



**MNHMT**

**Micro/Nanoscale Heat & Mass  
Transfer International Conference**

CONFERENCE  
January 4-6, 2016

Biopolis, Singapore

# Program

[www.asme.org/events/mnhmt](http://www.asme.org/events/mnhmt)

The American Society of Mechanical Engineers (ASME)



Thank You to the Following Sponsors  
for Their Generous Support



# Welcome from the Conference Chairs

Please join us for the ASME 2016 5th Micro/Nanoscale Heat and Mass Transfer Conference in Singapore from January 4 - 6, 2016. The Conference is sponsored by the ASME Heat Transfer Division and organized by the School of Mechanical and Aerospace Engineering of Nanyang Technological University, the Xi'an Jiaotong University and the Singapore Institute of Manufacturing Technology.

This conference series is dedicated to Dr. Chang-Lin Tien (1935-2002), a world renowned scholar and a leader in higher education, whose intellect and unique vision have continued to inspire our efforts in expanding the frontiers of micro/nanoscale heat and mass transfer. The MNHMT2016 succeeds the previous four conference, which were successfully hosted by National Cheng Kung University in Tainan (January 2008), Shanghai Jiaotong University in Shanghai (December 2009), Georgia Institute of Technology in Atlanta (March 2012), and University of Hong Kong in Hong Kong (December 2013).

Research and education on micro/nanoscale heat and mass transfer have advanced rapidly over the last 25 years through many dedicated individuals and team efforts, with direct impact extending into various fields in science and engineering as well as the advancement of a wide range of technologies. The conference is intended to provide a highly interactive forum to bring together researchers, educators and practitioners around the world with the aim of collecting, exchanging and promoting the knowledge and new advances on the state-of-the-art research and development in this interdisciplinary emerging field. To attract the wide audience possible, the conference will include plenary and invited presentations, contributed oral and poster presentations on the current status and future research opportunities in micro/nanoscale heat and mass transfer. There will be 12 plenary speeches, 150 peer-reviewed proceedings papers, additional 100 oral presentations, and about 30 posters. The authors and attendees are from over 20 countries and regions. Selected papers will be published after further review in a Special Issue of the ASME Journal of Heat Transfer to bring out the critical fundamental and practical aspects of the field.

As Conference Organizers, we want to express our deepest gratitude to all of the board and committee members, track and session organizers, reviewers, ASME staff, and student assistants, who have greatly contributed to the success of this conference – it would not have been possible without your time, energy and effort. We would also like to express our appreciation to all of the contributors, whose thoughtful work, careful analysis, and tremendous insight have helped to make this conference a successful and memorable event.

We look forward to seeing you and wish you an exciting and enjoyable experience at MNHMT2016 in Singapore!



**Zhuomin Zhang**

Conference General Chair  
Georgia Institute of Technology



**Charles Chun Yang**

Program Chair  
Nanyang Technological University



**Zhaolin Gu**

Program Co-Chair  
Xi'an Jiaotong University



**Marcos**

Organizing Committee Chair  
Nanyang Technological University



# Contents

WELCOME.....	3
GENERAL INFORMATION.....	5
PROGRAM AT-A-GLANCE.....	7
TECHNICAL PROGRAM.....	10
AUTHOR INDEX.....	41

## AUDIOVISUAL EQUIPMENT IN SESSION ROOMS

All technical sessions are equipped with one LCD projector and one screen. Laptops will NOT be provided in the sessions. Presenters MUST bring their own or arrange in advance to share.

## BADGE REQUIRED FOR ADMISSION

All conference attendees must wear the official ASME 2016 MNHMT badge at all times in order to gain admission to technical sessions, exhibits and conference receptions. Without a badge, you will NOT be allowed to attend any conference activities.

## CONFERENCE MEAL FUNCTIONS

Three morning breaks, three lunches, three afternoon breaks, and one conference banquet (Tuesday night, January 5th) will be provided as part of your full conference registration. Please join your fellow attendees at these functions for some excellent networking and of course some fantastic food.

## INTERNET ACCESS

Internet access is free at the Biopolis. All you have to do is select the "Biopolis Shared Facilities" network and join.

## MEMBERSHIP TO ASME (ONE-YEAR FREE)

Registrants who paid the non-member conference registration fees will receive a complimentary one-year ASME Membership. ASME will automatically activate this complimentary membership for qualified attendees. Please allow approximately four weeks after the conclusion of the conference for your membership to become active. Visit [www.asme.org/membership](http://www.asme.org/membership) for more information about the benefits of ASME Membership.

## PRESENTER ATTENDANCE POLICY

According to ASME's Presenter Attendance Policy, if a paper is not presented at the conference, the paper will not be published in the official Archival Proceedings, which are registered with the Library of Congress and are abstracted and indexed. The paper also will not be published in the ASME Digital Collection and may not be cited as a published paper.



## REGISTRATION INFORMATION (Biopolis, Matrix Building, 4th Level, Foyer)

The registration hours are:

**Monday, January 4**  
**7:30 AM – 6:00 PM**

**Tuesday January 5**  
**8:00 AM – 5:30 PM**

**Wednesday, January 6**  
**8:00 AM – 4:00 PM**





 **ASME MNHMT 2016**

# Conference Banquet

---

**Tuesday, January 5**  
**6:00 PM – 9:00 PM**  
**Mandarin Orchard Hotel**

Join us for a fantastic evening full of festivities, recognitions, and of course plenty of good food.

**DON'T MISS OUT!**

*(Transportation will be provide to and from the Mandarin Orchard hotel. Please meet at the lobby of the Biopolis by 5:00 PM on Jan. 5 to board the buses)*

## DAY 1: Monday, January 4th, 2016

<b>7:45 onwards</b>	Registration	
<b>8:15 – 8:30</b>	Opening Remarks	
<b>8:30 – 10:00</b>	<b>Plenary session</b> Chair: “Bob” D. Y. Tzou	Breakthrough Theatre
8:30 – 9:05	Plenary/Keynote 1    Zeng-Yuan Guo	
9:05 - 9:40	Plenary/Keynote 2    Pinar Menguc	
9:40 - 10:15	Plenary/Keynote 3    Dongqing Li	
<b>10:15 -10:45</b>	Tea/coffee break	
<b>10:45 – 12:15</b>	<b>Parallel session 1 (6 talks/room)</b>	
	Track 1-1	Breakthrough Theatre
	Track 11-1	Discovery Theatre
	Track 2-1	Exploration Theatre
	Track 3-1	Creation Theatre
	Track 5-1	Theatre 5
<b>12:15 – 13:15</b>	Lunch	
<b>13:15 – 14:45</b>	<b>Parallel session 2 (6 talks/room)</b>	
	Track 1-2	Breakthrough Theatre
	Track 11-2	Discovery Theatre
	Track 2-2	Exploration Theatre
	Track 3-2	Creation Theatre
	Track 5-2	Theatre 5
<b>14:45 - 15:15</b>	Tea/coffee break	
<b>15:15 – 17:00</b>	<b>Parallel session 3 (7 talks)</b>	
	Track 1-3	Breakthrough Theatre
	Track 11-3	Discovery Theatre
	Track 2-3	Exploration Theatre
	Track 3-3	Creation Theatre
	Track 5-3	Theatre 5
<b>17:00 – 19:00</b>	Reception and Poster session	Foyer

# Program At-A-Glance

## DAY 2: Tuesday, January 5th, 2016

<b>8:00 onwards</b>	Registration	
<b>8:30 – 10:00</b>	<b>Plenary session</b> Chair: Xing Zhang	Breakthrough Theatre
8:30 – 9:05	Plenary/Keynote 4 Satish Kandlikar	
9:05 - 9:40	Plenary/Keynote 5 David Sinton	
9:40 - 10:15	Plenary/Keynote 6 Liqiu Wang	
<b>10:15 - 10:45</b>	Tea/coffee break	
<b>10:45 – 12:15</b>	<b>Parallel session 4 (6 talks)</b>	
	Track 1-4	Breakthrough Theatre
	Track 11-4	Discovery Theatre
	Track 8-1	Exploration Theatre
	Track 3-5	Creation Theatre
	Track 5-4	Theatre 5
<b>12:15 – 13:15</b>	Lunch	
<b>13:15 – 15:00</b>	<b>Plenary session</b> Chair: Chenn Qian Zhou	Breakthrough Theatre
13:15 – 13:50	Plenary/Keynote 7 Xianfan Xu	
13:50 – 14:25	Plenary/Keynote 8 Yogendra Joshi	
14:25 – 15:00	Plenary/Keynote 9 Hongbin Ma	
<b>15:00 - 15:30</b>	Tea/coffee break	
<b>15:30 – 17:15</b>	<b>Parallel session 5 (7 talks)</b>	
	Track 1-5	Breakthrough Theatre
	Track 11-5	Discovery Theatre
	Track 8-2	Exploration Theatre
	Track 12-1	Creation Theatre
	Track 7-1	Theatre 5
<b>17:30</b>	Bus to Gala Dinner	
<b>18:30 – 21:00</b>	Conference Banquet (off-site)	



## DAY 3: Wednesday, January 6th, 2016

<b>8:00 onwards</b>	Registration	
<b>8:30 – 10:00</b>	<b>Plenary session</b> Chair: Oronzio Manca	Breakthrough Theatre
8:30 – 9:05	Plenary/Keynote 10 Shigeo Maruyama	
9:05 - 9:40	Plenary/Keynote 11 Yoav Peles	
9:40 - 10:15	Plenary/Keynote 12 Kim Tiow Ooi	
10:15 - 10:45	Tea/coffee break	
<b>10:45 – 12:15</b>	<b>Parallel session 6 (6 talks)</b>	
	Track 1-6	Breakthrough Theatre
	Track 11-6	Discovery Theatre
	Track 5-5	Exploration Theatre
	Track 10-1	Creation Theatre
	Track 4-1	Theatre 5
<b>12:15 – 13:15</b>	Lunch	
<b>13:15 – 14:45</b>	<b>Parallel session 7 (6 talks)</b>	
	Track 14-1	Breakthrough Theatre
	Track 11-7	Discovery Theatre
	Track 9-1	Exploration Theatre
	Track 10-2	Creation Theatre
	Track 4-2	Theatre 5
<b>14:45 – 15:15</b>	Tea/coffee break	
<b>15:15 – 16:45</b>	<b>Parallel session 8 (6 talks)</b>	
	Track 14-2	Breakthrough Theatre
	Track 6-1	Discovery Theatre
	Track 13-1	Exploration Theatre
	Track 10-3	Creation Theatre
	Track 4-3	Theatre 5
<b>17:00 – 17:30</b>	Closing Remarks	Breakthrough Theatre

## MONDAY, JANUARY 4

### TRACK 16 PLENARY SPEAKERS

16-11

#### PLENARY SESSION 11

Room: Breakthrough

Session Time: 8:30am - 9:05am

##### Dual Nature of Heat and its Applications

Invited Presentation. MNHMT2016-6621

Zeng-Yuan Guo, Bing-Yang Cao, Qun Chen, Tsinghua University, Beijing, China

### TRACK 16 PLENARY SPEAKERS

16-9

#### PLENARY SESSION 9

Room: Breakthrough

Session Time: 9:05am - 9:40am

##### An Overview of Near- and Far-Field Radiative Transfer for Radiative Cooling

Invited Presentation. MNHMT2016-6618

M. Pinar Menguc, Ozyegin University, Istanbul, Turkey

### TRACK 16 PLENARY SPEAKERS

16-1

#### PLENARY SESSION I

Room: Breakthrough

Session Time: 9:40am - 10:15am

##### From Nanofluids to Thermal-Wave Fluids

Invited Presentation. MNHMT2016-6349

Dongqing Li, University of Waterloo, Waterloo, ON, Canada

### TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP

Track Organizer: Xiangchun Xuan, Clemson University, Clemson, SC, United States

Track Co-Organizer: Weihua Li, University of Wollongong, Wollongong, Australia, Anderson Ho Cheung Shum, University of Hong Kong, Hong Kong, Hong Kong

1-1

#### MICROFABRICATIONS AND MICROFLUIDIC MATERIALS

Room: Breakthrough

Session Time: 10:45am - 12:15pm

Session Organizer: Yong Ren, University of Nottingham Ningbo China, Ningbo, Zhejiang, China

Session Co-Organizer: Shangsheng Feng, Xi'an Jiaotong University, Xi'an, China

##### A Fluid Flow Diode Using Heterogeneous Nanochannels

Invited Presentation. MNHMT2016-6404

Zhigang Li, Long Li, Jingwen Mo, Hong Kong University Of Science And Technology, Hong Kong

##### Mechanical Vibration Modulated Droplet Generation in Capillary Microfluidic Devices

Technical Presentation. MNHMT2016-6391

Pingan Zhu, Ye Tian, Xin Tang, Xiaowei Tian, Leyan Lei, Liqiu Wang, University of Hong Kong, Hong Kong

##### The Fabrication of Novel Morphological Microfibers Using Simple Microfluidic Method

Technical Presentation. MNHMT2016-6398

Ye Tian, Pingan Zhu, Xin Tang, Xiaowei Tian, Leyan Lei, Liqiu Wang, University of Hong Kong, Hong Kong, Hong Kong

##### Engineering Particles with Uniform Shape and Size for Embolization Therapy

Technical Presentation. MNHMT2016-6410

Xiaowei Tian, Tiantian Kong, Pingan Zhu, Leyan LEI, Zhanxiao Kang, Ye Tian, Xin Tang, Liqiu Wang, University of Hong Kong, Hong Kong

##### Fibroblast Reorientation in a Three-Dimensional Matrix under Compression

Technical Presentation. MNHMT2016-6542

Lijie Yang, Leolene Jean Carrington, Mingfang Ao, Bryson Brewer, Vanderbilt University, Nashville, TN, United States, Donna J. Webb, Vanderbilt University Medical Center, Nashville, TN, United States, Deyu Li, Vanderbilt University, Nashville, TN, United States

## High Performance Beam Steering Via Tunable Liquid Prisms

Technical Paper Publication. MNHMT2016-6580

Carlos Enrico Clement, Sung-Yong Park, National University of Singapore, Singapore

## TRACK 2 NANOFUIDS

Track Organizer: Huaqing Xie, Shanghai Second Polytechnic Univ., Shanghai, China

Track Co-Organizer: S M Sohel Murshed, Universidade de Lisboa, Lisboa, Portugal, Haiping Hong, SDSMT, Rapid City, SD, United States

### 2-1

#### NANOFUID: EXPERIMENTAL

Room: Exploration

Session Time: 10:45am - 12:15pm

Session Organizer: Liwen Jin, Xi'an Jiaotong University, Xi'an, China

Session Co-Organizer: Xiangzhao Meng, Xi'an Jiaotong University, Xi'an, China

## Nanoparticle Motion and Deposition Pattern from Evaporating Binary Droplets

Invited Paper. MNHMT2016-6477

Xin Zhong, Fei Duan, Nanyang Technological University, Singapore

## Characteristics of Evaporative Thin Layer for Al<sub>2</sub>O<sub>3</sub> Nanofluid Droplet on Solid Surface

Technical Presentation. MNHMT2016-6681

Seong Hyuk Lee, Dae Yun Kim, Chung-Ang University, Seoul, Korea (Republic)

## Heat Transfer during Constrained Melting of Graphite-Based Nanofluids in a Spherical Capsule

Technical Paper Publication. MNHMT2016-6316

Ziqin Zhu, Liwu Fan, Minjie Liu, Zhejiang University, Hangzhou, Zhejiang, China, Yi Zeng, Auburn University, Auburn, AL, United States

## Experimental Study on Al<sub>2</sub>O<sub>3</sub>/H<sub>2</sub>O Nanofluid Flow Boiling Heat Transfer Under Different Pressures

Technical Paper Publication. MNHMT2016-6339

Yun Wang, Kuanghan Deng, Bo Liu, Junmei Wu, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Guanghui Su, Xi'an Jiaotong University Xi'an City, Xi'an, China

## Performance Comparison of Nanofluids through Plain Channel Considering the Effects of Uncertainties in Thermophysical Properties

Technical Paper Publication. MNHMT2016-6340

Ningbo Zhao, Qiang Wang, Shuying Li, Harbin Engineering University, Harbin, China

## Experimental Investigation on the Heat Transferring of Nanometer Fluid in Self-Exciting Mode Oscillating-Flow Heat Pipe

Technical Paper Publication. MNHMT2016-6400

Fu-Min Shang, Yi-Fang Dong, Jian-Hong Liu, Changchun Institute of Technology, Jilin, Changchun, China, Deng-Ying Liu, Institute of Engineering Thermo physics, Beijing, Beijing, China

## TRACK 3 MICRO/NANOSCALE INTERFACIAL TRANSPORT PHENOMENA

Track Organizer: Deyu Li, Vanderbilt University, Nashville, TN, United States

Track Co-Organizer: Bao Yang, University of Maryland, Maryland, MD, United States

### 3-1

#### PHONON TRANSPORT ACROSS SOLID INTERFACES

Room: Creation

Session Time: 10:45am - 12:15pm

Session Organizer: Juekuan Yang, Southeast University, Nanjing, China

## Phonon Blocking through Tuned Phonon Band-gaps

Technical Presentation. MNHMT2016-6530

Xiaobo Li, Huazhong University of Science and Technology, Wuhan, Hubei, China

## Thermal Transport across Hydrogen Bonded Hard-Soft Interfaces

Technical Presentation. MNHMT2016-6434

Tao Jiang, Teng Zhang, Ashley Gans, Xueqiang Zhang, Chen Qu, Sylwia Ptasińska, Tengfei Luo, University of Notre Dame, Notre Dame, IN, United States, Fangyuan Sun, Chinese Academy of Sciences, Beijing, Beijing, China, , Notre Dame, Notre Dame, IN, United States, , University of Notre Dame, Notre Dame, IN, United States

# Technical Program Monday

## Interfacial Thermal Conductance across Graphite Materials

Technical Presentation. MNHMT2016-6338

Yunfei Chen, Chenhan Liu, Weiyu Chen, Southeast University, Nanjing/Jiangsu, China

## Contact Thermal Resistance between Individual Nanostructures

Technical Presentation. MNHMT2016-6664

Qian Zhang, Deyu Li, Vanderbilt University, Nashville, TN, United States, Juekuan Yang, Southeast University, Nanjing, China

