DIFFERENT PARAMETERS OF THE VORTEX TUBE AND THE REYNOLDS NUMBER OF THE VORTEX TUBE<br>Venue: Ballroom<br>Ms Rutika Godbole, Indian       | NUMERICAL STUDY OF THE CRYOGENIC COOLING OF AMPLIFIERS FOR HIGH POWER LASERS<br>Venue: Glencree & Roundwood<br>Dr. Morgane Bellec, Univ.                                                                                         | EXPERIMENTAL STUDY OF THERMAL PROCESSING LUNAR REGOLITH SIMULANT<br>Venue: Laragh & Glenealy<br>DR Chao Wang, China Academy of Space                                                                                               | NUMERICAL STUDY OF PROPANE AND HYDROGEN TURBULENT PREMIXED FLAMES IN A SMALL SCALE OBSTRUCTED CHAMBER<br>Venue: Enniskerry<br>Mr. Mohamed Elshimy,                                                                                                       |                                                                                                                                                                         |

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| 16:40 - 17:00     | Institute of Technology<br>Madras<br>HEAT TRANSFER OF<br>LIQUID-LIQUID TWO-<br>PHASE FLOW IN<br>MICROCHANNELS<br>Venue: Ballroom<br>Mr. Ayoub Abdollahi, UoA                                                                                               | Grenoble Alpes, CEA, INAC, SBT<br>EXPERIMENTAL<br>INVESTIGATION ON THE<br>START-UP TIME OF A<br>SMALL-SCALE DIFFUSION<br>ABSORPTION<br>REFRIGERATION (DAR)<br>UNIT<br>Venue: Glencree &<br>Roundwood<br>Prof Christos Markides,<br>Imperial College London                | Technology<br>EXPERIMENTAL<br>EVALUATION OF NOVEL<br>FABRIC THERMAL STORE<br>Venue: Laragh & Glenealy<br>Dr Ahmed Elsayed, Kingston<br>University                      | Loughborough University<br>FLOW PAST A ROUGH<br>HEMISPHERE MOUNTED<br>ON HORIZONTAL SURFACE<br>IN A CONFINED CHANNEL<br>Venue: Enniskerry<br>Dr. Afshin Goharzadeh,<br>Khalifa University of Science<br>and Technology |
| <b>23/07/2019</b> |                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                           |                                                                                                                                                                        |                                                                                                                                                                                                                        |
| 08:00 - 09:00     | <b>REGISTRATION</b><br>Venue: Foyer                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                           |                                                                                                                                                                        |                                                                                                                                                                                                                        |
| 09:00 - 09:40     | KEYNOTE<br><b>ADVANCES IN MODELING AND SIMULATION OF TRANSPORT PHENOMENA IN HETEROGENEOUS MEDIA</b><br>Venue: Ballroom<br>Prof. Marcelo De Lemos, Instituto Tecnológico de Aeronáutica - ITA                                                               |                                                                                                                                                                                                                                                                           |                                                                                                                                                                        |                                                                                                                                                                                                                        |
| 09:40 - 10:20     | <b>TUNING PHONON TRANSPORT: FROM INTERFACES TO NANOSTRUCTURES</b><br>Venue: Ballroom<br>Prof Pamela Norris, University of Virginia                                                                                                                         |                                                                                                                                                                                                                                                                           |                                                                                                                                                                        |                                                                                                                                                                                                                        |
| 10:20 - 10:40     | <b>MID-MORNING TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                           |                                                                                                                                                                        |                                                                                                                                                                                                                        |
| 10:40 - 11:00     | DUCT AND CHANNEL<br>FLOW<br>EXPERIMENTAL ANALYSIS<br>OF FLUID FLOW<br>FLUCTUATIONS IN THE<br>INTAKE PORT OF A SMALL<br>INTERNAL COMBUSTION<br>ENGINE<br>Venue: Ballroom<br>Prof. Dr. Peter Heidrich,<br>University of Applied Science<br>of Kaiserslautern | CONVECTION HEAT<br>TRANSFER 1<br>EFFECT OF INCLINATION<br>BUOYANCY ON THE FULLY<br>DEVELOPED FRICTION<br>FACTORS IN THE LAMINAR<br>AND TRANSITIONAL FLOW<br>REGIMES OF SMOOTH<br>TUBE<br>Venue: Glencree &<br>Roundwood<br>Dr. Marilize Everts, University<br>of Pretoria | BOILING 1<br>ENHANCEMENT OF POOL<br>BOILING HEAT TRANSFER<br>USING 3D PRINTED<br>POLYMER FIXTURES<br>Venue: Laragh & Glenealy<br>Dr. Roger Kempers, York<br>University | POROUS FLOWS AND<br>MEDIA<br>PRESSURE DROP THROUGH<br>RANDOMLY PACKED BEDS<br>OF ELLIPSOIDAL<br>PARTICLES<br>Venue: Enniskerry<br>Dr Jaap Hoffmann,<br>Stellenbosch University                                         |
|                   |                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                           |                                                                                                                                                                        | GAS TURBINES<br>THERMALLY DRIVEN<br>CHILLER AND POWER<br>GENERATION TO<br>ENHANCE GAS TURBINE<br>PRODUCTION DURING<br>PEAK DEMAND<br>Venue: Heritage Suite<br>Dr. Nicolas Tauveron, CEA                                |
| 11:00 - 11:20     | EVALUATION OF THE 1D<br>MODELLING OF FORCED                                                                                                                                                                                                                | EXTENSIONS OF NODAL<br>INTEGRAL METHODS FOR                                                                                                                                                                                                                               | COOLING OF MOLTEN<br>MATERIAL IN THE BOTTOM                                                                                                                            | DETERMINATION OF AN<br>OPTIMAL INITIAL<br>ENDWALL ADIABATIC FILM-<br>COOLING EFFECTIVENESS                                                                                                                             |