## Effect of Heat Sink Structure improvement on Heat Dissipation Performance in High Heat Flux

Technical Paper Publication. MNHMT2016-6726

Zhuo Cui, TianJin, University of Commerce, Tianjin, China

## Design of Open System of Loop Heat Pipe Experimental Rig for Phase Change Driving Force and Visual Experiment Study

Technical Paper Publication. MNHMT2016-6727

Kai Zhu, Tianjin University of Commerce, Tianjin, 300134, China

## TRACK 5 MICRO/NANOSCALE THERMAL RADIATION

Track Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

Track Co-Organizer: Changying Zhao, Shanghai Jiao Tong University, Shanghai, China, Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

### 5-1 THEORETICAL, NUMERICAL, OR EXPERIMENTAL INVESTIGATIONS ON NEAR-FIELD RADIATION

**Room: Theatre 5** **Session Time: 10:45am - 12:15pm**

Session Organizer: Ceji Fu, Peking University, Beijing, China

Session Co-Organizer: Jun Qiu, Harbin Institute of Technology, Harbin, Heilongjiang, China

## Experimental Investigation of Heat Transfer across Extreme Small Vacuum Gaps

Invited Presentation. MNHMT2016-6724

Achim Kittel, University of Oldenburg, Oldenburg, Lower Saxony, Germany

## Spectral Control of Thermal Radiation Using Metal-Dielectric Multilayers for High-Temperature Usage Over 1000°C

Technical Paper Publication. MNHMT2016-6699

Makoto Shimizu, Asaka Kohiyama, Fumitada Iguchi, Hiroo Yugami, Tohoku University, Sendai Miyagi, Japan

## Artificial Opals: Reflection Spectra and Distribution Laws of Energy Transfer

Technical Paper Publication. MNHMT2016-6510

Yuan Bin Liu, Jun Qiu, Rong Jin, Lin Hua Liu, Harbin Institute of Technology, Harbin, Heilongjiang, China

## Near Field Radiative Thermal Control of a Metal Structure With Graphene

Technical Paper Publication. MNHMT2016-6337

Ao Wang, Yimin Xuan, Nanjing University of Science and Technology, Nanjing, Jiangsu, China

## Performance Analysis of Near-Field Thermophotovoltaic With a Multilayer Metallodielectric Emitter

Technical Paper Publication. MNHMT2016-6471

Yue Yang, Jui-Yung Chang, Liping Wang, Arizona State University, Tempe, AZ, United States

## TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian, China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

### 11-1 MICRO/NANOSCALE HEAT TRANSFER **Room: Discovery** **Session Time: 10:45am - 12:15pm**

Session Organizer: Haochun Zhang, Harbin Institute of Technology, Harbin, Heilongjiang, China

Session Co-Organizer: Ming-Chang Lu, National Chiao Tung University, Hsinchu, Taiwan

## **Nanoparticle Aggregation in Ionic Solution and Its Effect on Translocation across Cell Membrane**

Technical Presentation. MNHMT2016-6395

Kai Yue, Xiaoxing Lv, Xinxin Zhang, University of Science and Technology Beijing, Beijing, China

## **Preparation and Photocatalysis of a Glass Coated With Nanometer TiO<sub>2</sub> Codoped With N, F and Fe Elements**

Technical Paper Publication. MNHMT2016-6424

Cong Ding, Yufei Zhang, Chen Chuan, Yanhua Liu, Xi'an Jiaotong University, Xi'an, China

## **Thermal Transport in Colloidal Nanocrystal-Based Materials**

Technical Presentation. MNHMT2016-6403

Yuanyu Ma, Minglu Liu, Robert Y. Wang Arizona State University, Tempe, AZ, United States

## **A Natural Graded Thermal Conductivity in Nanoscale Graphene Disk**

Technical Presentation. MNHMT2016-6313

Nuo Yang, Huazhong University of Science & Technology, Wuhan, Hubei, China, Baowen Li, National University of Singapore, Singapore, Singapore, Shiqian Hu, Tongji University, Shanghai, China, Dengke Ma, Huazhong University of Science and Technology, Wuhan, China

## **High Enhancement in Thermal Conductivity of Polyethylene by Aligned Carbon Nanotubes**

Technical Presentation. MNHMT2016-6325

Nuo Yang, Zhichun Liu, Huazhong University of Science and Technology, Wuhan, China

## **Analysis of the Optical and Thermal Properties of Transparent Insulating Materials Containing Gas Bubbles**

Technical Paper Publication. MNHMT2016-6523

Qilin Cai, Hong Ye, University of Science and Technology of China, Hefei, Anhui, China

## **TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP**

Track Organizer: Xiangchun Xuan, Clemson Univ, Clemson, SC, United States

Track Co-Organizer: Weihua Li, University of Wollongong, Wollongong, Australia, Anderson Ho Cheung Shum, University of Hong Kong, Hong Kong, Hong Kong

### **1-2**

#### **MICRO- AND NANO-FLUIDIC FLOWS**

**Room: Breakthrough**

**Session Time: 1:15pm - 2:45pm**

Session Organizer: Zhigang Li, Hong Kong University of Science and Technology, Kowloon, Hong Kong

Session Co-Organizer: Jianfei Xie, Tsinghua University, Beijing, China

#### **Mixing Enhancement in Spiral Microchannels**

Technical Paper Publication. MNHMT2016-6422

Lakshmi Balasubramaniam, Rerengchai Arayanarakool, Samuel D. Marshall, Bing Li, Poh Seng Lee, Peter C.Y. Chen, National University of Singapore, Singapore

#### **Microstructural Effect on the Capillary Performance of Filter Papers**

Technical Presentation. MNHMT2016-6546

Shangsheng Feng, Meng Shi, Feng Xu, Tian Jian Lu, Xi'an Jiaotong University, Xi'an, China, Jane Ru Choi, University of Malaya

#### **Investigations on Non-Newtonian Electro-osmotic Driven Flow in Rectangular Microchannels**

Technical Presentation. MNHMT2016-6560

Yi Huang, Juzheng Chen, Teck Neng Wong, Nanyang Technological University, Singapore, Singapore, Jong-Leng Liow, The University of New South Wales, Canberra, Singapore

#### **Separation of Water Vapor From Methane by Nanoporous Graphene Membrane**

Technical Paper Publication. MNHMT2016-6441

Chengzhen Sun, Bofeng Bai, Xi'an Jiaotong University, Xi'an, Shaanxi, China

#### **Electroosmotic Flow Hysteresis for Dissimilar Anionic Solutions**

Technical Presentation. MNHMT2016-6386

An Eng Lim, Chun Yee Lim, Yee Cheong Lam, Nanyang Technological University, School of Mechanical and Aerospace Engineering, Singapore

## **Electroosmotic flow in a rough nanochannel with surface roughness characterized by fractal Cantor**

Technical Presentation. MNHMT2016-6550

Pengfei Lu, Yongping Chen, Yangzhou University, Yangzhou, Jiangsu, China, Chengbin Zhang, Southeast University, Nanjing, Jiangsu, China

---

## **TRACK 2 NANOFLUIDS**

Track Organizer: Huaqing Xie, Shanghai Second Polytechnic Univ., Shanghai, China

Track Co-Organizer: S M Sohel Murshed, Universidade de Lisboa, Lisboa, Portugal, Haiping Hong, SDSMT, Rapid City, SD, United States

---

## **2-2**

### **NANOFLUIDS: CHARACTERIZATION AND APPLICATION**

**Room: Exploration** **Session Time: 1:15pm - 2:45pm**

Session Organizer: Ruian Xu, Tsinghua University, Beijing, China

Session Co-Organizer: Haiping Hong, SDSMT, Rapid City, SD, United States

## **Experimental Investigation on Solar Thermal Properties of Magnetic Nanofluids for Direct Absorption Solar Collector**

Invited Paper. MNHMT2016-6620

Qinbo He, Geni Yan, Guangdong University Heat Pump Engineering Technology Development Center, Foshan, Guangdong, China, Shuangfeng Wang, South China University of Technology, Guangzhou, China

## **Experimental Study on Enhanced Falling Film Absorption Process Using H<sub>2</sub>O/LiBr Nanofluids**

Invited Paper. MNHMT2016-6630

L.Y. Zhang, Yuanyuan Liu, Yuan Wang, Xiaohu Yang, Liwen Jin, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Hongqi Li, Beijing University of Technology, Beijing, China

## **Nanofluids based on carbon nanotube and metal oxide and related applications**

Technical Presentation. MNHMT2016-6593

Haiping Hong, SDSMT, Rapid City, SD, United States

## **Stability of Molten Salt Nanofluids After Melting and Freezing Thermal Cycling**

Technical Paper Publication. MNHMT2016-6565

Pau Gimenez-Gavarrell, Sonia Fereres, Abengoa Research, Sevilla, Spain

## **Experimental Study on Heat Transfer of Multi-Walled Carbon Nanotubes/Water Nanofluids in Horizontal Microtubes**

Technical Paper Publication. MNHMT2016-6574

Mehrdad Karimzadehkhoei, Abdolali Khalili Sadaghiani, Kursat Sendur, Ali Kosar, Sabanci University, Istanbul, Turkey, M. Pinar Menguc, Ozyegin University, Istanbul, Turkey

## **Experimental Investigations on Critical Heat Flux In Pool Boiling Conditions for Low Concentration CuO-Water Nanofluids**

Technical Paper Publication. MNHMT2016-6718

Deepak Pal, Shijo Thomas, Choondal Balakrishna Panicker Sobhan National Institute of Technology Calicut, KERALA, India

---

## **TRACK 3 MICRO/NANOSCALE INTERFACIAL TRANSPORT PHENOMENA**

Track Organizer: Deyu Li, Vanderbilt University, Nashville, TN, United States

Track Co-Organizer: Bao Yang, University of Maryland, College Park, MD, United States

---

## **3-2**

### **THERMAL RESISTANCE OF INTERFACES**

**Room: Creation** **Session Time: 1:15pm - 2:45pm**

Session Organizer: Zhao Yang, University of Science and Technology of China, Hefei, Anhui, China

## **Vertically Aligned Carbon Nanotube Arrays as a Radiator for Piezoelectric Transformers**

Technical Presentation. MNHMT2016-6715

Zhao Yang, Chen Lie, University of Science and Technology of China, Hefei, Anhui, China

## **An Investigation on the Flow Pattern and Interfacial Heat Transport Distribution in Thin Liquid Film**

Technical Paper Publication. MNHMT2016-6676

Leping Zhou, Zhenchen Zheng, Congjie Xiao, Xiaoze Du, Yongping Yang, North China Electric Power University, Beijing, China



## Interface Energy Coupling between MoS<sub>2</sub> Film and Bulk Si: Effect of Number of Atomic Layers

Technical Presentation. MNHMT2016-6637

Pengyu Yuan, Xinwei Wang, Iowa State University, Ames, IA, United States

## First Principles Study of Thermal Conductance across Cu/graphene/Cu Nanocomposition and the Effect of Hydrogenation

Technical Paper Publication. MNHMT2016-6318

Yi Tao, Chenhan Liu, Juekuan Yang, Kedong Bi, Weiyu Chen, Yunfei Chen, Southeast University, Nanjing, China

## Characterization of Thermal Resistances Across CVD-Grown Graphene/Al<sub>2</sub>O<sub>3</sub> and Graphene/Metal Interfaces Using Differential 3-Omega Technique

Technical Paper Publication. MNHMT2016-6508

Daniel Josephus Villaroman, Weijing Dai, Xinjiang Wang, Lin Gan, Ruizhe Wu, Zhengtang Luo, Baoling Huang, Hong Kong University of Science and Technology, Kowloon, Hong Kong

## Experimental Research of Shell and Tube Condenser with the Middle Liquid Separation Structure

Technical Paper Publication. MNHMT2016-6728

Kai Zhu, Tianjin University of Commerce, Tianjin, China

## TRACK 5 MICRO/NANOSCALE THERMAL RADIATION

Track Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

Track Co-Organizer: Changying Zhao, Shanghai Jiao Tong University, Shanghai, China, Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

### 5-2

## RADIATIVE AND OTHER THERMOPHYSICAL PROPERTIES OF NANOSCALE ENGINEERED MATERIALS

Room: Theatre 5

Session Time: 1:15pm - 2:45pm

Session Organizer: Changying Zhao, Shanghai Jiao Tong University, Shanghai, China

Session Co-Organizer: Hua Bao, University of Michigan-Shanghai Jiaotong University Joint Institute, Shanghai, China

## Blackbody Theory for Hyperbolic Materials

Invited Presentation. MNHMT2016-6680

Svend-Age Biehs, Institut für Physik, Oldenburg, Germany, Slawa Lang, Alexander Yu. Petrov, Manfred Eich, Institute of Optical and Electronic Materials, Hamburg, Germany, Philippe Ben-Abdallah, Laboratoire Charles Fabry/ Institut d'Optique, Palaiseau, France

## Inverse Analysis on Thermal Conductivity of Nano-sized Aerogel Chains

Invited Presentation. MNHMT2016-6734

Xinlin Xia, Donghui Li, Harbin Institute of Technology, Harbin, Heilongjiang, China, Fengxian Sun, Harbin Engineering University, Harbin, Heilongjiang, China

## Thermal Radiative Properties of (La,Sr)MnO<sub>3</sub> Thermochromic Coating Prepared by Sol-Gel Process

Technical Paper Publication. MNHMT2016-6420

Li Guo, Desong Fan, Qiang Li, Yimin Xuan, Nanjing University of Science and Technology, Nanjing, China

## Tungsten Nanowire Metamaterials as Selective Solar Thermal Absorbers by Excitation of Magnetic Polaritons

Technical Paper Publication. MNHMT2016-6469

Jui-Yung Chang, Hao Wang, Liping Wang, Arizona State University, Tempe, AZ, United States

## Optical absorption properties of MgF<sub>2</sub> films dispersed with Ag Nanoparticles

Technical Presentation. MNHMT2016-6705

Qunzhi Zhu, Ruixi Dong, Shanghai University of Electric Power, Shanghai, China

## Numerical Simulation on the Performance of Nanofluid-Based Direct Absorption Solar Collector with Parabolic Trough Concentrator

Technical Paper Publication. MNHMT2016-6647

Wei Chen, Guoying Xu, Sainan Zhao, Xiaosong Zhang, Southeast University, Nanjing, Jiangsu, China

## TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian, China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

## 11-2 LIQUID FLOW AND HEAT TRANSFER AT SMALL SCALES

Room: Discovery Session Time: 1:15pm - 2:45pm

Session Organizer: Liang Gong, China University of Petroleum, Qingdao, Shandong, China

Session Co-Organizer: Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

### Ceramic Tile with Air Purification Capability

Invited Paper. MNHMT2016-6431

Ting Yang, Yufei Zhang, Lijuan Ma, Yanhua Liu, Xi'an Jiaotong University, Xi'an, China

### Mode-Resolved Thermal Conductivity of Freestanding and Supported Bismuth Telluride Quintuple Layer

Technical Paper Publication. MNHMT2016-6467

Cheng Shao, Shanghai Jiao Tong University, Shanghai, China, Hua Bao, University of Michigan-Shanghai Jiaotong University Joint Institute, Shanghai, China

### Strain Effect on the Thermal Conductivity of Silicene

Technical Presentation. MNHMT2016-6474

Han Xie, Éric Germaineau, Shanghai Jiao Tong University, Shanghai, China, Tao Ouyang, Ming Hu, RWTH Aachen University, Aachen, Germany, Hua Bao, University of Michigan-Shanghai Jiaotong University Joint Institute, Shanghai, China

### High and Tunable Thermal Conductivity of a Single Nylon-6 Nanofiber

Technical Presentation. MNHMT2016-6476

Ming-Chang Lu, Pei-Hsiu Wu, Hsin-Che Chien, Chien-Lung Wang, Yueh-Ju Liu, Cheng-Wei Tu, National Chiao Tung University, Hsinchu, Taiwan

### Thermal Conductivity Measurement of Suspended Graphene/Hexagonal Boron Nitride Heterostructures Using Suspended Micro-Thermometer Devices

Technical Presentation. MNHMT2016-6440

JunKyu Han, GIST, Gwangju, Korea (Republic), Youngwoong Moon, Yonsei University, Seoul, Korea (Republic), Jonghyun Park, Chungnam National University, Daejeon, Korea (Republic), Chanyong Hwang, Center for Nanometrology, Korea Research Institute of Standard and Science (KRISS), Daejeon, Korea (Republic), Jae Hun Seol, GIST, Gwangju, Korea (Republic)

### Thermal Conductivity of Bamboo-like Boron Nitride Nanotubes

Technical Presentation. MNHMT2016-6445

Yang Zhao, Lin Zhu, Kedong Bi, Yunfei Chen, Juekuan Yang, Southeast University, Nanjing, China

## TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP

Track Organizer: Xiangchun Xuan, Clemson University, Clemson, SC, United States

Track Co-Organizer: Weihua Li, University of Wollongong, Wollongong, Australia, Anderson Ho Cheung Shum, University of Hong Kong, Hong Kong

## 1-3 DROPLETS AND EMULSIONS

Room: Breakthrough Session Time: 3:15pm - 5:00pm

Session Organizer: Amaresh Dalal, Indian Institute of Technology Guwahati, Guwahati, Assam, India

Session Co-Organizer: Xiaodong Chen, Chinese Academy of Sciences, Beijing, China

### Droplet Fission in Non-Newtonian Multiphase System Using Bilayer Bifurcated Microchannel

Invited Paper. MNHMT2016-6709

Yong Ren, Kai Seng Koh, University of Nottingham Ningbo China, Ningbo, Zhejiang, China

### Thermal-Stimuli Colloidosome Templating from Particle-Stabilized Emulsion: Tunable Release Kinetics For Smart Delivery

Technical Presentation. MNHMT2016-6416

Leyan LEI, T.T. Kong, Zhanxiao Kang, Pingan ZHU, Xin Tang, Xiaowei Tian, Ye Tian, Liqiu Wang, University of Hong Kong, Hong Kong, Hong Kong

## Engineering Particle Morphology by Non-equilibrium Microfluidic Droplets

Technical Presentation. MNHMT2016-6426

Zhanxiao Kang, Leyan Lei, T.T. Kong, Pingan Zhu, Xiaowei Tian, Liqiu Wang, University of Hong Kong, Hong Kong, Hong Kong

## Investigation of Sessile Droplet Wetting, Dynamics and Evaporation on Micro-Structured Substrates

Technical Paper Publication. MNHMT2016-6446

Guiping Zhu, Hu-Lin Huang, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiang Su, China, Kian-Soo Ong, Karen Siew Ling Chong, Institute of Materials Research and Engineering, Singapore, Singapore, Singapore, Fei Duan, Nanyang Technological University, Singapore, Singapore

## Numerical Simulation of Gravity-Driven Droplet Displacement on an Inclined Micro-Grooved Surface

Technical Paper Publication. MNHMT2016-6529

Qilin Wang, Yan Li, Zhicheng Yu, Bin Guo, Ocean University of China, Qingdao, Shandong, China

## Effect of Geometrical Confinement on the Droplet Formation in Microchannels

Technical Presentation. MNHMT2016-6484

Xiaodong Chen, Chundong Xue, Guoqing Hu, State Key Laboratory of Nonlinear Mechanics, Institute of Mechanics, Chinese Academy of Sciences, Beijing, China

## Methanol Steam Reforming in Twisted Microchannels

Technical Presentation. MNHMT2016-6552

Feng Yao, Southeast University, Nanjing, Jiangsu, China, Yongping Chen, Yangzhou University, Yangzhou, Jiangsu, China

## TRACK 2 NANOFUIDS

Track Organizer: Huaqing Xie, Shanghai Second Polytechnic Univ., Shanghai, China

Track Co-Organizer: S M Sohel Murshed, Universidade de Lisboa, Lisboa, Portugal, Haiping Hong, SDSMT, Rapid City, SD, United States

2-3

## NANOFUIDS: SIMULATION

Room: Exploration

Session Time: 3:15pm - 5:00pm

Session Organizer: Teck Neng Wong, Nanyang Technological University, Singapore, —None—, Singapore

Session Co-Organizer: Fangjun Hong, Shanghai Jiao Tong University, Shanghai, China

## CO2 Absorption Enhancement By Nanoabsorbents in Turbulent Flow

Technical Presentation. MNHMT2016-6633

Yong Tae Kang, Israel Torres Pineda, Korea University, Seoul, Korea (Republic)

## Effect of Temperature on Rheology and Nanoparticle Movements of Water Based Nanofluids by Molecular Dynamics Simulation

Technical Paper Publication. MNHMT2016-6393

Wenzheng Cui, Zhaojie Shen, Jianguo Yang, Shaohua Wu, Harbin Institute of Technology, Harbin, China

## The Lattice Boltzmann Investigation for the Melting Process of Phase Change Material in an Inclining Cavity

Technical Paper Publication. MNHMT2016-6343

Zhonghao Rao, Yutao Huo, Yimin Li, China University of Mining and Technology, Xuzhou, Jiangsu, China

## Molecular Dynamics Simulation on the Effect of Micro-motions of Nanoparticles in Heat Transfer Enhancement of Nanofluids

Technical Paper Publication. MNHMT2016-6451

Chengzhi Hu, Minli Bai, Jizu Lv, Dalian University of Technology, Dalian, China, Yuyan Wang, Dalian Jiaotong University, Dalian, China

## Confined Jet Array Impingement Cooling Using NEPCM Nanofluids

Technical Paper Publication. MNHMT2016-6531

Fangjun Hong, Chaoyang Zhang, Daheng Chen, Shanghai Jiao Tong University, Shanghai, China, Gang Chen, Shanghai Institute of Satellite Engineering, Shanghai, China

## Nanofluid for Enhanced Oil Recovery-A Micromodel Study

Technical Presentation. MNHMT2016-6702

# Technical Program Monday

Ruina Xu, Feng Huang, Cheng Gao, Rong Li, Peixue Jiang, Tsinghua University, Beijing, China

## Liquid Slippage in Confined Flows: Effect of Periodic Micropatterns of Arbitrary Pitch and Amplitude

Technical Paper Publication. MNHMT2016-6491

Avinash Kumar, Subhra Datta, Dinesh Kalyanasundaram, Indian Institute of Technology Delhi, New Delhi, India

### TRACK 3 MICRO/NANOSCALE INTERFACIAL TRANSPORT PHENOMENA

Track Organizer: Deyu Li, Vanderbilt University, Nashville, TN, United States

Track Co-Organizer: Bao Yang, University of Maryland, Maryland, MD, United States

### 3-3 INTERFACE EFFECTS ON THERMAL TRANSPORT IN NANOSTRUCTURED MATERIALS

Room: Creation Session Time: 3:15pm - 5:00pm

Session Organizer: Dongyan Xu, The Chinese University of Hong Kong, Shatin, Hong Kong

## Thermal Management in Silicene Nanosheets with Designed Cavities by Molecular Dynamic Simulations

Technical Paper Publication. MNHMT2016-6487

Xingang Liang, Feng Yuan, Tsinghua University, Beijing, China,

## The Cross-plane Thermal Conductance of Multi-layer Graphene Nanobundles

Technical Paper Publication. MNHMT2016-6314

Chenhan Liu, Zhiyong Wei, Weiyu Chen, Hui Chen, Juekuan Yang, Kedong Bi, Yunfei Chen, Southeast University, Nanjing, Jiangsu, China

## Heat Transfer Across Nanoparticle-Liquid Interfaces

Technical Paper Publication. MNHMT2016-6411

Anjan R Nair, Government College of Engineering Kannur, Kerala, India, Sarith Sathian, Indian Institute of Technology Madras, Chennai, India

## Tuning the Thermal Transport Properties of Graphene via Nanoconstriction Network

Technical Paper Publication. MNHMT2016-6646

Bing-Yang Cao, Wenjun Yao, Tsinghua University, Beijing, China

## Understanding the Thermal Transport in Fullerene Composites

Technical Presentation. MNHMT2016-6564

Liang Chen, Shuangtao Chen, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Xiaoja Wang, University of Minnesota, Minneapolis, MN, United States, Satish Kumar, Georgia Institute of Technology, Atlanta, GA, United States

## Thermal Conductivity of Individual Boron Carbide Nanowires

Technical Presentation. MNHMT2016-6662

Qian Zhang, Deyu Li, Vanderbilt University, Nashville, TN, United States, Zhiguang Cui, Ting Terry Xu, University of North Carolina, Charlotte, Charlotte, NC, United States

## Force Analysis of Bubble Dynamics in Flow Boiling Silicon Nanowire Microchannels

Technical Paper Publication. MNHMT2016-6714

Tamanna Alam, Wenming Li, Ahmed Shehab Khan, Yan Tong, Jamil Khan, Chen Li, University of South Carolina, Columbia, SC, United States, Fanghao Yang, IBM Research, IBM T. J. Watson Research Center, Columbia, SC, United State, Jing Li, Zuankai Wang, City University of Hong Kong, Kowloon, Hong Kong

### TRACK 5 MICRO/NANOSCALE THERMAL RADIATION

Track Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

Track Co-Organizer: Changying Zhao, Shanghai Jiao Tong University, Shanghai, China, Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

### 5-3 UNIQUE RADIATIVE PROPERTIES OF PERIODIC STRUCTURES

Room: Theatre 5 Session Time: 3:15pm - 5:00pm

Session Organizer: Liping Wang, Arizona State University, Tempe, AZ, United States

Session Co-Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

## **Some Recent Research Progress on Spectral and Directional Control of Thermal Radiation with Periodic Microstructures**

Invited Presentation. MNHMT2016-6674

Ceji Fu, Peking University, Beijing, China

## **Enhancing Infrared Transmission of Subwavelength Metallic Gratings or Pillar Arrays by Graphene Coverage**

Technical Presentation. MNHMT2016-6307

Xianglei Liu, Bo Zhao, Zhuomin Zhang, Georgia Institute of Technology, Atlanta, GA, United States

## **Tempering Hemispherical Radiative Properties with a Resonance Compilation**

Technical Presentation. MNHMT2016-6321

Yu-bin Chen, Yung-chun Lee, Yu-Fan Chang, Yao-Hua Lin, Peng-Hsiang Chen, National Cheng Kung University, Tainan City, Taiwan

## **Low-directivity Quasi-monochromatic Thermal Radiation from Microcavities Covered by Thin Metal Film**

Technical Paper Publication. MNHMT2016-6683

Asaka Kohiyama, Makoto Shimizu, Fumitada Iguchi, Hiroo Yugami, Tohoku University, Sendai Miyagi, Japan

## **General Principle for Optical Antenna Thermal Emitters In Far-field and Near-field**

Technical Presentation. MNHMT2016-6638

Baoan Liu, Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

## **A Microstructure-Based Monte Carlo Investigation on the Anisotropic Radiative Transfer in Porous Ceramics**

Technical Paper Publication. MNHMT2016-6585

Boxiang Wang, Changying Zhao, Shanghai Jiao Tong University, Shanghai, China

## **TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE**

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian, China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

### **11-3**

#### **GAS FLOW AND HEAT TRANSFER AT SMALL SCALES**

**Room: Discovery**

**Session Time: 3:15pm - 5:00pm**

Session Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

## **Investigation of Mechanism for a Thermal Cloak Metamaterial by an Entropy Production Approach**

Technical Paper Publication. MNHMT2016-6554

Haochun Zhang, Haiyan Yu, Yao Li, Nai-Qiu Song, Yan-Qiang Wei, Harbin Institute of Technology, Harbin, Heilongjiang, China

## **Numerical Investigation of Thermoelectric Topping Cycle in Coal Fired Power Plant Boiler**

Technical Paper Publication. MNHMT2016-6579

Armin Silaen, Chenn Zhou, Bin Wu, Purdue University Calumet, Hammond, IN, United States

## **Effect of Various Defects on Thermal Conductivity of Graphene by Using Molecular Dynamics Simulation**

Technical Paper Publication. MNHMT2016-6624

Yidi Zhang, Gaosheng Wei, Xiaoze Du, Yongping Yang, North China Electric Power University, Beijing, China

## **A 3D Numerical analysis on ultra-fast laser heating process**

Technical Presentation. MNHMT2016-6625

Yan Zeng, Nanyang Technological University, Singapore, Singapore, Peng Yu, South University of Science and Technology of China, Shenzhen, Guangdong, China

## **Experimental Study of Nature-inspired Enhanced Microscale Heat Transfer**

Technical Paper Publication. MNHMT2016-6733

Aik Ling Goh, Bo Han, Kim Tiow Ooi, Nanyang Technological University, Singapore, Singapore

## **Comprehensive Study of the Thermal Transport and Coherent Acoustic Phonon Wave Propagation in Metallic Nanofilm-Glass Substrate System**

Technical Presentation. MNHMT2016-6666

Weigang Ma, Shen Yan, Xing Zhang, Tsinghua University, Beijing, China, Masamichi Kohno, Yasuyuki Takata, Kyushu University, Fukuoka, Japan

## **Numerical Simulation on the Effective Thermal Conductivity of High Filler Loading Composites**

Technical Presentation. MNHMT2016-6667

Hua Bao, University of Michigan-Shanghai Jiaotong University Joint Institute, Shanghai, China, Zhen Tong, Meng Liu, Shanghai Jiao Tong University, Shanghai, China

## **TRACK 15 POSTER**

Track Organizer: Liwen Jin, Department of Building Environment and Energy Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Guolin Xu, Singapore Institute of Bioengineering and Nanotechnology, Singapore, Singapore

## **15-1**

### **POSTER**

**Room: Foyer**

**Session Time: 5:00pm - 7:00pm**

Session Organizer: Liwen Jin, Department of Building Environment and Energy Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China

Session Co-Organizer: Guolin Xu, Singapore Institute of Bioengineering and Nanotechnology, Singapore, Singapore

## **Thermoelectric Performance of Single-layer MoS<sub>2</sub>**

Poster Presentation. MNHMT2016-6304

Zelin Jin, Quanwen Liao, Haisheng Fang, Zhichun Liu, Wei Liu, Zhidong Ding, Nuo Yang, Huazhong University of Science and Technology, Wuhan, China, Tengfei Luo, University of Notre Dame, Notre Dame, IN, United States

## **Enhancing Thermoelectric Figure-of-merit by 1D Electrical Transport in Bulk Bis-Dithienothiophene Molecular Crystal**

Poster Presentation. MNHMT2016-6323

Nuo Yang, Jing-Tao Lv, Huazhong University of Science and Technology, Wuhan, China

## **Fluorine-Induced Superhydrophilic TiO<sub>2</sub> Nanotube Arrays**

Poster Paper Publication. MNHMT2016-6328

Zhi-Yong Luo, Dong-Chuan Mo, Shu-Shen Lyu, Sun Yat-sen University, Guangzhou, China

## **WSe<sub>2</sub> Nanoribbons: New High-Performance Thermoelectric Materials**

Poster Paper Publication. MNHMT2016-6329

Kai-Xuan Chen, Dong-Chuan Mo, Shu-Shen Lyu, Sun Yat-Sen University, Guangzhou, China

## **Pore Scaled Analytical Modelling of Permeability and Inertial Coefficient for Pressure Drop Prediction of Open-Cell Metallic Foams**

Poster Paper Publication. MNHMT2016-6457

Xiaohu Yang, S.Y. Song, L.Y. Zhang, T.J. Lu, Xi'an Jiaotong University, Xi'an, Shaanxi, China

## **Electrical Double Layer Effect on Thermo-plasmonics of Metal Nanoparticles in Aqueous Solutions**

Poster Presentation. MNHMT2016-6461

Yi Zhou, Chun Yang, Nanyang Technological University, Singapore 639798, Singapore

## **Effect of Particle Size on Transient Heat and Mass Transfer in a Novel Zeolite-water Adsorption Heat Transformer**

Poster Paper Publication. MNHMT2016-6481

Bing Xue, Xiangrui Meng, Xinli Wei, Zhengzhou University, Zhengzhou, China, Koichi Nakaso, Jun Fukai, Kyushu University, Fukuoka, Japan

## **Thermal Contact Resistance and Surface Roughness**

Poster Presentation. MNHMT2016-6483

Koji Takahashi, Tatsuya Ikuta, Takashi Nishiyama, Yasuyuki Takata, Kyushu University, Fukuoka, Japan

## **Infrared Absorption Characteristics Analysis for Square Loop Nanostructure of Al Substrate**

Poster Paper Publication. MNHMT2016-6551

Qinghui Pan, Qizhen Wang, Yong Shuai, He-Ping Tan, Harbin Institute of



Technology, Harbin, Heilongjiang, China

## **Rarefaction Effects on Gas Mixing in Micro- and Nanoscales**

Poster Paper Publication. MNHMT2016-6604

Masoud Darbandi, Moslem Sabouri, Sharif University of Technology, Tehran, Iran

## **Effects of Nanoparticles on H<sub>2</sub>O/LiBr Falling Film Absorption Process**

Poster Paper Publication. MNHMT2016-6631

L.Y. Zhang, Yang Li, Yuan Wang, Xiangzhao Meng, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Lixin Cao, Chang'an University, Xi'an, China

## **A Study on the Influence of Carbon Nanotube Coating on Boiling Heat Transfer Characteristics of Nanofluids**

Poster Presentation. MNHMT2016-6660

Sung Seek Park, Young Hun Kim, Nam Jin Kim, Jeju National University, Jeju Special Self-Governing Province, Korea (Republic)

## **A Comparative Study on the Flow Boiling Critical Heat Flux Characteristics of Oxidized Multi Walled Carbon Nanotube and Graphene Nanofluids**

Poster Presentation. MNHMT2016-6678

Hyo Seok Kim, Nam Jin Kim, Jeju National University, Jeju Special Self-Governing Province, Korea (Republic)

## **Preparation of Uniform Polymer-based Mesoporous Carbon Microspheres with Microfluidic Device**

Poster Presentation. MNHMT2016-6684

Jianmei Wang, Center for Transport Phenomena, Energy Research Institute of Shandong Academy of Sciences, Jinan, China, Chengyang Wang, Tianjin University, Tianjin, China, Xueming Wang, Center for transport phenomena, Energy Research Institute, Shandong Academy of Science, Jinan, China, Jianchun Wang, Center for Transport Phenomena, Energy Research Institute, Shandong Academy of Sciences, Jinan, China, Yan Li, Min Xu, Center for Transport Phenomena, Shandong Academy of Sciences, Jinan, China, Liqiu Wang, University of Hong Kong, Hong Kong

## **Design of a Heated Micro-Cantilever Optimized for Thermo-Capillary Driven Printing of Molten Polymer Nanostructures**

Poster Presentation. MNHMT2016-6691

Mohammadreza Soleymaniha, Jonathan Felts, Texas A&M University, College Station, TX, United States

## **Temperature of Joule Heated Silicon Microwire and Nanowire Measured by Localized Coating of Quantum Dots**

Poster Presentation. MNHMT2016-6700

Jeonghoon Yun, Inkyu Park, KAIST, Daejeon, Korea (Republic), Jae-Hyuk Ahn, University of Pennsylvania, Philadelphia, PA, United States, Bong Jae Lee, Korea Advanced Institute of Science and Technology, Seoul, Korea (Republic)

## **Solidification Analysis of Density-graded Closed-cell Metallic Foam under Constant Temperature Boundary Condition**

Poster Paper Publication. MNHMT2016-6719

Wenbin Wang, Xiaohu Yang, Qiancheng Zhang, Tianjian Lu, Xi'an Jiaotong University, Xi'an, Shaanxi, China

## **Numerical Investigation on Head-On Collisions of Binary Microdroplets by an Improved Multiphase Lattice Boltzmann Flux Solver**

Poster Paper Publication. MNHMT2016-6533

Yan Wang, Chang Shu, National University of Singapore, Singapore, Singapore

## **Microscale Heat and Mass Transport Phenomena of Laser Synthesis and Patterning of Metal Microstructures on a Polymer Substrate for Flexible Electronics**

Poster Presentation. MNHMT2016-6490

Ming-Tsang Lee, Yi-Kai Liu, National Chung Hsing University, Taichung, Taiwan

## **Numerical Simulation of Microflows by a DOM with Streaming and Collision Processes**

Poster Paper Publication. MNHMT2016-6494

Liming Yang, Jie Wu, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China, Chang Shu, National University of Singapore, Singapore, Singapore

## **Computational Investigation of Graphene Behavior under Differential Water Pressure and Possible Mass Transfer Influences**

# Technical Program Monday

Poster Paper Publication. MNHMT2016-6571

Somaye Jafari, Masoud Darbandi, Mohammad Said Saidi, Sharif University of Technology, Tehran, Iran

## The Effect of Inlet Turbulence Intensity on Nano-particulate Soot Formation in Kerosene-Fueled Combustors

Poster Paper Publication. MNHMT2016-6601

Masoud Darbandi, Majid Ghafourizadeh, Sharif University of Technology, Tehran, Iran