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|               | CONVECTION HEAT<br>TRANSFER IN DUCTS<br>Venue: Ballroom<br>Prof Charl Du Toit, North-<br>West University                                                                                                  | HEAT AND MASS<br>TRANSFER PROBLEMS IN<br>ARBITRARY GEOMETRIES<br>Venue: Glencree &<br>Roundwood<br>Prof. Rizwan Uddin, University<br>of Illinois                                                                                                  | OF THE VESSEL OF A<br>NUCLEAR REACTOR<br>DURING A SEVERE<br>ACCIDENT<br>Venue: Laragh & Glenealy<br>Dr. Sergio Quezada,<br>Universidad Nacional<br>Autónoma de México                    | CONDITION FOR<br>THERMALLY STABLE DEEP<br>DISPOSAL OF HIGH LEVEL<br>RADIOACTIVE WASTE<br>Venue: Enniskerry<br>Mr Minseop Kim, KAIST                                                                                                                                  | WITH UPSTREAM FILM<br>COOLING SCHEMES IN A<br>FILLETED VANE CASCADE<br>Venue: Heritage Suite<br>Mrs Barbara Huysen,<br>University of Pretoria                                                                                           |
| 11:20 - 11:40 | CONJUGATE HEAT<br>TRANSFER IN THERMAL<br>INKJET PRINTHEADS<br>Venue: Ballroom<br>Dr Sam Mallinson, Memjet                                                                                                 | CONVONICS: ACOUSTIC<br>FIELD ASSISTED<br>CONFINED NATURAL<br>CONVECTIVE HEAT<br>TRANSFER<br>Venue: Glencree &<br>Roundwood<br>Miss Akshita Swaminathan,<br>SRM Institue of Science and<br>Technology                                              | EXPERIMENTAL STUDY OF<br>THE COOLING OF MOVING<br>STRIP<br>Venue: Laragh & Glenealy<br>Prof. Jean-Marie Buchlin, von<br>Karman Institute for Fluid<br>Dynamics                           | ENHANCEMENT OF<br>PACKED BED REACTOR<br>PERFORMANCE WITH A<br>STATIC MIXER<br>Venue: Enniskerry<br>Prof. Abraham Kribus, Tel<br>Aviv University                                                                                                                      | A NUMERICAL STUDY ON<br>NON-PREMIXED<br>COMBUSTION OF LIQUID<br>FUEL WITH SWIRL FLOW<br>AND DILUTION AT HIGH<br>PRESSURE CONDITIONS<br>Venue: Heritage Suite<br>Mr. Subhankar Mohapatra,<br>Indian Institute of Technology<br>Kharagpur |
| 11:40 - 12:00 | THREE-DIMENSIONAL<br>FLUID FLOW STRUCTURE<br>AND REATTACHMENT<br>CHARACTERISTICS OF A<br>BACKWARD-FACING STEP<br>FLOW IN A RECTANGULAR<br>DUCT<br>Venue: Ballroom<br>Dr Zou Shuai, Doshisha<br>University | REGIMES OF VALIDITY OF<br>THE BOUSSINESQ<br>APPROXIMATION FOR<br>NATURAL CONVECTION<br>FROM A VERTICAL<br>CYLINDER IN POWER-LAW<br>FLUIDS<br>Venue: Glencree &<br>Roundwood<br>Mr. Subhasisa Rath, Indian<br>Institute of Technology<br>Kharagpur | DETERIORATION OF<br>BOILING HEAT TRANSFER<br>ON BIPHILIC SURFACES<br>UNDER VERY LOW<br>PRESSURES<br>Venue: Laragh & Glenealy<br>Dr. Biao Shen, Kyushu<br>University                      | NUMERICAL SIMULATION<br>OF HEAT TRANSFER AND<br>FLUID FLOW IN PRESENCE<br>OF NANO FLUIDIC<br>ENCLOSURE PLACED<br>INSIDE A FLUID<br>SATURATED POROUS<br>CAVITY<br>Venue: Enniskerry<br>Prof. Swarup Kumar<br>Mahapatra, Indian Institute of<br>Technology Bhubaneswar |                                                                                                                                                                                                                                         |
| 12:00 - 12:20 | NAVIER-STOKES CFD<br>ASSESSMENT OF TWO<br>MULTI-NOZZLE ANNULAR<br>JET PUMPS WITH A<br>DESIGN OPTIMISATION<br>STUDY<br>Venue: Ballroom<br>Mr Andrew Morrall, Lancaster<br>University                       | AUGMENTATION OF NON-<br>BOUSSINESQ EFFECTS<br>DUE TO SHEAR-RATE<br>DEPENDENT VISCOSITY IN<br>NATURAL CONVECTION<br>FROM FINS<br>Venue: Glencree &<br>Roundwood<br>Mr. Subhasisa Rath, Indian<br>Institute of Technology<br>Kharagpur              | SURFACE PROPERTIES<br>INFLUENCE ON HEAT<br>TRANSFER DURING<br>COOLING OF HIGH-<br>TEMPERATURE<br>CYLINDRICAL BODIES IN<br>LIQUIDS<br>Venue: Laragh & Glenealy<br>Dr. Arslan Zabirov, NRU | THERMAL EFFECTS OF<br>MATERIALS CONTAINING<br>PCM<br>Venue: Ballroom<br>prof. Jiri Militky, Technical<br>university of Liberec                                                                                                                                       |                                                                                                                                                                                                                                         |
| 12:20 - 12:40 | THERMOHYDRAULIC                                                                                                                                                                                           | PILOT SCALE                                                                                                                                                                                                                                       | ANALYTICAL                                                                                                                                                                               | EXPERIMENTAL                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                         |

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|               | CHARACTERISTICS OF TRANSITIONAL FLOW IN A CIRCULAR TUBE WITH INLET DISTURBANCES<br>Venue: Enniskerry<br>Dr. Suvanjan Bhattacharyya, University of Pretoria | EXPERIMENTS OF A PILLOW PLATE THERMOSIPHON REBOILER<br>Venue: Glencree & Roundwood<br>Prof. Dr.-Ing. Stephan Scholl, Technische Universität Braunschweig                                      | CALCULATION OF HEAT TRANSFER UNDER UNSTEADY NUCLEATE BOILING<br>Venue: Laragh & Glenealy<br>Dr. Anatoliy Levin, Melentiev Energy Systems Institute                                           | INVESTIGATION OF FULLY DEVELOPED FLOWS OF AIR IN STRAIGHT RECTANGULAR DUCTS WITH ADJACENT OPEN AND POROUS-METAL-FOAM DOMAINS<br>Venue: Enniskerry<br>Professor Bantwal Rabi Baliga, McGill University                                              |
| 12:40 - 13:40 | <b>LUNCH</b><br>Venue: Foyer                                                                                                                               |                                                                                                                                                                                               |                                                                                                                                                                                              |                                                                                                                                                                                                                                                    |
| 13:40 - 14:00 | MULTIPHASE FLOW 2                                                                                                                                          | THERMAL MANAGEMENT AND CONTROL 1                                                                                                                                                              | ENERGY AND ENVIRONMENTAL SYSTEMS 1                                                                                                                                                           | NUMERICAL SIMULATION 1 MISCELLANEOUS 1                                                                                                                                                                                                             |
|               | SUBCOOLED POOL BOILING OF SODIUM CHLORIDE SOLUTIONS<br>Venue: Ballroom<br>Prof. Chin Pan, City University of Hong Kong                                     | EXPERIMENTAL COMPARISON OF THE REFRIGERATION PERFORMANCE OF R32 AND R410A IN FULL AND PARTIALLY FILLED CONDITIONS<br>Venue: Glencree & Roundwood<br>Prof Mario Farrugia, University of Malta  | EXPERIMENTAL STUDY AND MODELLING OF A HIGH-PRESSURE RATIO LIQUID PISTON COMPRESSOR<br>Venue: Laragh & Glenealy<br>Dr. Mathieu Specklin, Arts et Métiers ParisTech                            | NEW 3D GUI ADVANCE OF THE RELAPSCDAPSIM 3.4 CODE<br>Venue: Enniskerry<br>Ms. Heriberto Sánchez-Mora, Universidad Nacional Autónoma de México                                                                                                       |
| 14:00 - 14:20 | KEROSENE DROP IMPACT ONTO A DEEP WATER POOL<br>Venue: Ballroom<br>Dr. Parmod Kumar, Indian Institute of Technology Mandi                                   | EXPERIMENTAL EVALUATION OF REFRIGERATION PERFORMANCE OF DEGASSING AND REGASSING OF AN INVERTER DRIVEN R410A SYSTEM<br>Venue: Glencree & Roundwood<br>Prof Mario Farrugia, University of Malta | ANALYTICAL OPTIMIZATION OF A SOLAR-DRIVEN COOLING SYSTEM ENHANCED WITH A PHOTOVOLTAIC EVAPORATIVE CHIMNEY<br>Venue: Laragh & Glenealy<br>Dr Javier Ruiz Ramírez, Miguel Hernández University | A NUMERICAL STUDY OF THE EFFECT OF A PLANE HORIZONTAL COVERING SURFACE ON NATURAL CONVECTIVE HEAT TRANSFER FROM A DOWNWARD FACING CIRCULAR HORIZONTAL HEATED ISOTHERMAL SURFACE<br>Venue: Enniskerry<br>Dr. Patrick Oosthuizen, Queen's University |
| 14:20 - 14:40 | MODELLING OF BUBBLY FLOW IN BUBBLE COLUMN REACTORS WITH A                                                                                                  | A ONE-DIMENSIONAL HEAT AND MASS TRANSFER MODEL OF SORPTION                                                                                                                                    | PERFORMANCE ANALYSIS OF DIFFERENT TWO-STAGE TRANSCRITICAL                                                                                                                                    | NUMERICAL AND EXPERIMENTAL STUDIES OF NATURAL CONVECTIVE                                                                                                                                                                                           |
|               |                                                                                                                                                            |                                                                                                                                                                                               |                                                                                                                                                                                              | AN INVESTIGATION INTO PHASE CHANGE MATERIALS FOR THERMAL                                                                                                                                                                                           |