## Gas Molecular Thermal Energy Exchange Characteristics in Nanopores

Poster Presentation. MNHMT2016-6526

Qixin Liu, Chongqing University of Science and Technology, Chongqing, China

## Reconstituting 3D Vascular Networks of a Liver in Vitro on a Hydrogel Chip

Poster Presentation. MNHMT2016-6686

Xueying Wang, Yan Li, Jianmei Wang, Jianchun Wang, Min Xu, Shandong Academy of Science, Jinan, China, Liqiu Wang, University of Hong Kong, Hong Kong, Hong Kong

## Falling Liquid Films on a Slippery Substrate with Marangoni Effect

Poster Presentation. MNHMT2016-6600

Zijing Ding, Teck Neng Wong, Nanyang Technological University, Singapore, Singapore

## High Performance Metal Oxide-Glycol Nanofluid Coolants

Poster Presentation. MNHMT2016-6669

Suganthi K S, Rajan K S, SASTRA University, Thanjavur, Tamilnadu, India

## Two-stage Lau-Wan (2-apex) Wankel pump-mixer: design and prototyping

Poster Presentation. MNHMT2016-6673

Michael Lau, Newcastle University (Singapore), Singapore, Stephen Wan, Jason Leong, Teck-Bin Arthur Lim, Institute of High Performance Computing, Singapore, Singapore, Boon Yee Lim, K.L. Goh, Newcastle University, Newcastle Upon Tyne, United Kingdom

## TUESDAY, JANUARY 5

### TRACK 16 PLENARY SPEAKERS

16-6

#### PLENARY SESSION 6

Room: Breakthrough

Session Time: 8:30am - 9:05am

#### Shifting Enhancement Paradigms through Nano-Microscale Surface Modification in Pool Boiling

Invited Presentation. MNHMT2016-6371

Satish Kandlikar, Rochester Institute of Technology, Rochester, NY, United States

### TRACK 16 PLENARY SPEAKERS

16-5

#### PLENARY SESSION 5

Room: Breakthrough

9:05am - 9:40am

#### Microfluidics for Energy Applications

Invited Presentation. MNHMT2016-6369

David Sinton, University of Toronto, Toronto, ON, Canada

### TRACK 16 PLENARY SPEAKERS

16-2

#### PLENARY SESSION 2

Room: Breakthrough

Session Time: 9:40am - 10:15am

#### Beyond Classical Heat Transfer

Invited Presentation. MNHMT2016-6350

Liqiu Wang, University of Hong Kong, Hong Kong, Hong Kong

### TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP

Track Organizer: Xiangchun Xuan, Clemson University, Clemson, SC, United States

Track Co-Organizer: Weihua Li, University of Wollongong, Wollongong, Australia, Anderson Ho Cheung Shum, University of Hong Kong, Hong Kong, Hong Kong

1-4

## FIELD-DRIVEN PARTICLE AND CELL MANIPULATIONS

Room: Breakthrough

Session Time: 10:45am  
- 12:15pm

Session Organizer: Guiping Zhu, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiang Su, China

Session Co-Organizer: Chengzhen Sun, Xi'an Jiaotong University, Xi'an, Shaanxi, China

### Enhancement of Cell Trapping Using DC-biased AC Electric Fields in an Insulator-Based Dielectrophoretic Device with Densely Packed Silica Beads

Invited Presentation. MNHMT2016-6438

Nuttawut Lewpiriyawong, National University of Singapore, Singapore, Singapore, Chun Yang, Nanyang Technological University, Singapore Singapore, Guolin Xu, Singapore Institute of Bioengineering and Nanotechnology, Singapore, Singapore

### Swimming Bacteria under Dielectrophoretic Force

Technical Presentation. MNHMT2016-6627

Ngoc Phu Tran, Marcos Marcos, Nanyang Technological University, Singapore, Singapore, Singapore

### Plasmonic Absorption Activated Local Heating for Fluid Transfer and Particle Manipulation on Random Gold Nanostructure Substrate

Technical Presentation. MNHMT2016-6503

Jiajie Chen, Zhiwen Kang, Ho-Pui Ho, The Chinese University of Hong Kong, Shatin, Hong Kong

### Microfluidics for Sequential Particle Trapping

Technical Presentation. MNHMT2016-6500

Duc Quang Tran, Tian Fook Kong, Marcos Marcos, Nanyang Technological University, Singapore, Singapore, Raymond H. W. Lam, City University of Hong Kong, Hong Kong, Hong Kong

### Numerical Study of Highly Enhanced Cell Trapping in Insulator-based Dielectrophoresis Devices through Direct Joule Heating Removal at Annular Posts

Technical Presentation. MNHMT2016-6444

Warupong Phuengyen, Withada Jedsadaratanachai, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand, Nuttawut Lewpiriyawong, National University of Singapore, Singapore, Singapore

### Slow Viscous Flow of Two Particles in a Cylindrical Tube

Technical Presentation. MNHMT2016-6401

XIN YAO, Marcos Marcos, Teck Neng Wong, Nanyang Technological University, Singapore, Singapore

## TRACK 3 MICRO/NANOSCALE INTERFACIAL TRANSPORT PHENOMENA

Track Organizer: Deyu Li, Vanderbilt University, Nashville, TN, United States

Track Co-Organizer: Bao Yang, University of Maryland, MD, United States

3-4

## INTERFACE ENGINEERING

Room: Creation

Session Time: 10:45am - 12:15pm

Session Organizer: Jiashu Sun, National Center for Nanoscience and Technology, Beijing, China

Session Co-Organizer: Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States

### Particulate Fouling and Mitigation Approach in Microchannel Heat Exchanger

Technical Paper Publication. MNHMT2016-6628

Zhibin Yan, Xiaoyang Huang, Chun Yang, Nanyang Technological University, Singapore

### Mesoscopic Analysis of Droplet Spreading Behaviour on Wetted Surface for Low Viscosity Ratio

Technical Paper Publication. MNHMT2016-6492

Saurabh Bhardwaj, Amaresh Dalal, Indian Institute of Technology Guwahati, Guwahati, Assam, Assam, India

### Effect of Porous Wettability on the Bubble Penetrability and Gas-Liquid Separation Character

Technical Paper Publication. MNHMT2016-6722

Hongxia Chen, The Beijing Key Laboratory, Beijing, China, Yuying Yan, University of Nottingham, Nottingham, United Kingdom

## **Suppression of Frost Propagation with Micropillar Structured Engineered Surface**

Technical Paper Publication. MNHMT2016-6402

Yugang Zhao, Chun Yang, Nanyang Technological University, Singapore, Singapore

## **Phase Transformation of Nanostructured Materials via Combustion Waves from Thermopower Waves**

Technical Presentation. MNHMT2016-6379

Wonjoon Choi, Kang Yeol Lee, Hayoung Hwang, Dongjoon Shin, Taehan Yeo, Jungho Shin, Korea University, School of Mechanical Engineering, Seoul, Korea (Republic)

## **The Simulations of Flow and Heat over Microscale Sensors in Supersonic Rarefied Gas Flows Using DSMC**

Poster Paper Publication. MNHMT2016-6682

Masoud Darbandi, Ghasem Mosayebi, Sharif University of Technology, Tehran, Select State/Province, Iran

## **TRACK 5 MICRO/NANOSCALE THERMAL RADIATION**

Track Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

Track Co-Organizer: Changying Zhao, Shanghai Jiao Tong University, Shanghai, China, Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

## **5-4 THERMOPHOTOVOLTAIC (TPV) DEVICES EMPLOYING TAILORED RADIATIVE PROPERTIES**

**Room: Theatre 5**                      **Session Time: 10:45am - 12:15pm**

Session Organizer: Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

Session Co-Organizer: Yong Shuai, Harbin Institute of Technology, Harbin, Heilongjiang, China

## **A Solar Thermophotovoltaic System Using Spectrally Controlled Monolithic Planar Thermal Emitter/Absorber**

Invited Paper. MNHMT2016-6692

Hiroo Yugami, Asaka Kohiyama, Makoto Shimizu, Fumitada Iguchi, Tohoku University, Sendai, Japan

## **Numerical Simulation on the Thermal Radiative Properties of a Two-Dimensional Periodic Structure for Thermophotovoltaic Applications**

Technical Presentation. MNHMT2016-6486

Yi Zhao, Ceji Fu, Peking University, Beijing, China

## **Improved Thermal Emitters for Thermophotovoltaic Energy Conversion**

Technical Paper Publication. MNHMT2016-6698

Veronika Stelmakh, Walker Chan, John Joannopoulos, Marin Soljacic, Ivan Celanovic, Massachusetts Institute of Technology, Cambridge, MA, United States, Kimberly Sablon, Sensors and Electron Devices Directorate U.S. Army Research Laboratory, Adelphi, MD, United States

## **A Computational Simulation of Using Tungsten Gratings in Near-Field Thermophotovoltaic Devices**

Technical Paper Publication. MNHMT2016-6632

Jesse Watjen, Xianglei Liu, Bo Zhao, Zhuomin Zhang, Georgia Institute of Technology, Atlanta, GA, United States

## **Aspects for Enabling High Efficiency and Output Power for a Nano-gap TPV System Using Doped ZnO Film Emitters and TPV Cell Surface Structures**

Technical Presentation. MNHMT2016-6463

Haitong Yu, Dong Liu, Zhen Yang, Yuanyuan Duan, Tsinghua University, Beijing, China, Katsunori Hanamura, Naphatsorn Vongsoasup, Yuji Taniguchi, Tokyo Institute of Technology, Tokyo, Japan

## **A Thermophotovoltaic System Using a Photonic Crystal Emitter**

Technical Paper Publication. MNHMT2016-6695

Walker Chan, Veronika Stelmakh, Marin Soljacic, John Joannopoulos, Ivan Celanovic, Massachusetts Institute of Technology, Cambridge, MA, United States, Christopher M. Waits, Army Research Laboratory, Adelphi, MD, United States

## **TRACK 8 BOILING, QUENCHING AND CONDENSATION HEAT TRANSFER ON ENGINEERED SURFACES**

Track Organizer: Peixue Jiang, Tsinghua University, Beijing, China

Track Co-Organizer: Shuhuai Yao, The Hong Kong University of Science and Technology, Kowloon, Hong Kong

8-1

## **BOILING, QUENCHING, AND CONDENSATION IN HEAT TRANSFER - I**

**Room: Exploration** **Session Time: 10:45am - 12:15pm**

Session Organizer: TieJun Zhang, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emir.

Session Co-Organizer: Xuehu Ma, Dalian University of Technology, Dalian, Liaoning Province, China

## **MICROSCOPIC MECHANISM OF NUCLEATION DURING VAPOR CONDENSATION: THE INTERFACIAL STRUCTURE EFFECT**

Invited Presentation. MNHMT2016-6732

Xuehu Ma, Dalian University of Technology, Dalian, Liaoning Province, China

## **Dropwise Evaporative Cooling of Heated Surfaces with Various Wettability Conditions**

Technical Presentation. MNHMT2016-6687

Jiannan Chen, Zhen Zhang, Xiao-Long Ouyang, Peixue Jiang, Tsinghua University, Beijing, China

## **Droplet Freezing Dynamics and Heat Transfer on a Surface with Heterogeneous Wettability**

Technical Presentation. MNHMT2016-6635

Youmin Hou, Hong Kong University of Science and Technology, Hong Kong, China

## **Dynamic Behavior and Growth Regime of Condensate Droplets on Micro-Nano Structured Superhydrophobic Surfaces**

Technical Paper Publication. MNHMT2016-6598

Fuqiang Chu, Xiaomin Wu, Xuan Zhang, Yi Ding, Tsinghua University, Beijing, China

## **Heat Transfer Characteristics of CuO-Water Nanofluids Jet Impingement on a Hot Surface**

Technical Paper Publication. MNHMT2016-6629

Sandesh S. Chougule, Mayank Modak, Santosh Kumar Sahu, Indian Institute of Technology Indore, Indore, India, Prajakta Garge, NBN Sinhgad School of Engineering, Pune

## **TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE**

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian, China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

11-4

## **TWO-PHASE AND MULTI-PHASE FLOW AND HEAT TRANSFER AT SMALL SCALES**

**Room: Discovery** **Session Time: 10:45am - 12:15pm**

Session Organizer: Wei Li, Zhejiang University, Hangzhou, China

Session Co-Organizer: Jingchun Min, Tsinghua University, Beijing, China

## **Unit Cell Model Formulation and Thermal Performance Analysis for Cross-Flow Heat Exchanger**

Technical Paper Publication. MNHMT2016-6711

Hengyun Zhang, Zhaoqiang Wang, Yansong Wang, Shanghai University of Engineering Science, Shanghai, China

## **Thermal Performance Analysis of Bi-Porous Metal Foam Heat Sink**

Technical Paper Publication. MNHMT2016-6707

Liang GONG, Yongtong Li, Minghai Xu, China University of Petroleum (East China), Qingdao, Shandong, China, Yogendra Joshi, Georgia Institute of Technology, Atlanta, GA, United States

## **Numerical Simulation of Convective Heat Transfer Characteristics of Aviation Kerosene Inside Elliptical Tubes Under Supercritical Pressure**

Technical Paper Publication. MNHMT2016-6608

Naixiang Zhou, Shandong Urban and Rural Planning and Design Institute, Jinan, China, Jingzhi Zhang, Jinpin Lin, Han Lin, Wei Li, Zhejiang University, Hangzhou, Zhejiang, China

## **Conjugate Heat Transfer in Single-Phase Wavy Microchannel**

Technical Paper Publication. MNHMT2016-6586

Nishant Tiwari, Manoj Kumar Moharana, Sunil Kumar Sarangi, National Institute of Technology Rourkela, Rourkela, Odisha, India

## **Influence of Reynolds Numbers on the Flow and Heat Transfer around Row of Magnetic Obstacles**

Technical Paper Publication. MNHMT2016-6455

Xidong Zhang, Hongyan Wang, Nanjing Institute of Technology, Nanjing, Jiangsu, China, Quiping Zhu, Yin Zhang, Hu-Lin Huang, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiang Su, China

## Channel Size Optimization for 3D-IC Integrated Interlayer Microchannel Liquid Cooling

Technical Paper Publication. MNHMT2016-6478

Dandan Ma, Guodong Xia, W. Wang, Y. F. Li, Y. T. Jia, Beijing University of Technology, Beijing, China

## TRACK 16 PLENARY SPEAKERS

### 16-7 PLENARY SESSION 7

Room: Breakthrough Session Time: 1:15pm - 1:50pm

## Ultrafast Spectroscopy for Energy Research

Invited Presentation. MNHMT2016-6372

Xianfan Xu, Purdue University, West Lafayette, IN, United States

## TRACK 16 PLENARY SPEAKERS

### 16-4 PLENARY SESSION 4

Room: Breakthrough Session Time: 1:50pm - 2:25pm

## Integrated Microfluidic Cooling of Single and Stacked Chips

Invited Presentation. MNHMT2016-6368

Yogendra Joshi, Georgia Institute of Technology, Atlanta, GA, United States

## TRACK 16 PLENARY SPEAKERS

### 16-10 PLENARY SESSION 10

Room: Breakthrough Session Time: 2:25pm - 3:00pm

## Oscillating Flow and Heat Transfer in Capillary Channels Oscillating Heat Pipes

Invited Presentation. MNHMT2016-6619

Hongbin Ma, University of Missouri, Columbia, MO, United States

## TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP

Track Organizer: Xiangchun Xuan, Clemson University, Clemson, SC, United States

Track Co-Organizer: Weihua Li, University of Wollongong, Wollongong, Australia, Anderson Ho Cheung Shum, University of Hong Kong, Hong Kong, Hong Kong

### 1-5 LAB-ON-A-CHIP APPLICATIONS

Room: Breakthrough Session Time: 3:30pm - 5:15pm

Session Organizer: Yong-Ak Song, New York University Abu Dhabi, Abu Dhabi, United Arab Emirates

Session Co-Organizer: Nuttawut Lewpiriyawong, National University of Singapore, Singapore, Singapore

## Selective Biomolecular Detection Using Interfacial Electrokinetic Transduction (IET) Biosensors

Invited Presentation. MNHMT2016-6577

Zachary Gagnon, Johns Hopkins University, Baltimore, MD, United States

## Graphene-Based Microfluidic Platform for Optoelectronic Probing of Individual Spines and Synapses

Technical Presentation. MNHMT2016-6327

Bryson Brewer, Rui Wang, Mingjian Shi, Donna J. Webb, Yaqiong Xu, Deyu Li, Vanderbilt University, Nashville, TN, United States

## Accelerating the Mass Transport of DNA Biomolecules onto DNA Microarray for Enhanced Detection by Electrokinetic Concentration in a Microfluidic Chip

Technical Paper Publication. MNHMT2016-6562

Diogo Martins, Xi Wei, Yong-Ak Song, New York University Abu Dhabi, Abu Dhabi, United Arab Emir., Rastislav Levicky, New York University Polytechnic School of Engineering, Brooklyn, NY, United States

## A Graphene-Integrated Microfluidic Platform for Scanning Photocurrent Microscopy within Whole Retina Tissue

Technical Presentation. MNHMT2016-6594



Kirsten Heikkinen Dodson, Yuchen Zhang, Deyu Li, Yaqiong Xu, Rebecca M. Sappington, Vanderbilt University, Nashville, TN, United States

## **High Throughput Cell-Free Extraction of Plasma by an Integrated Microfluidic Device Combining Inertial Microfluidics and Membrane**

Technical Paper Publication. MNHMT2016-6717

Jun Zhang, Sheng Yan, Dan Yuan, Gursel Alici, Weihua Li, University of Wollongong, Wollongong, Australia, Nam-trung Nguyen, Queensland Micro and Nanotechnology Centre, Brisbane, Australia

## **Rigidity-Regulated Cell-Nanoparticle Interaction by microfluidics**

Technical Presentation. MNHMT2016-6720

Jiashu Sun, National Center for Nanoscience and Technology, Beijing, China

## **An Automated Cell Manipulation Platform based on Micro-flow Control for Patterned Cell Analysis Applications**

Technical Presentation. MNHMT2016-6689

Dinglong HU, City University of Hong Kong, Hong Kong, Hong Kong

## **TRACK 7 MICRO/NANO-THERMAL MANUFACTURING AND MATERIALS PROCESSING**

Track Organizer: Xinwei Wang, Iowa State University, Ames, IA, United States

Track Co-Organizer: Hongyu Zheng, Singapore Institute of Manufacturing Technology, Singapore, Singapore

### **7-1**

## **PHOTON-ASSISTED MICRO/NANOSCALE MANUFACTURING AND STRUCTURAL EFFECTS**

**Room: Theatre 5**

**Session Time: 3:30pm - 5:15pm**

Session Organizer: Xinwei Wang, Iowa State University, Ames, IA, United States

Session Co-Organizer: Yuan Dong, University of Missouri, Columbia, Columbia, MO, United States

## **Extremely Confined Material Behavior in Near-field Surface Nanostructuring**

Technical Presentation. MNHMT2016-6636

Chong Li, Xinwei Wang, Iowa State University, Ames, IA, United States

## **Crystallization of Amorphous Silicon Thin-Film for Large-Scale Displays Using Xe-Arc Flash Lamp**

Technical Presentation. MNHMT2016-6360

Seungho Park, Yoonsuk Kim, Hongik University, Seoul, Korea (Republic)

## **Uncertainty Analysis of Melting and Resolidification of Film Irradiated by Nano-to Femtosecond Lasers using Stochastic Method**

Technical Paper Publication. MNHMT2016-6428

Nazia Afrin, Yuwen Zhang, Jinn-Kuen Chen, University Of Missouri, Columbia, Columbia, MO, United States

## **Synthesis and Characterization of Microencapsulated Phase Change Material of Magnesium Sulfate Heptahydrate/Urea Resin via Emulsion Polymerization Method**

Technical Paper Publication. MNHMT2016-6344

Chenzhen Liu, Ling Ma, Zhonghao Rao, Yimin Li, China University of Mining and Technology, Xuzhou, Jiangsu, China

## **An Experimental Study of Thermal Conductivity of Simultaneously Ball Milled CNT-CU/Polymer Nanocomposites**

Technical Presentation. MNHMT2016-6309

HyeonJeong Park, Arash Badakhsh, ChanWoo Park, MinSoo Kim, NakJeong Choi, Chonbuk National University, Jeonju-si, Jeollabuk-do, Korea (Republic)

## **The Control Method of Surface Morphology and Etch Rates for Silicon Etch Process With Extremely Deep and High Aspect Ratio**

Technical Paper Publication. MNHMT2016-6672

Tiantong Xu, Haiwang Li, Xiao Tan, Zhi Tao, Beihang University, Beijing, China

## **One Time Multi-Depth Silicon Etching Method Based on SiO<sub>2</sub> Masking Layer**

Technical Paper Publication. MNHMT2016-6670

Xiao Tan, Haiwang Li, Tiantong Xu, Zhi Tao, Beihang University, Beijing, China

---

## **TRACK 8 BOILING, QUENCHING AND CONDENSATION HEAT TRANSFER ON ENGINEERED SURFACES**

Track Organizer: Peixue Jiang, Tsinghua University, Beijing, China

Track Co-Organizer: Shuhuai Yao, The Hong Kong University of Science and Technology, Kowloon, Hong Kong

---

### **8-2 BOILING, QUENCHING, AND CONDENSATION IN HEAT TRANSFER - II**

**Room: Exploration** **Session Time: 3:30pm - 5:15pm**

Session Organizer: Peixue Jiang, Tsinghua University, Beijing, China

Session Co-Organizer: Xuehu Ma, Dalian University of Technology, Dalian, Liaoning Province, China

#### **The Enhancement of Boiling Heat Transfer in a Minichannel Heat Sink with Saw-Tooth Structure on Channel Surface**

Technical Paper Publication. MNHMT2016-6626

Shan Yu Chung, Chin Pan, National Tsing Hua University, Hsinchu, Taiwan

#### **Study on Heat Transfer Performance Affected by Structural Parameters of Multi-Channel Cylinder Dryer**

Technical Paper Publication. MNHMT2016-6693

Yan Yan, Dong Jixian, Tang Wei, Shaanxi University of Science & Technology, Xi'an, China, Feng Shiyuf, Nanjing University of Aeronautics and Astronautics, Nanjing, China

#### **Elongated Leidenfrost drop on Angular Micro Grooves**

Technical Presentation. MNHMT2016-6710

Venkataraman Sahoo, Ching-Wen Lo, Yu-Wei Chen, Ming-Chang Lu, National Chiao Tung University, Hsinchu, Taiwan

#### **A Flow-pattern Based Heat Transfer Coefficient Correlation for Propane Flow Boiling in Horizontal Smooth Minichannels**

Technical Paper Publication. MNHMT2016-6597

Yu Zhu, Xiaomin Wu, Tsinghua University, Beijing, China

#### **Nucleate Boiling Heat Transfer Enhancement Using Nanostructured Al-Alloy Plates**

Technical Paper Publication. MNHMT2016-6582

Yagmur Sisman, Abdolali Khalili Sadaghiani, Ali Kosar, Sabanci University, Istanbul, Turkey, Tansel Karabacak, Khedir Khedir, University of Arkansas at Little Rock, Little Rock, AR, United States

#### **An Experimental Study on Flow Boiling Characteristics of pHEMA Coated Surfaces in a Microchannel**

Technical Paper Publication. MNHMT2016-6573

Abdolali Khalili Sadaghiani, Yagmur Sisman, Gozde Özyaydin Ince, Ali Kosar, Sabanci University, Istanbul, Turkey

#### **Prediction of Refrigerant Flow Boiling Hysteresis with an Augmented Separated-Flow Model**

Technical Paper Publication. MNHMT2016-6522

Jianwei Gao, Hongxia Li, Saif Almheiri, TieJun Zhang, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emir.

---

## **TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE**

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian, China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

---

### **11-5 MICRO HEAT MASS TRANSFER**

**Room: Discovery** **Session Time: 3:30pm - 5:15pm**

Session Organizer: Hong Ye, University of Science and Technology of China, Hefei, Anhui, China

#### **Thermal Viscous Dissipative Couette Flow in a Porous Medium Filled Microchannel**

Technical Paper Publication. MNHMT2016-6502

Farrukh Mirza Baig, Gooi Mee Chen, Boon Kian Lim, Multimedia University, Melaka, Melaka, Malaysia

#### **Numerical Simulation of Nonlinear Flow and Heat Transfer in a Sudden Expansion and Contraction Channel**

Technical Paper Publication. MNHMT2016-6532

Mo Yang, Liquan Yang, Wei Lu, Ling Li, Qingxin Liu, University of Shanghai for Science and Technology, Shanghai, China, Yuwen Zhang, University of Missouri, Columbia, MO, United States

## **Thermal Performance of Mini-Scale Heat Sink with Jet Impingement and Roughened Surface**

Technical Paper Publication. MNHMT2016-6324

Zhongyang Shen, Qi Jing, Xi'an Jiaotong University, Xi'an, China, Yonghui Xie, Institute of Turbomachinery, Xi'an, Shaanxi Province, China, Di Zhang, Xi'an Jiaotong University, Xi'an, China

## **Heat Exchanger Improvement via Curved Microfluidic Channels: Part 1 - Impact of Cross-Sectional Geometry and Channel Design on Heat Transfer Enhancement**

Technical Paper Publication. MNHMT2016-6405

Samuel D. Marshall, Rerngchai Arayanarakool, Lakshmi Balasubramaniam, Bing Li, Poh Seng Lee, Peter C.Y. Chen, National University of Singapore, Singapore

## **Heat Exchanger Improvement via Curved Microfluidic Channels: Part 2 - Investigation into Heat Transfer Enhancement due to the Dynamics of Dean Vortices**

Technical Paper Publication. MNHMT2016-6406

Samuel D. Marshall, Rerngchai Arayanarakool, Lakshmi Balasubramaniam, Bing Li, Poh Seng Lee, Peter C.Y. Chen, National University of Singapore, Singapore

## **Study of Performance Impact by Thermo-hydraulic Developing Entrance in Spiral Microchannel with CFD Analysis**

Technical Paper Publication. MNHMT2016-6408

Bing Li, Samuel D. Marshall, Rerngchai Arayanarakool, Lakshmi Balasubramaniam, Poh Seng Lee, Peter C.Y. Chen, National University of Singapore, Singapore

## **Experimental Study of Natural Convection around a Pair of Hot and Cold Horizontal Microtubes in a Large Concentric Outer Tube**

Technical Paper Publication. MNHMT2016-6384

Wang QiuXiang, North China Institute of Aerospace Engineering, Langfang, China, DAI ChuanShan, Tianjin University, Tianjin, China

## **TRACK 12 MICRO/MINIATURE MULTI-PHASE DEVICES**

Track Organizer: Chenn Zhou, Purdue University Calumet, Hammond, IN, United States

Track Co-Organizer: Scott Thompson, Mississippi State University, Starkville, MS, United States

**12-1**

## **MICRO/MINIATURE MULTI-PHASE DEVICES**

**Room: Creation**

**Session Time: 3:30pm - 5:15pm**

Session Organizer: Chenn Zhou, Purdue University Calumet, Center for Innovation through Visualization and Simulation, Hammond, IN, United States

Session Co-Organizer: Hongbin Ma, University of Missouri, Columbia, MO, United States

## **Visualization of Two-Phase Flow in Serpentine Heat Exchanger Passages with Microscale Pin Fins**

Invited Paper. MNHMT2016-6576

Dhruv C. Hoysall, Khoudor Keniar, Srinivas Garimella, Georgia Institute of Technology, Atlanta, GA, United States

## **Experiments on the Biporous Micropillar Array for Enhanced Heat Transfer Performance**

Technical Paper Publication. MNHMT2016-6430

Bin He, Qian Liang, Singapore-MIT Alliance for Research and Technology Centre (SMART, Singapore, Singapore, Mengyao Wei, Chuan seng Tan, NANYANG TECHNOLOGICAL UNIVERSITY, Singapore, Singapore, Evelyn Wang, MIT, Cambridge, MA, United States

## **An Experimental Study on the Thermal Performance of the Flat Heat Pipe**

Technical Paper Publication. MNHMT2016-6496

Hao Xiaohong, Jingbo Zhao, Jiqing Guan, University of Electronic Science and Technology of China, Chengdu, China

## **Experimental Investigation of Ultrasonic Frequency Effect on an Oscillating Heat Pipe**

Technical Paper Publication. MNHMT2016-6497

Nannan Zhao, Benwei Fu, Fengmin Su, Dalian Maritime University, Dalian, China, Hongbin Ma, University of Missouri, Columbia, MO, United States

## **Graphene Coating for Capillary Pressure Enhancement in Loop Heat Pipes**

Technical Presentation. MNHMT2016-6354

Cosimo Buffone, Université libre de Bruxelles, Brussels, Belgium

## Thermal and Flow Characteristics of Water-Nitrogen Taylor Flow Inside Vertical Circular Tubes

Technical Paper Publication. MNHMT2016-6458

Jingzhi Zhang, Wei Li, Zhejiang University, Hangzhou, Zhejiang, China

## Experimental and Numerical Studies of Fluid Flow Confined in Microchannel

Technical Paper Publication. MNHMT2016-6671

Yan Wang, Xiang Ling, Nanjing Tech University, Nanjing, China

## WEDNESDAY, JANUARY 6

---

### TRACK 16 PLENARY SPEAKERS

---

16-8

#### PLENARY SESSION 8

Room: Breakthrough

Session Time: 8:30am - 9:05am

### Single-walled Carbon Nanotube Film as Dual-functional Electron-blocking-layer and Transparent Electrode for Solar Cells

Invited Presentation. MNHMT2016-6725

Shigeo Maruyama, University of Tokyo, Bunkyo-ku, Japan

---

### TRACK 16 PLENARY SPEAKERS

---

16-3

#### PLENARY SESSION 3

Room: Breakthrough

Session Time: 9:05am - 9:40am

### Fundamental Heat and Fluid Flow Processes in Micro Pin Fin Heat Sinks

Invited Presentation. MNHMT2016-6351

Yoav Peles, University of Central Florida, Orlando, FL, United States

---

### TRACK 16 PLENARY SPEAKERS

---

16-12

#### PLENARY SESSION 12

Room: Breakthrough

Session Time: 9:40am - 10:15am

### Microchannel Heat Transfer in Macro Geometry

Invited Presentation. MNHMT2016-6706

Kim Tiow Ooi, Nanyang Technological University, Singapore, Singapore

---

### TRACK 1 MICRO/NANOFLUIDICS AND LAB-ON-A-CHIP

Track Organizer: Xiangchun Xuan, Clemson University, Clemson, SC, United States

Track Co-Organizer: Weihua Li, University of Wollongong, Wollongong, Australia, Anderson Ho Cheung Shum, University of Hong Kong, Hong Kong, Hong Kong

1-6

## MICROFLUIDIC FLOW INSTABILITY AND MIXING

Room: Breakthrough

Session Time: 10:45am  
- 12:15pm

Session Organizer: Zachary Gagnon, Johns Hopkins University, Baltimore, MD, United States

Session Co-Organizer: Stephen Wan, Institute of High Performance Computing, Singapore, Singapore

### Chaotic Micromixer Utilizing Induced Charge Electroosmosis in Eccentric Annulus

Invited Presentation. MNHMT2016-6583

Huicheng Feng, Teck Neng Wong, Marcos Marcos, Nanyang Technological University, Singapore, Singapore, Zhizhao Che, Imperial College London, London, United Kingdom

### Probing the Cellular Signaling Molecules with Precise-Mixing Enhanced Microfluidic Chips

Technical Presentation. MNHMT2016-6688

Xin Cui, Raymond H. W. Lam, City University of Hong Kong, Kowloon Tong, Hong Kong, Weiqiang Chen, New York University, New York, NY, United States

### Mixing Performance of an Overlapping Serpentine Structure Micromixer

Technical Presentation. MNHMT2016-6729

Shakhawat Hossain, Kwang-yong Kim, Han-Sol Jeong, Inha University, Incheon, Korea (Republic)

### Mixing Simulations of a Wankel Pump as a Micromixer

Technical Paper Publication. MNHMT2016-6654

Stephen Wan, Jason Leong, Institute of High Performance Computing, Singapore, Singapore, Michael Lau, Ning An, Kheng-lim Goh, Newcastle University (Singapore), Singapore, Singapore

### Vortex generation and control in a microfluidic chamber with actuation

Technical Presentation. MNHMT2016-6615

Xiaopeng Shang, Xiaoyang Huang, Chun Yang, Nanyang Technological University, Singapore 639798, Singapore

### Non-Linear Gradient Generation using Orthogonal Microfluidic Channels

Technical Presentation. MNHMT2016-6449

Anoop Menachery, Mohammed Nesro, Mohammad Qasaimeh, New York University Abu Dhabi, Abu Dhabi, United Arab Emirates

## TRACK 4 MICRO/NANOSCALE BOILING AND CONDENSATION HEAT TRANSFER

Track Organizer: Chen Li, U. of South Carolina, Columbia, SC, United States

Track Co-Organizer: Calvin Hong Li, Villanova University, Villanova, PA, United States, Zuankai Wang, City University of Hong Kong, Hong Kong, China

4-1

### NUCLEATE BOILING AND EVAPORATION ON MICRO/NANO-STRUCTURED SURFACES

Room: Theatre 5

Session Time: 10:45am - 12:15pm

Session Organizer: Chung-Lung Chen, University of Missouri, Columbia, Columbia, MO, United States

Session Co-Organizer: Kai Choong Leong, Nanyang Technological University, Singapore, Singapore

### Numerical and Experimental Investigation of Bubble Dynamics via Electrowetting-on-Dielectric (EWOD)

Technical Paper Publication. MNHMT2016-6465

Sheng Wang, Junxiang Shi, Hsiu-Hung Chen, Tiancheng Xu, Chung-Lung Chen, University of Missouri, Columbia, Columbia, MO, United States

### Enhanced Pool Boiling Heat Transfer on Mono and Multi-Layer Micro-Nano Bi-Porous Copper Surfaces

Technical Paper Publication. MNHMT2016-6544

Ya-Qiao Wang, Dong-Chuan Mo, Shu-Shen Lyu, Sun Yat-sen University, Guangzhou, China

### Numerical Investigation of Evaporation Induced Self-Assembly of Sub-Micron Particles Suspended in Water

Technical Paper Publication. MNHMT2016-6373

Raihan Tayeb, Yijin Mao, Yuwen Zhang, University of Missouri, Columbia, MO, United States

## Experimental Research on CO<sub>2</sub> Pool Boiling Heat Transfer Outside a Single Tube

Technical Paper Publication. MNHMT2016-6661

Shengchun Liu, Ziteng Dong, Wenkai Zhang, Tianjin University, Tianjin, China

## Enhanced Nucleate Pool Boiling From Microstructured Surfaces Fabricated by Selective Laser Melting

Technical Paper Publication. MNHMT2016-6616

Jin Yao Ho, Kin Keong Wong, Kai Choong Leong, Chun Yang, Nanyang Technological University, Singapore

## High Wettability Cu-CNT-TiO<sub>2</sub> Composite Coatings on Cu Substrates with Structured External Surfaces for Enhanced Capillary-Assisted Evaporation in a Partially Flooded Evaporator

Technical Presentation. MNHMT2016-6568

Edward Joshua Pialago, ChanWoo Park, Chonbuk National University, Jeonju, Jeonbuk, Korea (Republic)

### TRACK 5 MICRO/NANOSCALE THERMAL RADIATION

Track Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

Track Co-Organizer: Changying Zhao, Shanghai Jiao Tong University, Shanghai, China, Sheng Shen, Carnegie Mellon University, Pittsburgh, PA, United States

### 5-5 OPTIMIZING SURFACE PROFILES FOR NOVEL APPLICATIONS Room: Exploration Session Time: 10:45am - 12:15pm

Session Organizer: Philippe Ben-Abdallah, Laboratoire Charles Fabry/ Institut d'Optique, Palaiseau, France

Session Co-Organizer: Svend-Age Biehs, Institut für Physik, Oldenburg, Germany

## Effect of Pore-level Geometry on Far-field Radiative Properties of Three-dimensionally Ordered Macroporous Ceria Particles

Invited Presentation. MNHMT2016-6622

Jaona Randrianalisoa, University of Reims, Reims, France, Vincent Wheeler, Wojciech Lipinski, The Australian National University, Canberra, Australia

## Radiative Thermotronics

Technical Presentation. MNHMT2016-6606

Philippe Ben-Abdallah, Laboratoire Charles Fabry/ Institut d'Optique, Palaiseau, France, Svend-Age Biehs, Institut für Physik, Oldenburg, Germany