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| 14:40 - 15:00 | MODIFIED BUBBLE BREAKAGE MODEL COUPLED WITH BUBBLE-INDUCED TURBULENCE<br>Venue: Ballroom<br>Professor Xiaogang Yang, University of Nottingham Ningbo China                                                             | CELLS<br>Venue: Glencree & Roundwood<br>Mr Avshalom Davidesko, Ariel university                                                                                                                                                                         | CARBON DIOXIDE CYCLES FOR RESIDENTIAL APPLICATIONS FOR COLD CLIMATE<br>Venue: Laragh & Glenealy<br>Mr. Ahmad Mhanna, Ryerson University                                                                                                   | HEAT TRANSFER FROM TWO-SIDED DIAGONALLY INCLINED SQUARE PLATES HAVING A FINITE THICKNESS<br>Venue: Enniskerry<br>Dr. Patrick Oosthuizen, Queen's University                                                        | MANAGEMENT AND EFFICIENCY IMPROVEMENT OF PHOTOVOLTAIC POWER HARVESTING SYSTEMS<br>Venue: Heritage Suite<br>Mr Veli Cosar, Ozyegin University                                                                                          |
|               | LES SIMULATION OF BUBBLY FLOW IN A CYLINDRICAL BUBBLE COLUMN REACTOR<br>Venue: Ballroom<br>Ms Shanshan Long, University of Nottingham Ningbo China                                                                     | CONTROL OF THERMAL DEMAND IN THE RESIDENTIAL SECTOR THROUGH THE MANAGEMENT OF SHADE DEVICES AND ZONING HVAC SYSTEM<br>Venue: Glencree & Roundwood                                                                                                       | AN EXERGY ANALYSIS OF SINGLE TO MULTI-STAGE EVAPORATIVE COOLING SYSTEMS FOR DIFFERENT CLIMATIC CONDITIONS ACROSS INDIA<br>Venue: Laragh & Glenealy<br>Dr. Santanu Prasad Datta, BITS Pilani- Hyderabad Campus                             | IMPROVING SAMPLING DEPTH OF LASER SPECKLE IMAGING FOR SKIN TISSUE: AN THEORETICAL STUDY<br>Venue: Enniskerry<br>Ms Hui Xin, Xi'an Jiaotong University                                                              | EXPERIMENTAL INVESTIGATION OF THE EFFECT OF CAVITATION ON THE PERFORMANCE OF A CENTRIFUGAL PUMP WORKING AT HIGH ROTATION SPEEDS<br>Venue: Heritage Suite<br>Ing Ludovic Lamoot, INSA Centre Val de Loire                              |
| 15:00 - 15:20 | DAMPING OF GAS BUBBLE SMALL RADIAL OSCILLATIONS IN FLUID<br>Venue: Ballroom<br>Ms Mariana Lopushanski, Moscow Institute of Physics and Technology                                                                      | AN EFFICIENT THERMAL ANALYSIS SYSTEM FOR ASSEMBLED BATTERY MANAGEMENT<br>Venue: Glencree & Roundwood<br>Mr Godine Raja Sekhar, Ritsumeikan University                                                                                                   | A 75+ POINT PLAN FOR RETRO-COMMISSIONING FACILITIES<br>Venue: Laragh & Glenealy<br>dr David Dyer, Auburn University                                                                                                                       | NUMERICAL SIMULATION OF THERMAL INKJET DROPLET EJECTION<br>Venue: Enniskerry<br>Dr Sam Mallinson, Memjet                                                                                                           | EXPERIMENTAL STUDY ON IMPACT AND SPREADING OF DROPLET FLOW UNDER DIFFERENT TUBE SPACINGS<br>Venue: Heritage Suite<br>Mr. Shanlin Liu, Dalian University of Technology                                                                 |
| 15:20 - 15:40 | <b>MID-AFTERNOON TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                                                                                  |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                       |
| 15:40 - 16:00 | TWO-PHASE FLOW 2<br><br>OPTIMIZATION OF GEOMETRIC AND FLOW PARAMETERS OF HORIZONTAL RECTANGULAR MICROCHANNELS IN SUBCOOLED TWO-PHASE FLOW<br>Venue: Ballroom<br>Professor Tunde Bello-Ochende, University of Cape Town | HEAT EXCHANGERS 2<br><br>PREDICTION OF THE HEAT TRANSFER RATE OF A FIN AND TUBE HEAT EXCHANGER - USING ARTIFICIAL NEURAL NETWORK TRAINED AND TESTED WITH EXPERIMENTAL DATA<br>Venue: Glencree & Roundwood<br>Ms Feyza Sahin, FRITERM Termal Devices Co. | TURBULENCE AND TURBULENCE FLOWS 2<br><br>NUMERICAL ASSESSMENT OF CONFINEMENT EFFECT AND FLOW STRUCTURE IN CASE OF HYDROGEN RELEASE IN A TWO-VENTED CAVITY<br>Venue: Laragh & Glenealy<br>Mr. Yanshu Wang, CEA - Saclay DEN / LIMSI - CNRS | COMPUTATIONAL FLUID DYNAMICS 2<br><br>AN ENERGY EFFICIENT THERMAL MANAGEMENT STRATEGY OF A LITHIUM-ION BATTERY FOR HYBRID VEHICLES<br>Venue: Enniskerry<br>Dr. Santanu Prasad Datta, BITS Pilani- Hyderabad Campus | CONVECTION HEAT TRANSFER 2<br><br>NEAR-INFRARED MEASUREMENT OF TEMPERATURE AND FLOW FIELD FORMED BY FREE CONVECTION FROM A SMALL HEATING SPHERE IN WATER<br>Venue: Heritage Suite<br>Prof Naoto Kakuta, Tokyo Metropolitan University |

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| 16:00 - 16:20 | <p>PRESSURE DROP AND VOID FRACTION OF HORIZONTAL AIR-WATER STRATIFIED FLOWS AT ATMOSPHERIC PRESSURE</p> <p>Venue: Ballroom<br/>Mr Igor Matteo Carraretto, Politecnico di Milano</p>                  | <p>SHELL-AND-TUBE HEAT EXCHANGER OPTIMIZATION – CONSIDERING PROBLEM FORMULATION AND TUNING FOR DIFFERENT TYPES OF METHODS</p> <p>Venue: Glencree &amp; Roundwood<br/>Dr Jussi Saari, LUT University</p>             | <p>SENSITIZATION OF EDDY-VISCOSITY MODELS TO BUOYANCY EFFECTS FOR PREDICTING NATURAL CONVECTION FLOWS</p> <p>Venue: Laragh &amp; Glenealy<br/>Mr syed mohd saad jameel, University of Pau</p>                                                       | <p>AIR COOLING ENHANCEMENT OF A HIGH-PRECISION HIGH-VOLTAGE RESISTOR</p> <p>Venue: Enniskerry<br/>Dr Federico Favre, Universidad de la República Uruguay</p>                                                     | <p>DIRECT NUMERICAL SIMULATION OF CONVECTION HEAT TRANSFER OVER SCANNED AND MATHEMATICALLY GENERATED SURFACE ROUGHNESS</p> <p>Venue: Heritage Suite<br/>Dr Pourya Forooghi, Karlsruhe Institute of Technology</p> |
| 16:20 - 16:40 | <p>EXPERIMENTAL INVESTIGATION OF TWO PHASE FLOW AND CONDENSATION OF PROPYLENE IN HORIZONTAL TUBES OF INDUSTRIAL SCALE</p> <p>Venue: Ballroom<br/>Mr. Simon Fries, University of Kassel</p>           | <p>STUDY OF CONVECTIVE CONDENSATION IN A THERMOSIPHON LOOP</p> <p>Venue: Glencree &amp; Roundwood<br/>Mr Majededdine Moustaid, LaTEP</p>                                                                            | <p>EFFECTS OF THE STREAMWISE EXTENT OF PERIODIC COMPUTATIONAL DOMAINS ON TURBULENT FLOW AND HEAT TRANSFER IN RIB-ROUGHENED COOLING CHANNELS</p> <p>Venue: Laragh &amp; Glenealy<br/>Dr. Sebastian Ruck, Karlsruhe Institute of Technology (KIT)</p> | <p>TOWARDS THE GASDYNAMICS OF A PULSED ELECTRIC ARC IN THE A TRANSVERSAL MAGNETIC FIELD</p> <p>Venue: Enniskerry<br/>Dr. Ivan Moralev, Joint Institute for High Temperatures RAS</p>                             | <p>THE EFFECTS OF OPERATING CONDITIONS ON THE HIGH-TEMPERATURE STEAM GENERATOR FOR HYDROGEN PRODUCTION</p> <p>Venue: Heritage Suite<br/>Dr Seong-Ryong Park, Korea Institute of Energy Research</p>               |
| 16:40 - 17:00 | <p>AN EXPERIMENTAL INVESTIGATION OF STEAM PRESSURE DROP IN A PARTIAL CONDENSER FOR THE DESIGN OF PRACTICAL CONDENSERS.</p> <p>Venue: Ballroom<br/>Mr Jacques Du Plessis, Stellenbosch University</p> | <p>AN EXPERIMENTAL INVESTIGATION OF THE CONFINEMENT EFFECT ON DIFFUSION FLAME IMPINGING THE CEILING IN A COMPARTMENT FIRE</p> <p>Venue: Glencree &amp; Roundwood<br/>Miss Aijuan Wang, INSA Centre Val de Loire</p> | <p>CORE BREAKUP OF TURBULENT ANNULAR LIQUID SHEETS</p> <p>Venue: Laragh &amp; Glenealy<br/>Dr. Khaled Sallam, Oklahoma State University</p>                                                                                                         | <p>MAGNETO-HYDRODYNAMIC FLOW OF NANOFLUID IN A SEMI POROUS CHANNEL: NUMERICAL INVESTIGATION USING SOFT COMPUTING TECHNIQUE</p> <p>Venue: Enniskerry<br/>Dr Ziya Uddin, BML Munjal University Gurugram, India</p> | <p>PLANAR DUCT HEAT TRANSFER WITH TURBULATORS: ENTRY LENGTH REGION</p> <p>Venue: Heritage Suite<br/>Prof. Gordon Andrews, University of Leeds</p>                                                                 |
| 17:00 - 17:20 | <p>EXPERIMENTAL AND NUMERICAL STUDY OF INTERACTION OF ULTRASOUND WITH MICROBUBBLES</p> <p>Venue: Ballroom<br/>Mr. Saikat Chakraborty, IIT Madras</p>                                                 | <p>HIGH-EFFICIENCY MINI AND MICRO HEAT EXCHANGERS FOR DISPERSED POWER GENERATION</p> <p>Venue: Glencree &amp; Roundwood<br/>Prof. Dariusz Mikielewicz,</p>                                                          | <p>SECONDARY FLOW IMPACT ON VELOCITY AND THERMAL FIELDS OF A STRUCTURED TURBULENT CHANNEL FLOW</p> <p>Venue: Laragh &amp; Glenealy<br/>Dr.-Ing. Alexander Stroh, Karlsruhe Institute of</p>                                                         | <p>NUMERICAL INVESTIGATION OF NATURAL CONVECTION HEAT TRANSFER OF A VERTICAL SOLID FRUSTUM SUSPENDED IN AIR</p> <p>Venue: Enniskerry<br/>Mr Avishek Padhi, Indian</p>                                            |                                                                                                                                                                                                                   |

**24/07/2019**

08:00 - 09:00

**REGISTRATION**

Venue: Foyer

09:00 - 09:40

**KEYNOTE****LIQUEFIED NATURAL GAS POWER GENERATION FROM GAS TURBINE AND STIRLING ENGINE**

Venue: Ballroom

Professor Fei Duan, Nanyang Technological University

09:40 - 10:20

**A DISRUPTIVE TECHNOLOGY TO IMPROVING ENERGY EFFICIENCY OF AIR CONDITIONING**

Venue: Ballroom

Professor Kim Choon Ng, King Abdullah University of Science &amp; Technology

10:20 - 10:40

**MID-MORNING TEA/COFFEE BREAK**

Venue: Foyer

10:40 - 11:00

**NUMERICAL SIMULATION 2 CONDUCTION 1**CFD ANALYSIS OF AN  
INNOVATIVE VACUUM  
MICRO-GRIPPER

Venue: Ballroom

Prof. Adriano Lezzi, University  
of BresciaEVALUATION OF A NEW  
OPTIMIZATION  
METHODOLOGY APPLIED  
TO PARAMETERS OF HEAT  
SOURCES IN NUMERICAL  
SIMULATIONS OF THE  
GTAW WELDING PROCESS  
OF LAP JOINTS  
Venue: Glencree &  
Roundwood  
Msc Rodrigo Martins Farias,  
Federal University of  
Uberlandia**ENERGY STORAGE 2**HEAT TRANSFER  
CHARACTERISTICS OF A  
TOPOLOGY OPTIMIZED  
STRUCTURE FOR PCM-  
BASED THERMAL  
MANAGEMENT DEVICES  
Venue: Laragh & Glenealy  
Prof Kai Choong Leong,  
Nanyang Technological  
University**HYDRODYNAMICS**APPLICATION OF AN  
IMPLICIT DISCONTINUOUS  
GALERKIN SCHEME FOR  
SHALLOW WATER  
EQUATIONS  
Venue: Enniskerry  
Prof Haegyun Lee, Dankook  
University**MISCELLANEOUS 2**BASIS FOR BOILER  
CONDITION ASSESSMENT  
Venue: Heritage Suite  
Mr. Salamah Al-Anizi, Saudi  
Boilers Company

11:00 - 11:20

FINITE ELEMENT  
IMPLEMENTATION OF THE  
EIGENFUNCTION SERIES  
SOLUTION FOR A  
TRANSIENT HEAT  
CONDUCTION PROBLEM IN  
THERMO-MECHANICAL  
SYSTEMS

Venue: Ballroom

Dr. Abdullah Al Shabibi,  
Sultan Qaboos UniversityNUMERICAL  
CHARACTERIZATION AND  
VALIDATION OF THE  
THERMAL RESPONSE OF A  
PARTIALLY FILLED ISO  
CONTAINER EXPOSED TO  
REAL WEATHER  
CONDITIONS  
Venue: Glencree &  
Roundwood  
Mr. Ken Blecker, Stevens  
Institute of TechnologyEFFECT OF CRYOGENIC  
HEAT TRANSFER AT  
SUPERCRITICAL  
CONDITIONS ON LIQUID  
AIR ENERGY STORAGE  
(LAES) PERFORMANCE - A  
COMBINED EXPERIMENTAL  
AND NUMERICAL  
ANALYSIS  
Venue: Laragh & Glenealy  
Dr Adriano Sciacovelli,  
University of BirminghamEXPERIMENTAL AND  
NUMERICAL STUDY OF  
TOLUENE-WATER SLUG  
FLOW IN SERPENTINE  
MINICHANNEL  
Venue: Enniskerry  
Dr Sumana Ghosh, Indian  
Institute of Technology  
RoorkeeINVESTIGATING THE  
EFFECTS OF HEAT INPUT  
ON MECHANICAL  
PROPERTIES AND  
MICROSTRUCTURE OF A  
DISSIMILAR WELDED  
JOINT OF A283 GR C TO  
A240 304L STAINLESS  
STEEL WITH TWO  
METHODS OF SMAW AND  
GTAW  
Venue: Heritage Suite  
Mr. Amir Khaledi, Oil Refinery