## Design of Broadband Ultrathin Film Nanoporous Solar Absorbers

Technical Presentation. MNHMT2016-6617

Jin-You Lu, Sumaya Noor Ulla, TieJun Zhan, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates, Nicholas Fang, MIT, Cambridge, MA, United States

## Study on a Novel Selective Solar Absorber with Surface Ultrathin Metal Film

Technical Paper Publication. MNHMT2016-6584

Xing Fang, Changying Zhao, Shanghai Jiao Tong University, Shanghai, China, Hua Bao, University of Michigan-Shanghai Jiaotong University Joint Institute, Shanghai, China

## Accurate Geometry Design of Magnetic Polariton with Specified Resonance Wavelength: A Combined LC Circuit Model and Inverse Technique

Technical Paper Publication. MNHMT2016-6581

J.M. Zhao, Jun Qiu, Lin Hua Liu, Harbin Institute of Technology, Harbin, Heilongjiang, China

## Optimum Structural Design of Thermal Protection Using Photonic Crystal Material Considering Thermophysical Properties in Micro/Nanoscale

Technical Paper Publication. MNHMT2016-6352

Yan-Qiang Wei, Haochun Zhang, Yang Zhao, Jiao-Long Wang, Yao Li, Harbin Institute of Technology, Harbin, Heilongjiang, China, Gong-Nan Xie, Northwestern Polytechnical University, Xi'an, China

### TRACK 10 COMPUTATIONAL METHODS IN MICRO/NANOSCALE TRANSPORT

Track Organizer: David Emerson, STFC Daresbury Laboratory, Warrington, United Kingdom

Track Co-Organizer: Wenjing Ye, HKUST, Kowloon, Hong Kong, Satish Kumar, Georgia Institute of Technology, Atlanta, GA, United States



10-1

## **BOLTZMANN TRANSPORT APPROACHES TO MICRO/NANOSCALE PROBLEMS**

**Room: Creation** **Session Time: 10:45am - 12:15pm**

Session Organizer: TieJun Zhang, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates

Session Co-Organizer: Wenjing Ye, HKUST, Kowloon, Hong Kong

### **A Weighted Residual Approach to Lattice-Based Transport Simulation**

Technical Presentation. MNHMT2016-6642

Vincent Wheeler, The Australian National University, Canberra, Australia

### **Numerical Study on Nanostructured Thermoelectric Materials and Reducing Thermal Conductivity with Local Angle between Heat Fluxes**

Technical Presentation. MNHMT2016-6547

Guihua Tang, Bo Fu, Cheng Bi, Xi'an Jiaotong University, Xi'an, Shaanxi, China

### **A Novel Numerical Scheme for Outlet Boundary Conditions in Large Density Ratio Lattice Boltzmann Model**

Technical Paper Publication. MNHMT2016-6374

Long Li, Yongwen Liu, Shanghai Jiao Tong University, Shanghai, China

### **Non-Dimensional Lattice Boltzmann Method Simulations in Microscopic and Mesoscopic Scales**

Technical Presentation. MNHMT2016-6359

Yan Su, University of Macau, Macau

### **Effect of Surface Wettability and Gas/Liquid Velocity Ratio on Microscale Two-Phase Flow Patterns**

Technical Paper Publication. MNHMT2016-6383

Hongxia Li, Charles C. Okaeme, Weilin Yang, TieJun Zhang, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates

### **A Monte Carlo Based Method Simulating Both Particle and Wave Behaviours of Phonon Transport**

Technical Presentation. MNHMT2016-6356

Qi Li, Wenjing Ye, Hong Kong University of Science and Technology, Hong Kong, Hong Kong

## **TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE**

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian, China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

11-6

## **MICRO HEAT MASS TRANSFER**

**Room: Discovery** **Session Time: 10:45am - 12:15pm**

Session Organizer: Hua Bao, University of Michigan-Shanghai Jiaotong University Joint Institute, Shanghai, China

### **Adsorption and Diffusion between Formaldehyde Molecule and Cellobiose I? under an External Electric Field**

Technical Presentation. MNHMT2016-6390

Xu Bo, Z.Q. Chen, Southeast University, Nanjing, Jiangsu, China, Chao Xu, Science and Technology Development Center of Jiangsu Housing and Urban-Rural Construction Department, Nanjing, Jiangsu, China

### **Numerical Analysis of the Natural Convection in a Cylinder with an Internal Slotted Annulus**

Technical Paper Publication. MNHMT2016-6539

Chunyun Shen, Mo Yang, Ling Li, University of Shanghai for Science and Technology, Shanghai, China, Yuwen Zhang, University of Missouri, Columbia, MO, United States

### **CFD Analysis of an Air-Cooled Planar Oblique-Finned Heat Sink**

Technical Paper Publication. MNHMT2016-6501

Omer Bugra KANARGI, Christopher YAP, Poh-seng Lee, National University of Singapore, Singapore, Singapore, Konduru Ravi Teja, Indian Institute of Technology Gandhinagar, Gandhinagar, India

### **Molecular Simulation of Methane Desorption and Diffusion in Shale Organic Nano-pores**

Technical Presentation. MNHMT2016-6495

Bo Zhou, Ruina Xu, Peixue Jiang, Tsinghua University, Beijing, China

### **Pressure Analysis of Airflow with Different Inlet Angle in the Oblique Rectangular Fin Channels**

# Technical Program Wednesday

Technical Paper Publication. MNHMT2016-6459

Zhiying Liu, Hui Li, Lin Shi, Yangjun Zhang, Tsinghua University, Beijing, Beijing, China, Ruixia Li, Fan Fei, SINOPEC Star Petroleum, LTD, Beijing, China

## **Pore-scale Flow and Mass Transport through Composite Membranes using the Lattice Boltzmann Method**

Technical Presentation. MNHMT2016-6456

Yuan Wuzhi, South China University of Technology, Guangzhou, China, Zhang Lizhi, South China University of Technology, Guangzhou, China

## **TRACK 4 MICRO/NANOSCALE BOILING AND CONDENSATION HEAT TRANSFER**

Track Organizer: Chen Li, U. of South Carolina, Columbia, SC, United States

Track Co-Organizer: Calvin Hong Li, Villanova University, Villanova, PA, United States, Zuankai Wang, City University of Hong Kong, Hong Kong, China

### **4-2**

#### **CONDENSATION ON MICRO/NANO-ENGINEERED SURFACES**

**Room: Theatre 5** **Session Time: 1:15pm - 2:45pm**

Session Organizer: TieJun Zhang, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emir.

Session Co-Organizer: Chen Li, U. of South Carolina, Columbia, SC, United States

#### **Characteristics of Jumping Droplet-Enhanced Condensation on Nanostructured Micromesh Surface**

Invited Paper. MNHMT2016-6382

Abulimiti Aili, Hongxia Li, Mohamed H. Alhosani, TieJun Zhang, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emir.

#### **Effect of Surface Wettability on Dropwise Condensation Using Lattice Boltzmann Method**

Technical Paper Publication. MNHMT2016-6566

Nilesh Dadasaheb Pawar, Sasidhar Kondaraju, Indian Institute of Technology Delhi, New Delhi, India

#### **The Impingement of Droplet Train onto a Flat Hot Surface with High Wall Superheat**

Technical Paper Publication. MNHMT2016-6436

Lu Qiu, Swapnil Dubey, Fook Hoong Choo, Fei Duan, Nanyang Technological University, Singapore, Singapore

#### **Water Harvesting Performance of Nano-engineered Tube Type Condensers**

Technical Presentation. MNHMT2016-6437

Donghyun Seo, Junghun Lee, Choongyeop Lee, Youngsuk Nam, Kyung Hee University, Yongin, Korea (Republic)

#### **Structural Topography-mediated High Temperature Wetting Symmetry Breaking**

Technical Presentation. MNHMT2016-6332

Jing Li, Zuankai Wang, City University of Hong Kong, Hong Kong, China

#### **Water-Oil-Solid Three-Phase Contact Line on a Functionalized Graphite Surface**

Technical Presentation. MNHMT2016-6442

Wenxiu Zheng, Bofeng Bai, Xi'an Jiaotong University, Xi'an, Shaanxi, China

## **TRACK 9 THERMAL METROLOGY AT MICRO/NANOSCALES**

Track Organizer: Keunhan Park, University of Utah, Salt Lake City, UT, United States

Track Co-Organizer: Yee Kan Koh, National University of Singapore, Singapore, Singapore

### **9-1**

#### **THERMAL METROLOGY AT MICRO/NANOSCALES**

**Room: Exploration** **Session Time: 1:15pm - 2:45pm**

Session Organizer: Yee Kan Koh, National University of Singapore, Singapore, Singapore

#### **Thermoelectric Transport in One-dimensional Bi-based Compound Topological Insulator Nanostructures**

Technical Presentation. MNHMT2016-6527

Hao Tang, Yucheng Xiong, Xiaomeng Wang, Qiang Fu, Dongyan Xu, The Chinese University of Hong Kong, Shatin, Hong Kong, Xuejun Yan, Nanjing University, Nanjing, China, Yang Zhao, Southeast University, Nanjing, China, Jiansheng Jie, Shuit-Tong Lee, Soochow University, Suzhou,

China, Minghui Lu, Nanjing University, Nanjing, China, Juekuan Yang, Southeast University, Nanjing, China

## **Quantitative Thermometry of Nanoscale Point-Contact Using Resistive Nanothermometers**

Technical Presentation. MNHMT2016-6614

Sina Hamian, Keunhan Park, University of Utah, Salt Lake City, UT, United States, Jeonghoon Yun, In-Kyu Park, KAIST, Daejeon, Korea (Republic)

## **Near-Field Scanning Thermoreflectance Microscopy for Nanoscale Temperature Measurement**

Technical Presentation. MNHMT2016-6607

Amun Jarzembski, Sina Hamian, Keunhan Park, University of Utah, Salt Lake City, UT, United States, Ryan Murdick, RHK Technology Inc., Troy, MI, United States

## **Enhancement of Thermal Conductance of Metal/transferred Graphene Interfaces by Improved Conformity**

Technical Presentation. MNHMT2016-6730

Yee Kan Koh, National University of Singapore, Singapore, Singapore

## **Electronic Control of Phonon Heat Flow across Graphene Interfaces**

Technical Presentation. MNHMT2016-6731

Yee Kan Koh, National University of Singapore, Singapore, Singapore

## **TRACK 10 COMPUTATIONAL METHODS IN MICRO/NANOSCALE TRANSPORT**

Track Organizer: David Emerson, STFC Daresbury Laboratory, Warrington Wa44ad, United Kingdom

Track Co-Organizer: Wenjing Ye, HKUST, Kowloon, Hong Kong, Satish Kumar, Georgia Institute of Technology, Atlanta, GA, United States

### **10-2 MOLECULAR DYNAMICS APPROACHES TO TRANSPORT**

**Room: Creation Session Time: 1:15pm - 2:45pm**

Session Organizer: Satish Kumar, Georgia Institute of Technology, Atlanta, GA, United States

Session Co-Organizer: Liang Chen, Xi'an Jiaotong University, Xi'an, Shaanxi, China

## **Molecular Dynamics Simulation of Nano-Particles Modified Viscoelastic Fracturing Fluids**

Technical Paper Publication. MNHMT2016-6447

Yaqian Ning, Tao Wang, Fei Xue, Zhongyang Luo, Zhejiang University, Hangzhou, China

## **Atomistic Modeling of Latent Heat Storage in Molten Salts**

Technical Paper Publication. MNHMT2016-6572

Carlos F Sanz-Navarro, Anthony C. DeFilippo, Sonia Fereres, Abengoa Research, Sevilla, Spain

## **Molecular Dynamics Study of Molten Salt Nanofluid Thermal Properties**

Technical Presentation. MNHMT2016-6567

Anthony C. DeFilippo, Carlos F Sanz-Navarro, Pau Gimenez-Gavarrell, Sonia Fereres, Abengoa Research, Sevilla, Sevilla, Spain

## **Molecular Dynamics Study on Fluid Flow in Nanochannels with Permeable Walls**

Technical Paper Publication. MNHMT2016-6421

Jianfei Xie, Bing-Yang Cao, Tsinghua University, Beijing, China

## **Reactive Molecular Dynamics Simulation of Graphene-Based Nanomaterials Produced by Confined Heating of Polymer**

Technical Paper Publication. MNHMT2016-6716

Yuan Dong, Jian Lin, University of Missouri, Columbia, Columbia, MO, United States

## **The Uncertainties of Continuum-based CFD Solvers to Perform Microscale Hot-wire Anemometer Simulations in Flow Fields Close to Transitional Regime**

Poster Paper Publication. MNHMT2016-6697

Masoud Darbandi, Mohammadreza Ghorbani, Hamed Darbandi, Sharif University of Technology, Tehran, Iran

## **TRACK 11 HEAT AND MASS TRANSFER IN SMALL SCALE**

Track Organizer: Guihua Tang, Xian Jiaotong University, Xi'an, Shaanxi, China

Track Co-Organizer: Moran Wang, Tsinghua University, Beijing, Haidian,

China, Hengyun Zhang, Shanghai University of Engineering Science, Shanghai, Changning, China

11-7

## **MICRO HEAT MASS TRANSFER**

**Room: Discovery**

**Session Time: 1:15pm - 2:45pm**

Session Organizer: Wei Li, Zhejiang University, Hangzhou, China

### **Theoretical and DSMC Study on Heat Conduction of Gas Confined in Nanoscale Pores**

Technical Paper Publication. MNHMT2016-6435

Chuanyong Zhu, Zengyao Li, Xi'an Jiaotong University, Xi'an, Shaanxi, China

### **Numerical Simulation of Flow and Heat Transfer in Rectangular Channels with Different Aspect Ratios**

Technical Paper Publication. MNHMT2016-6602

Liu Wenhua, Mo Yang, Li Ling, Qiao Liang, University of Shanghai for Science and Technology, Shanghai, China, Yuwen Zhang, University of Missouri, Columbia, MO, United States

### **An Experimental Investigation on Flow Behavior and Heat Transfer Affected by Roughness in the Circular Micro-Channels**

Technical Paper Publication. MNHMT2016-6612

Yitu Tian, Beijing University Of Aeronautics and Astronautics, Beijing, Beijing, China, Haiwang Li, BeiHang University, Beijing, Beijing, China

### **Experimental Investigation of the Air Flow Behavior and Heat Transfer Characteristics in Microchannels with Different Channel Lengths**

Technical Paper Publication. MNHMT2016-6668

Zhibing Zhu, Zhi Tao, Haiwang Li, BeiHang University, Beijing, China, Yitu Tian, Beijing University Of Aeronautics and Astronautics, Beijing, Beijing, China

### **Simulation and Experiment Study on Water Vapor Condensing Heat Transfer Characteristics in Horizontal Tubes**

Technical Paper Publication. MNHMT2016-6665

Shengchun Liu, Tianjin University, Tianjin, China, Jiahui Zhang, Siemens Industry, Inc., Pittsburgh, PA, United States

### **Research on R245fa Condensation Heat Transfer Characteristic Inside Horizontal Tubes**

Technical Paper Publication. MNHMT2016-6656

Shengchun Liu, Wenkai Zhang, Ziteng Dong, Tianjin University, Tianjin, China

## **TRACK 14 MEASUREMENT TECHNIQUES AND THERMOPHYSICAL PROPERTIES IN MICRO/NANOSCALE**

Track Organizer: Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli - DIII, Aversa, Caserta, Italy

Track Co-Organizer: Bing-Yang Cao, Tsinghua University, Beijing, China

14-1

## **EXPERIMENTAL TECHNIQUES IN MICRO/NANOSCALES HEAT AND MASS TRANSFER**

**Room: Breakthrough**

**Session Time: 1:15pm - 2:45pm**

Session Organizer: Laura Colla, Consiglio Nazionale delle Ricerche -Istituto per le Tecnologie della Costruzione, Padova, Italy

Session Co-Organizer: Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli - DIII, Aversa, Caserta, Italy

### **Thermal Studies of Nanoporous Si Films using 3-Omega Measurements**

Technical Presentation. MNHMT2016-6320

Qing Hao, Dongchao Xu, University of Arizona, Tucson, AZ, United States

### **Optothermal Raman Technique as an Effective Tool for Measuring the Thermal Conductivity of Supported Graphene**

Technical Presentation. MNHMT2016-6336

Hong goo Kim, Jae Sung Park, Woomin Lee, Gyumin Lim, Joon Sik Lee, Seoul National University, Seoul, Korea (Republic), Kenneth Kihm, University Of Tennessee, Knoxville, TN, United States

### **Extension of Frequency Domain Thermoreflectance Using a Photoluminescent Transducer**

Technical Presentation. MNHMT2016-6380

Shannon Yee, Georgia Institute of Technology, Atlanta, GA, United States

### **Laser Flash Raman Spectroscopy Method for Characterizing Thermal Diffusivity of Suspended and Supported 2D Nanomaterials**



Session Organizer: Yuwen Zhang, University of Missouri, Columbia, MO, United States

Session Co-Organizer: Qing Hao, University of Arizona, Tucson, AZ, United States

## **Photonic Crystal Enhanced Radioisotope Thermophotovoltaic (RTPV) System Analysis**

Technical Presentation. MNHMT2016-6366

Junghun Lee, Youngsuk Nam, Kyung Hee University, Yongin, Korea (Republic)

## **Multi-Length Scale Thermal Simulations of GaN-Based Devices**

Technical Presentation. MNHMT2016-6302

Qing Hao, Hongbo Zhao, University of Arizona, Tucson, AZ, United States

## **Enhancement of Thermoelectric Properties in Nanoscale Si Phononic Crystal**

Technical Presentation. MNHMT2016-6326

Nuo Yang, Huazhong University of Science & Technology, Wuhan, Hubei, China, Baowen Li, Lina Yang, National University of Singapore, Singapore, Singapore

## **Phase Change Nanocomposites as Thermal Energy Storage Materials with Size-Dependent Melting**

Technical Presentation. MNHMT2016-6412

Minglu Liu, Yuanyu Ma, Robert Y. Wang, Arizona State University, Tempe, AZ, United States

## **Light Harvesting and Photon Management in GaAs Solar Cells for Photovoltaic-Thermoelectric Hybrid Systems**

Technical Paper Publication. MNHMT2016-6357

Xu Yuanpei, Xuan Yimin, Nanjing University of Aeronautics and Astronautics, Nanjing, China