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| 11:20 - 11:40 | NUMERICAL ANALYSIS OF THE THERMOPHYSICAL PROPERTIES OF R600A REFRIGERANT ENHANCED WITH DIAMOND NANOPARTICLES IN VAPOUR COMPRESSION REFRIGERATING SYSTEM<br>Venue: Ballroom<br>Dr Moradeyo Odunfa, University of Ibadan           | 1D AND 3D CFD MODELS OF THE HEAT TRANSFER IN A PRISMATIC BLOCK OF A VHTR<br>Venue: Glencree & Roundwood<br>Mr. Gert Nel, North-West University                               | NANOPARTICLE-PARAFFIN-TAILING CERAMIC COMPOSITE PHASE CHANGE MATERIALS FOR THERMAL ENERGY STORAGE<br>Venue: Laragh & Glenealy<br>Dr Xili Duan, Memorial University of Newfoundland        | ASYMPTOTIC ANALYSIS OF THE UNDULAR HYDRAULIC JUMP OVER VANISHING BOTTOM SLOPE<br>Venue: Enniskerry<br>Mr. Dominik Murschenhofer, TU Wien                                                                  | CO. RADIATION EFFECT ON GROWTH OF MIST DROPLETS<br>Venue: Heritage Suite<br>Ms. Xinchang Li, University of Illinois                                                                                                        |
| 11:40 - 12:00 | MODELING AND ESTIMATION OF THE VISCOSITY OF TiO <sub>2</sub> -Al <sub>2</sub> O <sub>3</sub> /EG COMPOSITE NANOFLUID BY ARTIFICIAL NEURAL NETWORK AND CORRELATION<br>Venue: Ballroom<br>Dr Moradeyo Odunfa, University of Ibadan | COUPLED 3D AND 1D MODELS OF THE HEAT TRANSFER IN A PRISMATIC BLOCK OF A VHTR<br>Venue: Glencree & Roundwood<br>Mr. Ockert Koekemoer, North-West University                   | TRANSIENTS OF THERMAL PLUME IN SHALLOW GEOTHERMAL ENERGY RESERVOIR OF PUGA, LADAKH, INDIA<br>Venue: Laragh & Glenealy<br>Dr Shibani Khanra Jha, Birla Institute of Technology and Science | HEAT TRANSFER ENHANCEMENT THROUGH THE USE OF AN OSCILLATORY FLOW IN CIRCULAR-ORIFICE BAFFLED TUBES: AN EXPERIMENTAL STUDY<br>Venue: Enniskerry<br>Dr. Damián Crespí-Llorens, Universidad Miguel Hernández | A CORRELATION OF CONDENSATION HEAT TRANSFER COEFFICIENT IN FALLING FILM HORIZONTAL TUBES EXCHANGER BY USING ARTIFICIAL NEURAL NETWORK (ANN)<br>Venue: Heritage Suite<br>Dr. Mama Chacha, University of Wollongong in Dubai |
| 12:00 - 12:20 | THERMAL CHARACTERISATION OF THE UMBILICAL CORD AT BIRTH THROUGH NON INVASIVE METHODS<br>Venue: Ballroom<br>Ms Andrea Caravia, Facultad de Ingeniería - Udelar                                                                    | A PARAMETRIC STUDY ON THE OPERATION OF AN ANODE BAKING FURNACE USING A PROCESS MODEL<br>Venue: Glencree & Roundwood<br>Dr. Yasar Kocaefe, University of Quebec at Chicoutimi | DYNAMICS OF HEAT AND MASS TRANSPORT DURING HYDRATE DISSOCIATION AND REFORMATION IN SEDIMENTS<br>Venue: Laragh & Glenealy<br>Ms Mojdeh Zarifi, University of Bergen                        | EQUILIBRIUM FORMS OF ELLIPSOID DROPS<br>Venue: Enniskerry<br>Ms Mariana Lopushanski, Moscow Institute of Physics and Technology                                                                           | HYBRID ABSORPTION CYCLE FOR FLEXIBLE USE OF HEAT PUMP AND REFRIGERATION SYSTEM<br>Venue: Foyer<br>Dr. Sung Joo Hong, Chonbuk National University                                                                           |
| 12:20 - 13:20 | <b>LUNCH</b><br>Venue: Foyer                                                                                                                                                                                                     |                                                                                                                                                                              |                                                                                                                                                                                           |                                                                                                                                                                                                           |                                                                                                                                                                                                                            |
| 13:20 - 13:40 | THERMAL MANAGEMENT AND CONTROL 2<br>THE DELETERIOUS EFFECT OF THERMAL CYCLING ON THERMOELECTRIC GENERATORS<br>Venue: Ballroom                                                                                                    | RENEWABLE ENERGY<br>HEAT TRANSFER MODEL FOR A PARABOLIC SOLAR CONCENTRATOR<br>Venue: Glencree & Roundwood<br>Dr. Sergio Quezada,                                             | CONVECTION HEAT TRANSFER 3<br>COUPLED TRANSIENT CFD-FE SIMULATION FOR HEAT TRANSFER INVESTIGATIONS FOR A LARGE GAS ENGINE<br>Venue: Laragh & Glenealy                                     | HEAT TRANSFER ENHANCEMENT 2<br>THE DYNAMIC BEHAVIOR OF NATURAL CONVECTION OF WATER IN OPEN ENDED TALL VERTICAL ANNULUS<br>Venue: Enniskerry<br>Dr Saeed Alqaed, Najran                                    | MISCELLANEOUS 3<br>HIGH-TEMPERATURE HEAT PUMPS – POTENTIAL TECHNOLOGY FOR HEAT RECOVERY AND PRODUCTION OF PROCESS HEAT                                                                                                     |