## **An Integrated Cross-plane Thermoelectric Generator Fabricated by the Pulsed Electroplating and Microfabrication Methods**

Technical Presentation. MNHMT2016-6525

Wenhua Zhang, Dongyan Xu, The Chinese University of Hong Kong, Shatin, Hong Kong

## **TRACK 10 COMPUTATIONAL METHODS IN MICRO/NANOSCALE TRANSPORT**

Track Organizer: David Emerson, STFC Daresbury Laboratory, Warrington, United Kingdom

Track Co-Organizer: Wenjing Ye, HKUST, Kowloon, Hong Kong, Satish Kumar, Georgia Institute of Technology, Atlanta, GA, United States

### **10-3**

## **MODELING CYLINDRICAL TUBES, CNTS AND MICRO/NANO-PARTICLE BEHAVIOR**

**Room: Creation**

**Session Time: 3:15pm - 4:45pm**

Session Organizer: PARTHASARATHI MISHRA, IIT BHUBANESWAR ODISHA INDIA, Bhubaneswar, Orissa, India

Session Co-Organizer: Xiaohu Yang, Xi'an Jiaotong University, Xian, China

## **Thermally Induced Mechanical Loading on Micro Structures**

Invited Presentation. MNHMT2016-6735

Wenjing Ye, HKUST, Kowloon, Hong Kong

## **Influence of Flow Pulsation in Simultaneously Developing Laminar Flow in a Microtube under Conjugate Conditions**

Technical Presentation. MNHMT2016-6570

PARTHASARATHI MISHRA, Dr. K. SRINIVASA RAMANUJAM, IIT BHUBANESWAR ODISHA INDIA, Bhubaneswar, Orissa, India

## **Enhancing the Thermal Conductivity of Randomly Oriented CNT Networks via Welded Junctions**

Technical Paper Publication. MNHMT2016-6480

Xueming Yang, Bing-Yang Cao, Tsinghua University, Beijing, China

## **A Model of the Contact Thermal Resistance of Vertical Carbon Nanotube Arrays**

Technical Paper Publication. MNHMT2016-6511

Jin Zhang, Bo Shi, Nanjing University of Aeronautics and Astronautics, Nanjing, China

## **Numerical Study of Cyclic Melting and Solidification of Nano Enhanced Phase Change Material Based Heat Sink in Thermal Management of Electronic Components**

Technical Paper Publication. MNHMT2016-6499

Santosh Sahoo, Mihir Kumar Das, Prasenjit Rath, IIT Bhubaneswar, Bhubaneswar, Odisha, India

## **Analytical Computation of Natural Convection in a Micro Size Horizontal Cylindrical Annulus Filled With Porous Medium due to the Quadratic Volumetric Heat Generation**

Technical Paper Publication. MNHMT2016-6385

Kamyar Mansour, Flow Research and Engineering, Palo Alto, CA, United States

## **TRACK 13 BIOMEDICAL APPLICATIONS OF MICRO/NANOSCALE TRANSPORT**

Track Organizer: Jing Liu, Tsinghua University, Shanghai, Haidian, China

Track Co-Organizer: Liang Zhu, Univ of Maryland Baltimore County, Baltimore, MD, United States

### **13-1**

#### **BIOMEDICAL APPLICATIONS OF MICRO/NANOSCALE TRANSPORT**

**Room: Exploration**

**Session Time: 3:15pm - 4:45pm**

Session Organizer: Liang Zhu, University of Maryland Baltimore County, Baltimore, MD, United States

Session Co-Organizer: Junfeng Lu, Technical Institute of Physics & Chemistry of Chinese Academy of Sciences, Beijing, China

## **Tumor Shrinkage Study in Magnetic Nanoparticle Hyperthermia Based on Designed Heating Protocols**

Technical Paper Publication. MNHMT2016-6559

Alexander Lebrun, Ronghui Ma, Liang Zhu, University of Maryland Baltimore County, Baltimore, MD, United States

## **Thermal Wave Model for Analysis of Multilayer Tissue Medium in Presence of Inhomogeneity in Laser Tissue Treatment**

Technical Paper Publication. MNHMT2016-6464

Anil Kumar Verma, Swarup Kumar Mahapatra, Indian Institute of Technology, Bhubaneswar, India, India

## **Effect of Nanoparticle Concentration on Thermal Damage in Nanoparticle Assisted Thermal Therapy**

Technical Paper Publication. MNHMT2016-6418

Sanjeev Soni, Amod Kumar, CSIR Central Scientific Instruments Organisation, Chandigarh, India, Himanshu Tyagi, Indian Institute of Technology Ropar, Rupnagar, PB, India, Robert A. Taylor, University of New South Wales, Kensington, New South Wales, Australia,

## **Derivation for Electric Current Regulation Equation of a Gradient Magnetic Field to Control Suspending Magnetic Particles Inside Dialysate Solution**

Technical Paper Publication. MNHMT2016-6331

Junfeng Lu, Technical Institute of Physics & Chemistry of Chinese Academy of Sciences, Beijing, China, Wen-Qiang Lu, University of Chinese Academy of Sciences, Beijing, China

## **A design of a multiple-level magnetic field used for driving micro magnetic particles during a dialysate adsorption process**

Technical Paper Publication. MNHMT2016-6335

Junfeng Lu, Technical Institute of Physics & Chemistry of Chinese Academy of Sciences, Beijing, China, Wen-Qiang Lu, University of Chinese Academy of Sciences, Beijing, China

## **An Ultra-Fast Cooling Method for Cell Vitrification Cryopreservation Utilizing Thin Film Evaporation**

Technical Paper Publication. MNHMT2016-6319

Fengmin Su, Nannan Zhao, Yangbo Deng, Dalian Maritime University, Dalian, Liaoning, China, Chunfeng Mu, Anshan Iron and Steel Group Corporation, Angang, China, Hongbin Ma, University of Missouri, Columbia, MO, United States, Bohan Tian, Dalian Maritime University, Dalian, China

## **TRACK 14 MEASUREMENT TECHNIQUES AND THERMOPHYSICAL PROPERTIES IN MICRO/NANOSCALE**

Track Organizer: Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli - DIII, Aversa, Caserta, Italy

Track Co-Organizer: Bing-Yang Cao, Tsinghua University, Beijing, China

### **14-2**

#### **THERMOPHYSICAL PROPERTIES MEASUREMENTS IN MICRO-AND NANO-SCALES**

**Room: Breakthrough**

**Session Time: 3:15pm - 4:45pm**

Session Organizer: Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli - DIII, Aversa, Caserta, Italy

Session Co-Organizer: Bing-Yang Cao, Tsinghua University, Beijing, Select State/Province, China



## **Graphene Nanoplatelets/epoxy Resin Composites With High Thermal Conductivity**

Technical Paper Publication. MNHMT2016-6378

Yu Qi, Huaqing Xie, Wei Yu, Li-Fei Chen, Ming-Zhu Wang, Shanghai Second Polytechnic University, Shanghai,China

## **Lateral Thermal Property Characterization with Transmission Grating Technique**

Technical Presentation. MNHMT2016-6432

Jihoon Jeong, Ke Chen, Nilabh Roy, Michael Cullinan, Yaguo Wang, The University of Texas at Austin, Austin, TX,United States

## **Temperature Measurements of One-micrometer-wide Doped Si Heater using Two-wavelength Thermoreflectance**

Technical Presentation. MNHMT2016-6475

Jinsung Rho, KAIST, Daejeon,Korea (Republic), Bong Jae Lee, Korea Advanced Institute of Science and Technology, Seoul,Korea (Republic)

## **Thermoelectric Performance and Carrier Transport Behaviors in One-dimensional Sn-based Alloy Topological Crystalline Insulator Nanowires**

Technical Presentation. MNHMT2016-6543

Hao Tang, Yucheng Xiong, The Chinese University of Hong Kong, Shatin,Hong Kong, Xuejun Yan, Nanjing University, Nanjing, OO,China, Yang Zhao, Southeast University, Nanjing,China, Xiaomeng Wang, Qiang Fu, The Chinese University of Hong Kong, Shatin,Hong Kong, Jiansheng Jie, Soochow University, Suzhou,China, Minghui Lu, Nanjing University, Nanjing, OO,China, Shuit-Tong Lee, Soochow University, Suzhou,China, Juekuan Yang, Southeast University, Nanjing,China, Dongyan Xu, The Chinese University of Hong Kong, Shatin,Hong Kong

## **Nano-PCMs for Electronics Cooling Applications**

Technical Paper Publication. MNHMT2016-6613

Laura Colla, Laura Fedele, Consiglio Nazionale delle Ricerche -Istituto per le Tecnologie della Costruzione, Padova,Italy, Simone Mancin, Dip. di Tecnica e Gestione dei Sistemi Industriali University of Padova, Vicenza,Italy, Sergio Bobbo, Consiglio Nazionale delle Ricerche -Istituto per le Tecnologie della Costruzione, Padova, Select State/Province,Italy, Davide Ercole, Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli - DIII, Aversa, Caserta,Italy

## **Nano-PCMs for enhanced energy storage applications**

Technical Presentation. MNHMT2016-6609

Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli - DIII, Aversa, Caserta,Italy, Laura Colla, Laura Fedele, Consiglio Nazionale delle Ricerche -Istituto per le Tecnologie della Costruzione, Padova,Italy, Simone Mancin, Dip. di Tecnica e Gestione dei Sistemi Industriali University of Padova, Vicenza,Italy, Sergio Bobbo, Consiglio Nazionale delle Ricerche -Istituto per le Tecnologie della Costruzione, Padova, Select State/Province,Italy, Davide Ercole, Dipartimento di Ingegneria Industriale e dell'Informazione Seconda Università di Napoli, Aversa, Caserta,Italy

SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME
8-2	Gozde	Özaydin Ince	1-4	Jiajie	Chen	8-1	Yi	Ding
7-1	Nazia	Afrin	8-1	Jiannan	Chen	15-1	Zhidong	Ding
15-1	Jae-Hyuk	Ahn	7-1	Jinn-Kuen	Chen	15-1	Zijing	Ding
4-2	Abulimiti	Aili	1-2	Juzheng	Chen	5-2	Ruixi	Dong
3-3	Tamanna	Alam	15-1	Kai-Xuan	Chen	2-1	Yi-Fang	Dong
4-3	Tamanna	Alam	14-2	Ke	Chen	10-2	Yuan	Dong
4-2	Mohamed H.	Alhosani	3-3	Liang	Chen	4-1	Ziteng	Dong
1-5	Gursel	Alici	14-2	Li-Fei	Chen	11-7	Ziteng	Dong
8-2	Saif	Almheiri	5-3	Peng-Hsiang	Chen	3-2	Xiaoze	Du
1-6	Ning	An	1-2	Peter C.Y.	Chen	11-3	Xiaoze	Du
1-1	Mingfang	Ao	11-5	Peter C.Y.	Chen	1-3	Fei	Duan
1-2	Rerngchai	Arayanarakool	16-11	Qun	Chen	2-1	Fei	Duan
11-5	Rerngchai	Arayanarakool	3-3	Shuangtao	Chen	4-2	Fei	Duan
7-1	Arash	Badakhsh	5-2	Wei	Chen	4-3	Fei	Duan
1-2	Bofeng	Bai	1-6	Weiqiang	Chen	5-4	Yuanyuan	Duan
4-2	Bofeng	Bai	3-1	Weiyu	Chen	4-2	Swapnil	Dubey
2-3	Minli	Bai	3-2	Weiyu	Chen	5-2	Manfred	Eich
11-5	Farrukh Mirza	Baig	3-3	Weiyu	Chen	14-2	Davide	Ercole
1-2	Lakshmi	Balasubramaniam	1-3	Xiaodong	Chen	5-2	Desong	Fan
11-5	Lakshmi	Balasubramaniam	1-2	Yongping	Chen	2-1	Liwu	Fan
5-5	Hua	Bao	1-3	Yongping	Chen	15-1	Haisheng	Fang
11-2	Hua	Bao	5-3	Yu-bin	Chen	5-5	Nicholas	Fang
11-3	Hua	Bao	3-1	Yunfei	Chen	5-5	Xing	Fang
5-2	Philippe	Ben-Abdallah	3-2	Yunfei	Chen	14-2	Laura	Fedele
5-5	Philippe	Ben-Abdallah	3-3	Yunfei	Chen	11-6	Fan	Fei
3-4	Saurabh	Bhardwaj	11-2	Yunfei	Chen	15-1	Jonathan	Felts
10-1	Cheng	Bi	8-2	Yu-Wei	Chen	1-6	Huicheng	Feng
3-2	Kedong	Bi	11-6	Z.Q.	Chen	1-2	Shangsheng	Feng
3-3	Kedong	Bi	11-2	Hsin-Che	Chien	2-2	Sonia	Fereres
11-2	Kedong	Bi	1-2	Jane Ru	Choi	10-2	Sonia	Fereres
5-2	Svend-Age	Biehs	7-1	NakJeong	Choi	12-1	Benwei	Fu
5-5	Svend-Age	Biehs	3-4	Wonjoon	Choi	10-1	Bo	Fu
11-6	Xu	Bo	1-3	Karen Siew Ling	Chong	5-3	Ceji	Fu
14-2	Sergio	Bobbo	4-2	Fook Hoong	Choo	5-4	Ceji	Fu
1-1	Bryson	Brewer	8-1	Sandesh S.	Chougule	9-1	Qiang	Fu
1-5	Bryson	Brewer	8-1	Fuqiang	Chu	14-2	Qiang	Fu
12-1	Cosimo	Buffone	11-1	Chen	Chuan	15-1	Jun	Fukai
11-1	Qilin	Cai	11-5	DAI	ChuanShan	1-5	Zachary	Gagnon
3-3	Bing-Yang	Cao	8-2	Shan Yu	Chung	3-2	Lin	Gan
10-2	Bing-Yang	Cao	1-1	Carlos Enrico	Clement	3-1	Ashley	Gans
10-3	Bing-Yang	Cao	14-2	Laura	Colla	2-3	Cheng	Gao
16-11	Bing-Yang	Cao	2-3	Wenzheng	Cui	8-2	Jianwei	Gao
15-1	Iixin	Cao	1-6	Xin	CUI	12-1	Srinivas	Garimella
1-1	Leolene Jean	Carrington	3-3	Zhiguang	Cui	11-2	Éric	Germaneau
5-4	Ivan	Celanovic	3-1	Zhuo	Cui	15-1	Majid	Ghafourizadeh
14-1	Yue	Chai	14-2	Michael	Cullinan	8-1	Prajakta	Gharge
5-4	Walker	Chan	4-2	Nilesh	Dadasaheb Pawar	15-1	Mohammadreza	Ghorbani
5-1	Jui-Yung	Chang	3-2	Weijing	Dai	2-2	Pau	Gimenez-Gavarrell
5-2	Jui-Yung	Chang	3-4	Amaresh	Dalal	10-2	Pau	Gimenez-Gavarrell
5-3	Yu-Fan	Chang	15-1	Hamed	Darbandi	11-3	Aik Ling	Goh
1-6	Zhizhao	Che	15-1	Masoud	Darbandi	15-1	K.L.	Goh
4-1	Chung-Lung	Chen	10-3	Mihir Kumar	Das	1-6	Kheng-lim	Goh
2-3	Daheng	Chen	2-3	Subhra	Datta	11-4	Liang	Gong
2-3	Gang	Chen	10-2	Anthony C.	DeFilippo	12-1	Jiqing	Guan
11-5	Gooi Mee	Chen	4-3	Daxiang	Deng	1-3	Bin	Guo
3-4	Hongxia	Chen	2-1	Kuanghan	Deng	5-2	Li	Guo
4-1	Hsiu-Hung	Chen	13-1	Yangbo	Deng	16-11	Zeng-Yuan	Guo
3-3	Hui	Chen	11-1	Cong	Ding	9-1	Sina	Hamian