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|               | Seamus O'Shaughnessy,<br>University of Dublin Trinity<br>College                                                                                                                                                                                | Universidad Nacional<br>Autónoma de México                                                                                                                                                                                                                                                                              | Mr Martin Kober, LEC                                                                                                                                                                                                                                                    | University                                                                                                                                                                                    | Venue: Heritage Suite<br>Prof. Dariusz Mikieliewicz,<br>Gdańsk University of<br>Technology                                                                                                               |
| 13:40 - 14:00 | FINE-TUNING LIQUID<br>PHASE SEPARATION<br>TOWARDS BREATH<br>FIGURE FORMATION IN<br>POLYMER THIN-FILMS<br>Venue: Ballroom<br>Mr. Philip Darragh, Trinity<br>College Dublin                                                                       | EXPERIMENTAL<br>INVESTIGATION OF THE<br>EFFECT OF COOLING THE<br>HIGH-SPEED GENERATOR<br>OF A RADIAL-FLOW<br>MICROTURBINE ON THE<br>ELECTRIC POWER OF AN<br>ORC SYSTEM<br>Venue: Glencree &<br>Roundwood<br>PhD, Eng. Tomasz Zygmunt<br>Kaczmarczyk, Institute of<br>Fluid Flow Machinery Polish<br>Academy of Sciences | EFFECTS OF PRANDTL<br>NUMBER AND<br>SEPARATION DISTANCE<br>ON LAMINAR NATURAL<br>CONVECTION HEAT<br>TRANSFER FROM TWO<br>VERTICALLY ALIGNED<br>HORIZONTAL CYLINDERS.<br>Venue: Laragh & Glenealy<br>Mr Manoj Kumar Dash, Indian<br>Institute of Technology<br>Kharagpur | EXPERIMENTAL STUDY OF<br>HEAT TRANSFER<br>ENHANCEMENT BY<br>PULSATING FLOW IN A<br>RECTANGULAR<br>MINICHANNEL<br>Venue: Enniskerry<br>Mr. Parth Kumavat, Trinity<br>College Dublin            | TECHNO - ECONOMIC<br>ASSESSMENT OF HYBRID<br>ENERGY COMBINATION<br>OPTIONS FOR A MAJOR<br>EDUCATIONAL<br>INSTITUTION IN NIGERIA<br>Venue: Heritage Suite<br>Dr Chukwuemeka Diji,<br>University of Ibadan |
| 14:00 - 14:20 | AN INVESTIGATION ON<br>APPLICABILITY OF SELF-<br>SIMILARITY HEAT SINK TO<br>A THERMO-ELECTRIC<br>MODUL<br>Venue: Ballroom<br>Prof. Licheng SUN, Sichuan<br>University                                                                           | DEVELOPMENT OF A<br>SIMULATION<br>ENVIRONMENT FOR<br>ANALYZING MULTI-<br>ENERGY NETWORKS<br>Venue: Glencree &<br>Roundwood<br>Mr. Dennis Cronbach,<br>Fraunhofer Institute for Energy<br>Economics and Energy<br>System Technology                                                                                      | NUMERICAL<br>INVESTIGATION OF HEAT<br>TRANSFER AND SINGLE-<br>PHASE FLOW IN A<br>MANIFOLD<br>MICROCHANNEL HEAT<br>SINK<br>Venue: Laragh & Glenealy<br>Dr Xiaochen Lv, China<br>Academy of Space<br>Technology                                                           | QUANTIFYING THERMAL<br>CONDUCTANCE OF THIN<br>FILM THERMOELECTRICS<br>USING FREQUENCY<br>DOMAIN<br>THERMOREFLECTANCE<br>Venue: Enniskerry<br>Prof. David McCloskey, Trinity<br>College Dublin | EXPERIMENTS ON<br>DENSITY INTERFACE WITH<br>SUCCESSIVE VORTEX<br>RINGS<br>Venue: Heritage Suite<br>Mr. Advait S, Indian Institute<br>of Science                                                          |
| 14:20 - 14:40 | NUMERICAL ANALYSIS OF<br>2-D LAMINAR NATURAL<br>CONVECTION HEAT<br>TRANSFER FROM SOLID<br>HORIZONTAL<br>CYLINDRICAL HEAT SINKS<br>WITH LONGITUDINAL FINS<br>Venue: Ballroom<br>Mr Avishek Padhi, Indian<br>Institute of Technology<br>Kharagpur | COMPARISON OF SODIUM<br>AND MOLTEN SALT<br>RECEIVER OUTPUT<br>THROUGH DIURNAL CSP<br>PLANT OPERATION<br>Venue: Glencree &<br>Roundwood<br>Dr Ronan Grimes, University<br>of Limerick                                                                                                                                    | NUMERICAL<br>OPTIMIZATION OF<br>COMBINED COOLING OF<br>MICROCHANNEL HEAT<br>EXCHANGERS WITH<br>HOLLOW AND SOLID<br>VERTICAL FINS<br>Venue: Laragh & Glenealy<br>Professor Tunde Bello-<br>Ochende, University of Cape<br>Town                                           | PREDICTING THE HEAT<br>TRANSFER BETWEEN A<br>LAMINAR IMPINGING JET<br>AND AN<br>INHOMOGENEOUSLY<br>HEATED SURFACE<br>Venue: Enniskerry<br>MSc. Enno Sabelberg, RWTH<br>Aachen University      | AERODYNAMICS OF GRID<br>PLATE FLAME<br>STABILIZERS<br>Venue: Heritage Suite<br>José Ramón Quiñonez Arce,<br>School of Chemical and<br>Process Engineering<br>University of Leeds                         |
| 14:40 - 15:00 | DROPLET THERMAL AND<br>WETTING FOOTPRINT ON                                                                                                                                                                                                     | HEAT TRANSFER<br>ENHANCEMENT IN A                                                                                                                                                                                                                                                                                       | EFFECT OF BENCHES ON<br>THE NATURAL                                                                                                                                                                                                                                     | AUGMENTATION OF HEAT<br>TRANSFER IN AIR HEATING                                                                                                                                               | HYDRODYNAMIC<br>PERFORMANCE OF                                                                                                                                                                           |

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| 15:00 - 15:20 | HEATED SURFACE<br>Venue: Ballroom<br>Ryan Enright, NOKIA                                                                                                                                     | SOLAR RECIEVER TUBE<br>USING POROUS MEDIA<br>Venue: Glencree &<br>Roundwood<br>Dr. Manabendra Pathak,<br>Indian Institute of Technology<br>Patna                                                                                                                  | CONVECTION IN A SINGLE-<br>SPAN THREE-<br>DIMENSIONAL<br>GREENHOUSE<br>Venue: Laragh & Glenealy<br>Dr. Sunita Kruger, University<br>of Johannesburg           | FLAT PLATE COLLECTOR<br>BY FINS AND TWISTED<br>TAPES<br>Venue: Enniskerry<br>Prof. Prabha Chand, National<br>Institute of Technology<br>Jamshedpur                                                                       | JOUKOWSKI BASED<br>HYDROKINETIC TURBINE<br>FOR USE IN THE AMAZON<br>RIVERS<br>Venue: Heritage Suite<br>Mr Pedro Baracat, UNICAMP                                                                 |
|               |                                                                                                                                                                                              | DESIGN AND ANALYSIS OF<br>RADIAL AND AXIAL<br>TURBOMACHINERY OF<br>SUPERCRITICAL CO2<br>POWER CYCLES<br>Venue: Glencree &<br>Roundwood<br>Dr Alexis Cantizano,<br>Universidad Pontificia<br>Comillas                                                              | GRID INDEPENDENCE<br>STUDY OF A 1D THERMAL<br>TOPOLOGY OPTIMIZATION<br>PROBLEM FOR HEAT<br>SINKS<br>Venue: Laragh & Glenealy<br>Mr Yang Zhou, KU Leuven       | HEAT TRANSFER IN<br>SUPERCRITICAL FLUIDS:<br>RECONCILING THE<br>RESULTS OF PULSE AND<br>STATIONARY<br>EXPERIMENTS<br>Venue: Enniskerry<br>Prof. Pavel Skripov, Russian<br>Academy of Sciences                            | DIRECT STEAM<br>CONDENSATION AT SUB-<br>ATMOSPHERIC PRESSURE:<br>EXPERIMENTAL TESTS<br>AND SIMILITUDE ANALYSIS<br>Venue: Heritage Suite<br>Mr Guglielmo<br>Giambartolomei, University of<br>Pisa |
| 15:20 - 15:40 | <b>MID-AFTERNOON TEA/COFFEE BREAK</b><br>Venue: Foyer                                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                                                                                               |                                                                                                                                                                                                                          |                                                                                                                                                                                                  |
| 15:40 - 16:00 | COMBUSTION                                                                                                                                                                                   | COMPUTATIONAL FLUID<br>DYNAMICS 3                                                                                                                                                                                                                                 | CONDUCTION 2                                                                                                                                                  | BOILING 2                                                                                                                                                                                                                | NUMERICAL SIMULATION 3                                                                                                                                                                           |
|               | MODELING URBAN FIRE<br>SPREAD BASED ON<br>SPECIFIC<br>CHARACTERISTICS OF<br>SUBSTANDARD HOUSING<br>IN SPAIN<br>Venue: Ballroom<br>Dr Alexis Cantizano,<br>Universidad Pontificia<br>Comillas | OBSERVATIONS ON FIXED-<br>GRID NUMERICAL<br>SIMULATIONS OF STEADY<br>ICE-WATER SYSTEMS IN<br>RECTANGULAR PLATE-FIN<br>GEOMETRIES WITH<br>LAMINAR NATURAL<br>CONVECTION IN THE<br>LIQUID<br>Venue: Glencree &<br>Roundwood<br>Mr Osaid Matar, McGill<br>University | 3D PRINTING OF PITCH<br>CARBON FIBER<br>COMPOSITES FOR HEAT<br>EXCHANGER<br>APPLICATIONS<br>Venue: Laragh & Glenealy<br>Dr. Roger Kempers, York<br>University | PRELIMINARY<br>INVESTIGATION INTO THE<br>EFFECT OF STEP<br>CHANGES IN BOILING<br>HEAT FLUX ON R134A IN A<br>HORIZONTAL MACRO<br>TUBE<br>Venue: Enniskerry<br>Mr. Wilhelm Johann van den<br>Bergh, University of Pretoria | ANALYSIS OF THE SEVERE<br>ACCIDENT WITH CORIUM<br>SLUMPING IN A BWR<br>Venue: Heritage Suite<br>Dr Mindaugas Valinčius,<br>Lithuanian Energy Institute                                           |
| 16:00 - 16:20 | EMISSIONS REDUCTION<br>FROM PELLET STOVES<br>THROUGH BURNER POT<br>MODIFICATIONS<br>Venue: Ballroom<br>Prof. Adriano Lezzi, University<br>of Brescia                                         | DESIGN OF A<br>LABORATORY UNIT FOR<br>ALUMINUM FILTRATION<br>THROUGH PHYSICAL AND<br>MATHEMATICAL<br>MODELLING<br>Venue: Glencree &<br>Roundwood                                                                                                                  | HEATQUIZ: GAME-BASED<br>LEARNING IN HEAT AND<br>MASS TRANSFER<br>Venue: Laragh & Glenealy<br>Dr. Wilko Rohlf, RWTH<br>Aachen University                       | EFFECT OF PATTERN<br>GEOMETRY ON BUBBLE<br>DYNAMICS AND HEAT<br>TRANSFER ON BIPHILIC<br>SURFACES<br>Venue: Enniskerry<br>Mr Pedro Pontes, IN+ Instituto<br>Superior Tecnico                                              | PREDICTION OF THE<br>POWER COEFFICIENT OF<br>STRAIGHT BLADED<br>VERTICAL AXIS WIND<br>TURBINES AT LOW WIND<br>VELOCITIES<br>Venue: Heritage Suite<br>Mr Pedro Baracat, UNICAMP                   |

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|               |                                                                                                                                                             | Prof. Duygu Kocaefe,<br>University of Quebec at<br>chicoutimi                                                                                                                                                                                                                   |                                                                                                                                                                                                                                               | Universidade de Lisboa                                                                                                                                                          |                                                                                                                                                                                        |
| 16:20 - 16:40 | 1D SIMULATION OF<br>SODIUM-WATER<br>REACTION (SWR)<br>Venue: Ballroom<br>Mr Lucas David, CEA                                                                | NUMERICAL<br>INVESTIGATION OF A TWO-<br>DIMENSIONAL MULTI-SPAN<br>NATURALLY VENTILATED<br>GREENHOUSE<br>CONTAINING STACKED<br>BENCHES<br>Venue: Glencree &<br>Roundwood<br>Dr. Sunita Kruger, University<br>of Johannesburg<br>Mr Awikal Dwivedi, University<br>of Johannesburg | UNDERSTANDING THE<br>PARTICLE-SCALE HEAT<br>TRANSFER MECHANISMS<br>IN PACKED BEDS USING<br>PARTICLE-RESOLVED<br>DIRECT NUMERICAL<br>SIMULATIONS (PR-DNS)<br>Venue: Laragh & Glenealy<br>Dr. Richard Gould, North<br>Carolina State University | IMPACT OF SURFACE<br>MODIFICATION AND<br>ELECTROHYDRODYNAMIC<br>ENHANCEMENT ON<br>NUCLEATE POOL BOILING<br>Venue: Enniskerry<br>Mr. Mark Edward Newton,<br>University of Kassel | DEVELOPMENT OF A<br>SMALL MODULAR<br>REACTOR OF NHR-200 II IN<br>CHINA<br>Venue: Heritage Suite<br>Dr. Yan Wang, Tsinghua<br>University                                                |
| 16:40 - 17:00 | IMPACT OF SWIRL<br>NUMBER ON HEAT<br>TRANSFER<br>ENHANCEMENT TO AN<br>AXIAL LAMINAR FLOW<br>Venue: Ballroom<br>Dr Jie Hu, Kitami Institute of<br>Technology | NUMERICAL MODELLING<br>OF EVAPORATING<br>BUBBLES IN<br>MICROCHANNELS<br>Venue: Glencree &<br>Roundwood<br>Dr. Thomas Abadie, Dublin<br>City University                                                                                                                          | CFD-DEM<br>CHARACTERIZATION OF<br>EFFECTIVE THERMAL<br>CONDUCTIVITY IN PACKED<br>BEDS<br>Venue: Laragh & Glenealy<br>Dr. Richard Gould, North<br>Carolina State University                                                                    | BUBBLE NUCLEATORS TO<br>ENHANCE POOL BOILING<br>IN TUBE BUNDLES<br>Venue: Enniskerry<br>Mr Roy Bartle, University of<br>Oxford                                                  | FUNDAMENTAL STUDY ON<br>ELEMENTAL ANALYSIS OF<br>METAL IN AQUEOUS<br>SOLUTION USING<br>ULTRASOUND<br>Venue: Heritage Suite<br>Dr. Hideharu Takahashi,<br>Tokyo Institute of Technology |
| 17:00 - 17:20 |                                                                                                                                                             | INVESTIGATING THE<br>FLOWFIELD PHYSICS<br>WITHIN COMPRESSIBLE<br>BOUNDARY LAYERS<br>Venue: Glencree &<br>Roundwood<br>Prof. Frederick Ferguson,<br>North Carolina A&T State<br>University                                                                                       | THERMAL STABILITY OF<br>COMPRESSION MOLDED<br>RICE AND COFFEE HUSK<br>FIBER REINFORCED<br>POLYPROPYLENE<br>COMPOSITES<br>Venue: Laragh & Glenealy<br>Dr Michael Lubwama,<br>Makerere University                                               |                                                                                                                                                                                 |                                                                                                                                                                                        |
| 19:30 - 20:30 | <b>PRE-DINNER DRINKS</b><br>Venue: Foyer                                                                                                                    |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                                                                                                                 |                                                                                                                                                                                        |
| 20:30 - 22:30 | <b>BANQUET DINNER</b><br>Venue: Ballroom                                                                                                                    |                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                               |                                                                                                                                                                                 |                                                                                                                                                                                        |

# HEFAT 2019

Wicklow, Ireland

22 – 24 July 2019



Heat Transfer, Fluid Mechanics and Thermodynamics

**22/07/2019**

10:40 - 10:50

POSTER SESSION 1

THERMAL COHERENCE OF CONCAVE SPACES FORMED BY VARIOUS AIRNODES WITH COUPLING BY MEANS OF TRNSYS

Venue: Foyer

Mr Raúl Briones-Llorente, Universidad de Burgos

10:50 - 11:00

HOW TO IMPROVE A TEMPERATURE DISTRIBUTION INSIDE A HEATED BLOCK IN A TYPICAL POOL-BOILING APPARATUS

Venue: Foyer

Ing. Viktor Vajc, Czech Technical University in Prague

11:00 - 11:10

ADVANTAGE OF SOIL VOLATILE CONTAMINANTS EXTRACTION BY HOT AIR INJECTION

Venue: Foyer

Prof Abraham Dayan, Tel Aviv University

11:10 - 11:20

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

Venue: Foyer

Miss Alison Clarke, Trinity College Dublin

11:20 - 11:30

A SCIENTOMETRIC STUDY OF LITERATURE OF MEM/NEM FROM 1987 TO 2018

Venue: Foyer

Prof. Ming-yueh Tsay, Graduate Institute of Library, Information and Archival Studies, National Chengchi University

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| 11:30 - 11:40     | MOLECULAR SIMULATION OF BOILING PROCESS IN ULTRATHIN FILM<br>Venue: Foyer<br>Mr Li Ao, Kyoto university                                                                                                             |
| 11:40 - 11:50     | THERMODYNAMIC ANALYSIS OF COMBINED CYCLE POWER PLANT<br>Venue: Foyer<br>Dr. Vladimir Glazar, University of Rijeka                                                                                                   |
| 11:50 - 12:00     | FLUID MOTION AND PHASE CHANGE IN THIN GAP<br>Venue: Foyer<br>Prof. Mitsuhiro Matsumoto, Kyoto University                                                                                                            |
| 12:00 - 12:10     | EXPERIMENTAL STUDIES ON SINGLE AND BLENDED AMINES FOR CO <sub>2</sub> CAPTURE<br>IN CERAMIC HOLLOW FIBER MEMBRANE CONTACTORS<br>Venue: Foyer<br>Prof. Jung Hoon Park, Dongguk University                            |
| 12:10 - 12:20     | THE ELECTROLESS DEPOSITION OF Pd LAYERS ON STRUCTURED Al <sub>2</sub> O <sub>3</sub><br>HOLLOW FIBER SUBSTRATE FOR HYDROGEN SEPARATION<br>Venue: Foyer<br>Prof. Jung Hoon Park, Dongguk University                  |
| 12:20 - 12:30     | NUMERICAL SIMULATION OF CONVECTIVE AIR DRYING OF DEFORMABLE<br>POROUS MEDIA BY PARALLEL HYBRID LATTICE BOLTZMANN AND FINITE<br>ELEMENT METHODS<br>Venue: Foyer<br>Mr Xinzhu Mou, Southeast University               |
| <b>23/07/2019</b> |                                                                                                                                                                                                                     |
| 10:40 - 10:50     | POSTER SESSION 2<br>EFFECTS OF BUILDING ORIENTATION ON THERMAL CHARACTERISTICS OF<br>AlSi10Mg STRUCTURE MANUFACTURED BY SELECTIVE LASER MELTING<br>Venue: Foyer<br>Dr Moosun Kim, Korea Railroad Research Institute |
| 10:50 - 11:00     | THERMOGRAVIMETRIC ANALYSIS (TGA) STUDY OF A WOOD PELLET, A RICE<br>HUSK PELLET, AN EMPTY FRUIT BUNCH PELLET AND PALM KERNEL SHELL<br>Venue: Foyer<br>Dr Sae Byul Kang, Korea Institute of Energy Research           |
| 11:00 - 11:10     | AN HYBRID DESICCANT VAPOR COMPRESSION CYCLE FOR AIR-CONDITIONING<br>SYSTEMS<br>Venue: Foyer<br>Prof Carlos Eduardo L Nobrega, CEFET-Rio                                                                             |
| 11:10 - 11:20     | THE ENTROPY ROLE IN POWER AND REFRIGERATION CYCLES<br>Venue: Foyer<br>Prof Carlos Eduardo L Nobrega, CEFET-Rio                                                                                                      |
| 11:20 - 11:30     | LOCAL VALUES OF HEAT TRANSFER COEFFICIENT AT THE BOTTOM OF AN                                                                                                                                                       |

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|                   | <p>AGITATED VESSEL MEASURED WITH TOIRT METHOD</p> <p>Venue: Foyer</p> <p>Mr. Stanislav Solnař, Czech Technical Univesity in Prague</p>                                                                                              |
| 11:30 - 11:40     | <p>IMPROVEMENT OF THE ENERGY EFFICIENCY OF AIR CONDITIONING SYSTEMS IN BUILDINGDS THROUGH THE USE OF A SOLAR CHIMNEY</p> <p>Venue: Foyer</p> <p>Dr Antonio S. Káiser, Universidad Politécnica de Cartagena</p>                      |
| 11:40 - 11:50     | <p>TURBULENT HEAT TRANSFER IN TRANSITIONAL ANNULAR POISEUILLE FLOW</p> <p>Venue: Foyer</p> <p>Dr. Takahiro Tsukahara, Tokyo University of Science</p>                                                                               |
| 11:50 - 12:00     | <p>ADSORPTION OF PHOSPHATE ON AMINE-GRAFTED AND MAGNETIZED MESOPOROUS SILICA MATERIALS</p> <p>Venue: Foyer</p> <p>Professor Hee Moon, Chonnam National University</p>                                                               |
| 12:00 - 12:10     | <p>(P, VE, T) MEASUREMENTS OF BINARY MIXTURES HFE-7100 OR HFE-7200 + 2-PROPANOL AT PRESSURES UP TO 140 MPA AND AT TEMPERATURES FROM 298.15 TO 393.15 K</p> <p>Venue: Foyer</p> <p>Dr Natalia Muñoz-Rujas, Universidad de Burgos</p> |
| 12:10 - 12:20     | <p>MELTING TEMPERATURE MEASUREMENTS OF FATTY ACID MIXTURES AS POTENTIAL BIO-BASED PHASE CHANGE MATERIALS FOR LOW TEMPERATURE ENERGY STORAGE</p> <p>Venue: Foyer</p> <p>Dr Natalia Muñoz-Rujas, Universidad de Burgos</p>            |
| 12:20 - 12:30     |                                                                                                                                                                                                                                     |
| <b>24/07/2019</b> |                                                                                                                                                                                                                                     |
| 10:40 - 10:50     | <p>POSTER SESSION 3</p> <p>MOLECULAR DYNAMICS SIMULATION OF THE THERMAL TRANSPORT ON HOLEY COPPER SUBSTRATES</p> <p>Venue: Foyer</p> <p>Dr Wenfu Situ, Technical University of Denmark</p>                                          |
| 10:50 - 11:00     | <p>CCD - THERMOREFLECTANCE - APPLICATIONS IN MICROTHERMAL CHARACTERISATION</p> <p>Venue: Foyer</p> <p>Robert Smyth, Trinity College Dublin</p>                                                                                      |
| 11:00 - 11:10     | <p>THERMAL MEASUREMENTS AT SOLID-LIQUID INTERFACES TRANSPORTING HIGH HEAT FLUXES USING FREQUENCY DOMAIN THERMOREFLECTANCE</p> <p>Venue: Foyer</p> <p>Mr Kenny Yu, Nokia Bell Labs/Trinity College Dublin</p>                        |

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| 11:10 - 11:20 | REACTIVE CONVECTIVE-DISSOLUTION IN A HELE-SHAW CELL<br>Venue: Foyer<br>Dr Parama Ghoshal, Jadavpur University                                                                                                                      |
| 11:20 - 11:30 | DROPLET BOILING ON A SUPERHEATED LIQUID INFUSED SURFACE<br>Venue: Foyer<br>Mr Patrick Sullivan, Trinity College Dublin                                                                                                             |
| 11:30 - 11:40 | SOLITARY WAVE PROPAGATING AROUND CIRCULAR STRUCTURES IN LEVEL-<br>SET FINITE ELEMENT FRAMEWORK<br>Venue: Foyer<br>Prof Haegyun Lee, Dankook University                                                                             |
| 11:40 - 11:50 | COORDINATION PROPERTIES OF OXYDIACETATE AND THIODIACETATE<br>LIGANDS TOWARDS COBALT(II) AND NICKEL(II) IONS IN SOLUTIONS -<br>EXPERIMENTAL AND THEORETICAL STUDIES<br>Venue: Foyer<br>Prof. Lech Chmurzyński, University of Gdańsk |
| 11:50 - 12:00 | MICROSCALE HEAT TRANSFER MODULATION FOR SERVER CPU COOLING<br>USING MOVABLE STRUCTURES<br>Venue: Foyer<br>Mr Eoin Oude Essink, Trinity College Dublin                                                                              |
| 12:00 - 12:10 | HYBRID ABSORPTION CYCLE FOR FLEXIBLE USE OF HEAT PUMP AND<br>REFRIGERATION SYSTEM<br>Venue: Foyer<br>Dr. Sung Joo Hong, Chonbuk National University                                                                                |
| 12:10 - 12:20 |                                                                                                                                                                                                                                    |