# Author Index

SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME
11-3	Bo	Han	11-4	Yogendra	Joshi	6-1	Junghun	Lee
11-2	JunKyu	Han	16-4	Yogendra	Joshi	3-4	Kang Yeol	Lee
5-4	Katsunori	Hanamura	15-1	Rajan	K S	15-1	Ming-Tsang	Lee
6-1	Qing	hao	15-1	Suganthi	K S	1-2	Poh Seng	Lee
14-1	Qing	hao	2-3	Dinesh	Kalyanasundaram	11-5	Poh Seng	Lee
4-3	Tingting	Hao	11-6	Omer Bugra	Kanargi	11-6	Poh-seng	Lee
12-1	Bin	He	16-6	Satish	Kandlikar	2-1	Seong Hyuk	Lee
2-2	Qinbo	He	2-3	Yong Tae	Kang	9-1	Shuit-Tong	Lee
1-5	Kirsten	Heikkinen Dodson	1-1	Zhanxiao	Kang	14-2	Shuit-Tong	Lee
1-4	Ho-Pui	Ho	1-3	Zhanxiao	Kang	14-1	Woomin	Lee
4-1	Jin Yao	Ho	1-4	Zhiwen	Kang	5-3	Yung-chun	Lee
2-3	Fangjun	Hong	8-2	Tansel	Karabacak	1-1	Leyan	LEI
2-2	Haiping	Hong	2-2	Mehrdad	Karimzadehkhoei	1-3	Leyan	LEI
1-6	Shakhawat	Hossain	12-1	Khoudor	Keniar	1-6	Jason	Leong
8-1	Youmin	Hou	2-2	Abdolali	Khalili Sadaghiani	15-1	Jason	Leong
12-1	Dhruv C.	Hoysall	8-2	Abdolali	Khalili Sadaghiani	4-1	Kai Choong	Leong
2-3	Chengzhi	Hu	3-3	Ahmed Shehab	Khan	4-3	Kai Choong	Leong
1-5	Dinglong	HU	3-3	Jamil	Khan	1-5	Rastislav	Levicky
1-3	Guoqing	Hu	4-3	Jamil	Khan	1-4	Nuttawut	Lewpiriyawong
11-2	Ming	Hu	8-2	Khedir	Khedir	6-1	Baowen	Li
11-1	Shiqian	Hu	14-1	Kenneth	Kihm	11-1	Baowen	Li
3-2	Baoling	Huang	2-1	Dae Yun	Kim	1-2	Bing	Li
2-3	Feng	Huang	14-1	Hong goo	Kim	11-5	Bing	Li
1-3	Hu-Lin	Huang	15-1	Hyo Seok	Kim	3-3	Chen	Li
11-4	Hu-Lin	Huang	1-6	Kwang-yong	Kim	4-3	Chen	Li
4-3	Qingsong	Huang	7-1	MinSoo	Kim	7-1	Chong	Li
4-3	Xiang	Huang	15-1	Nam Jin	Kim	1-1	Deyu	Li
1-6	Xiaoyang	Huang	7-1	Yoonsuk	Kim	1-5	Deyu	Li
3-4	Xiaoyang	Huang	15-1	Young Hun	kim	3-1	Deyu	Li
1-2	Yi	Huang	5-1	Achim	Kittel	3-3	Deyu	Li
4-3	Yue	Huang	1-3	Kai Seng	Koh	5-2	Donghui	Li
2-3	Yutao	Huo	9-1	Yee Kan	Koh	16-1	Dongqing	Li
11-2	Chanyong	Hwang	5-1	Asaka	Kohiyama	7-1	haiwang	li
3-4	Hayoung	Hwang	5-3	Asaka	Kohiyama	11-7	Haiwang	Li
5-1	Fumitada	Iguchi	5-4	Asaka	Kohiyama	2-2	Hongqi	Li
5-3	Fumitada	Iguchi	11-3	Masamichi	Kohno	4-2	Hongxia	Li
5-4	Fumitada	Iguchi	4-2	Sasidhar	Kondaraju	8-2	Hongxia	Li
14-1	Tatsuya	Ikuta	1-3	T.T.	Kong	10-1	Hongxia	Li
15-1	Tatsuya	Ikuta	1-4	Tian Fook	Kong	11-6	HUI	LI
15-1	Somaye	Jafari	1-1	Tiantian	Kong	3-3	Jing	Li
9-1	Amun	Jarzembski	2-2	Ali	Kosar	4-2	Jing	Li
1-4	Withada	Jedsadaratanachai	8-2	Ali	Kosar	11-5	Ling	Li
1-6	Han-Sol	Jeong	13-1	Amod	Kumar	11-6	Ling	Li
14-2	Jihoon	Jeong	2-3	Avinash	Kumar	1-2	Long	Li
11-4	Y. T.	Jia	3-3	Satish	Kumar	10-1	Long	Li
2-3	Peixue	Jiang	1-4	Raymond H. W.	Lam	10-1	Qi	Li
8-1	Peixue	Jiang	1-6	Raymond H. W.	Lam	5-2	Qiang	Li
11-6	Peixue	Jiang	1-1	Yee Cheong	Lam	14-1	Qinyi	Li
3-1	Tao	Jiang	4-3	Zhong	Lan	2-3	Rong	Li
9-1	Jiansheng	Jie	5-2	Slawa	Lang	11-6	Ruixia	Li
14-2	Jiansheng	Jie	1-6	Michael	Lau	2-1	Shuying	Li
2-2	Liwen	Jin	15-1	Michael	Lau	11-4	Wei	Li
14-1	Liwen	Jin	13-1	Alexander	Lebrun	12-1	Wei	Li
5-1	Rong	Jin	14-2	Bong Jae	Lee	1-5	Weihua	Li
15-1	Zelin	Jin	15-1	Bong Jae	Lee	3-3	Wenming	Li
11-5	Qi	Jing	4-2	Choongyeop	Lee	4-3	Wenming	Li
8-2	Dong	Jixian	14-1	Joon Sik	Lee	3-1	Xiaobo	Li
5-4	John	Joannopoulos	4-2	Junghun	Lee	11-4	Y. F.	Li

SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME
1-3	Yan	Li	11-1	Zhichun	Liu	14-1	Tingting	Miao
15-1	Yan	li	15-1	Zhichun	Liu	10-3	PARTHASARATHI	MISHRA
15-1	Yang	li	11-6	ZHIYING	LIU	4-1	Dong-Chuan	Mo
5-5	Yao	Li	11-6	Zhang	Lizhi	15-1	Dong-Chuan	Mo
11-3	Yao	Li	8-2	Ching-Wen	Lo	1-2	Jingwen	Mo
2-3	Yimin	Li	5-5	Jin-You	Lu	8-1	Mayank	Modak
7-1	Yimin	Li	13-1	Junfeng	Lu	11-4	Manoj Kumar	Moharana
11-4	Yongtong	Li	8-2	Ming-Chang	Lu	11-2	Youngwoong	Moon
11-7	Zengyao	Li	11-2	Ming-Chang	Lu	15-1	Ghasem	Mosayebi
1-2	Zhigang	Li	9-1	Minghui	Lu	13-1	Chunfeng	Mu
12-1	Qian	Liang	14-2	Minghui	Lu	9-1	Ryan	Murdick
11-7	Qiao	Liang	1-2	Pengfei	Lu	15-1	Koichi	Nakaso
3-3	Xingang	Liang	15-1	T.J.	Lu	4-2	Youngsuk	Nam
15-1	Quanwen	Liao	1-2	Tian Jian	Lu	6-1	Youngsuk	Nam
3-2	Chen	Lie	15-1	Tianjian	Lu	1-6	Mohammed	Nesro
1-1	An Eng	Lim	11-5	Wei	Lu	1-5	Nam-trung	Nguyen
11-5	Boon Kian	Lim	13-1	Wen-Qiang	Lu	10-2	Yaqian	Ning
15-1	Boon Yee	Lim	3-1	Tengfei	Luo	15-1	Takashi	Nishiyama
1-1	Chun Yee	Lim	15-1	Tengfei	Luo	5-5	Sumaya	Noor Ulla
14-1	Gyumin	Lim	3-2	Zhengtang	Luo	10-1	Charles C.	Okaeme
15-1	Teck-Bin Arthur	Lim	15-1	Zhi-Yong	Luo	1-3	Kian-Soo	Ong
11-4	Han	Lin	10-2	Zhongyang	Luo	11-3	Kim Tiow	Ooi
10-2	Jian	Lin	15-1	Jing-Tao	Lv	16-12	Kim Tiow	Ooi
11-4	Jinpin	Lin	2-3	Jizu	Lv	11-2	Tao	Ouyang
5-3	Yao-Hua	Lin	11-1	Xiaoxing	Lv	8-1	Xiao-Long	Ouyang
11-7	Li	Ling	4-1	Shu-Shen	Lyu	2-2	DEEPAK	PAL
12-1	Xiang	Ling	15-1	Shu-Shen	Lyu	8-2	Chin	Pan
1-2	Jong-Leng	Liow	11-4	Dandan	Ma	15-1	Qinghui	Pan
5-5	Wojciech	Lipinski	11-1	Dengke	Ma	4-1	ChanWoo	Park
5-3	Baoan	Liu	12-1	Hongbin	Ma	7-1	ChanWoo	Park
2-1	Bo	Liu	13-1	Hongbin	Ma	7-1	HyeonJeong	Park
3-1	Chenhan	Liu	16-10	Hongbin	Ma	15-1	Inkyu	Park
3-2	Chenhan	Liu	11-2	Lijuan	Ma	9-1	In-Kyu	Park
3-3	Chenhan	Liu	7-1	Ling	Ma	14-1	Jae Sung	Park
7-1	Chenzhen	Liu	13-1	Ronghui	Ma	11-2	Jonghyun	Park
2-1	Deng-Ying	Liu	11-3	Weigang	Ma	9-1	Keunhan	Park
5-4	Dong	Liu	14-1	Weigang	Ma	7-1	Seungho	Park
2-1	Jian-Hong	Liu	4-3	Xuehu	Ma	15-1	Sung Seek	Park
5-1	Lin Hua	Liu	8-1	Xuehu	Ma	1-1	Sung-Yong	Park
5-5	Lin Hua	Liu	6-1	Yuanyu	Ma	16-3	Yoav	Peles
11-3	Meng	Liu	11-1	Yuanyu	Ma	4-3	Benli	Peng
6-1	Minglu	Liu	13-1	Swarup Kumar	Mahapatra	5-2	Alexander Yu.	Petrov
11-1	Minglu	Liu	14-2	Oronzio	Manca	1-4	Warupong	Phuengyen
2-1	Minjie	Liu	14-2	Simone	Mancin	4-1	Edward Joshua	Pialago
11-5	Qingxin	Liu	10-3	Kamyar	Mansour	3-1	Sylwia	Ptasinska
15-1	Qixin	Liu	4-1	Yijin	Mao	1-6	Mohammad	Qasaimeh
4-1	Shengchun	Liu	1-4	Marcos	Marcos	14-2	Yu	Qi
11-7	Shengchun	Liu	1-6	Marcos	Marcos	5-1	Jun	Qiu
15-1	Wei	Liu	1-2	Samuel D.	Marshall	5-5	Jun	Qiu
5-3	Xianglei	Liu	11-5	Samuel D.	Marshall	4-2	Lu	Qiu
5-4	Xianglei	Liu	1-5	Diogo	Martins	11-5	Wang	QiuXiang
11-1	Yanhua	Liu	16-8	Shigeo	Maruyama	3-1	Chen	Qu
11-2	Yanhua	Liu	1-6	Anoop	Menachery	4-3	Xiaopeng	Qu
15-1	Yi-Kai	Liu	15-1	Xiangrui	Meng	3-3	Anjan	R Nair
10-1	Yongwen	Liu	14-1	Xiangzhao	Meng	10-3	K. Srinivasa	Ramanujam
5-1	Yuan Bin	Liu	15-1	Xiangzhao	Meng	5-5	Jaona	Randrianalisoa
2-2	yuanyuan	Liu	2-2	M. Pinar	Menguc	2-3	Zhonghao	Rao
11-2	Yueh-Ju	Liu	16-9	M. Pinar	Menguc	7-1	Zhonghao	Rao

# Author Index

SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME
10-3	Prasenjit	Rath	15-1	Koji	Takahashi	2-1	Qiang	Wang
11-6	Konduru	Ravi Teja	11-3	Yasuyuki	Takata	1-3	Qilin	Wang
1-3	Yong	Ren	15-1	Yasuyuki	Takata	15-1	Qizhen	Wang
14-2	Jinsung	Rho	12-1	Chuan seng	Tan	6-1	Robert Y.	Wang
14-2	Nilabh	Roy	15-1	He-Ping	Tan	11-1	Robert Y.	Wang
5-4	Kimberly	Sablon	7-1	xiao	tan	1-5	Rui	Wang
15-1	Moslem	Sabouri	10-1	Guihua	Tang	4-1	Sheng	Wang
10-3	Santosh	Sahoo	9-1	Hao	Tang	2-2	Shuangfeng	Wang
8-2	Venkataraman	Sahoo	14-2	Hao	Tang	10-2	Tao	Wang
8-1	Santosh Kumar	Sahu	1-1	Xin	Tang	11-4	W.	Wang
15-1	Mohammad Said	Saidi	1-3	Xin	Tang	15-1	Wenbin	Wang
10-2	Carlos F	Sanz-Navarro	5-4	Yuji	Taniguchi	3-3	Xiaojia	Wang
1-5	Rebecca M.	Sappington	3-2	Yi	Tao	9-1	Xiaomeng	Wang
11-4	Sunil Kumar	Sarangi	7-1	Zhi	Tao	14-2	Xiaomeng	Wang
3-3	Sarith	Sathian	11-7	Zhi	Tao	3-2	Xinjiang	Wang
2-2	Kursat	Sendur	4-1	Raihan	Tayeb	3-2	Xinwei	Wang
4-2	Donghyun	Seo	13-1	Robert A.	Taylor	7-1	Xinwei	Wang
11-2	Jae Hun	Seol	2-2	Shijo	Thomas	15-1	Xueying	Wang
2-1	Fu-Min	Shang	13-1	Bohan	Tian	14-2	Yaguo	Wang
1-6	Xiaopeng	Shang	1-1	Xiaowei	Tian	12-1	Yan	Wang
11-2	Cheng	Shao	1-3	Xiaowei	Tian	15-1	Yan	Wang
11-6	Chunyun	Shen	1-1	Ye	Tian	11-4	Yansong	Wang
5-3	Sheng	Shen	1-3	Ye	Tian	4-1	Ya-Qiao	Wang
2-3	Zhaojie	Shen	11-7	Yitu	Tian	2-2	yuan	wang
11-5	Zhongyang	Shen	11-4	Nishant	Tiwari	15-1	yuan	wang
10-3	Bo	Shi	4-3	Kok C.	Toh	2-1	Yun	Wang
4-1	Junxiang	Shi	4-3	WEI	TONG	2-3	Yuyan	Wang
11-6	LIN	SHI	3-3	Yan	Tong	11-4	Zhaoqiang	Wang
1-2	Meng	Shi	11-3	Zhen	Tong	3-3	Zuankai	Wang
1-5	Mingjian	Shi	4-3	Shu Beng	Tor	4-2	Zuankai	Wang
5-1	Makoto	Shimizu	2-3	Israel	Torres Pineda	5-4	Jesse	Watjen
5-3	Makoto	Shimizu	1-4	Duc Quang	Tran	1-1	Donna J.	Webb
5-4	Makoto	Shimizu	1-4	Ngoc Phu	Tran	1-5	Donna J.	Webb
3-4	Dongjoon	Shin	11-2	Cheng-Wei	Tu	11-3	Gaosheng	Wei
3-4	Jungho	Shin	13-1	Himanshu	Tyagi	12-1	Mengyao	Wei
8-2	Feng	Shiyuf	13-1	Anil Kumar	Verma	8-2	Tang	Wei
15-1	Chang	Shu	3-2	Daniel Josephus	Villaroman	1-5	Xi	Wei
15-1	Yong	Shuai	5-4	Naphatsorn	Vongsoasup	15-1	Xinli	Wei
11-3	Armin	Silaen	5-4	Christopher M.	Waits	5-5	Yan-Qiang	Wei
16-5	David	Sinton	1-6	Stephen	Wan	11-3	Yan-Qiang	Wei
8-2	Yagmur	Sisman	15-1	Stephen	Wan	3-3	Zhiyong	Wei
2-2	Choondal Balakrishna	PanickerSobhan	5-1	Ao	Wang	11-7	Liu	Wenhua
15-1	Mohammadreza	Soleymaniha	5-3	Boxiang	Wang	5-5	Vincent	Wheeler
5-4	Marin	Soljadic	15-1	Chengyang	wang	10-1	Vincent	Wheeler
11-3	Nai-Qiu	Song	11-2	Chien-Lung	Wang	4-1	Kin Keong	Wong
15-1	S.Y.	Song	12-1	Evelyn	Wang	4-3	Kin Keong	Wong
1-5	Yong-Ak	Song	5-2	Hao	Wang	1-2	Teck Neng	Wong
13-1	Sanjeev	Soni	11-4	hongyan	Wang	1-4	Teck Neng	Wong
5-4	Veronika	Stelmakh	15-1	Jianchun	Wang	1-6	Teck Neng	Wong
12-1	Fengmin	Su	15-1	jianmei	Wang	15-1	Teck Neng	Wong
13-1	Fengmin	Su	5-5	Jiao-Long	Wang	11-3	Bin	Wu
2-1	Guanghai	Su	5-1	Liping	Wang	15-1	Jie	Wu
10-1	Yan	Su	5-2	Liping	Wang	2-1	Junmei	Wu
1-2	Chengzhen	Sun	1-1	Liqiu	Wang	11-2	Pei-Hsiu	Wu
3-1	Fangyuan	Sun	1-3	Liqiu	Wang	3-2	Ruizhe	Wu
5-2	Fengxian	Sun	15-1	Liqiu	Wang	2-3	Shaohua	Wu
1-5	Jiashu	Sun	16-2	Liqiu	Wang	8-1	Xiaomin	Wu
14-1	Koji	Takahashi	14-2	Ming-Zhu	Wang	8-2	Xiaomin	Wu

SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME	SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME
11-6	Yuan	Wuzhi	1-1	Lijie	Yang	1-5	Jun	Zhang
11-4	Guodong	Xia	15-1	Liming	Yang	2-2	L.Y.	Zhang
5-2	Xinlin	Xia	6-1	Lina	Yang	15-1	L.Y.	Zhang
3-2	Congjie	Xiao	11-5	liquan	Yang	3-1	Qian	Zhang
12-1	Hao	Xiaohong	11-5	Mo	Yang	3-3	Qian	Zhang
5-5	Gong-Nan	Xie	11-6	Mo	Yang	15-1	Qiancheng	Zhang
11-2	Han	Xie	11-7	Mo	Yang	14-1	Qunli	Zhang
14-2	Huaqing	Xie	6-1	Nuo	Yang	3-1	Teng	Zhang
10-2	Jianfei	Xie	11-1	Nuo	Yang	4-2	TieJun	Zhang
4-3	Yanlin	Xie	15-1	Nuo	Yang	5-5	TieJun	Zhang
11-5	Yonghui	Xie	11-2	Ting	Yang	8-2	TieJun	Zhang
9-1	Yucheng	Xiong	10-1	Weilin	Yang	10-1	TieJun	Zhang
14-2	Yucheng	Xiong	2-2	xiaohu	Yang	6-1	Wenhua	Zhang
11-6	Chao	Xu	14-1	xiaohu	Yang	4-1	Wenkai	Zhang
14-1	Dongchao	Xu	15-1	xiaohu	Yang	11-7	Wenkai	Zhang
6-1	Dongyan	Xu	10-3	Xueming	Yang	5-2	Xiaosong	Zhang
9-1	Dongyan	Xu	3-2	Yongping	Yang	11-4	xidong	zhang
14-2	Dongyan	Xu	11-3	Yongping	Yang	11-3	Xing	Zhang
1-2	Feng	Xu	5-1	Yue	Yang	14-1	Xing	Zhang
1-4	Guolin	Xu	3-2	Zhao	Yang	11-1	Xinxin	Zhang
5-2	Guoying	Xu	5-4	Zhen	Yang	8-1	Xuan	Zhang
15-1	Min	Xu	1-3	Feng	Yao	3-1	Xueqiang	Zhang
11-4	Minghai	Xu	3-3	Wenjun	Yao	11-6	Yangjun	Zhang
2-3	Ruina	Xu	1-4	XIN	YAO	11-3	Yidi	Zhang
11-6	Ruina	Xu	11-6	Christopher	YAP	11-4	Yin	zhang
4-1	Tiancheng	Xu	11-1	Hong	Ye	1-5	Yuchen	Zhang
7-1	Tiantong	Xu	10-1	Wenjing	Ye	11-1	Yufei	Zhang
3-3	Ting Terry	Xu	10-3	Wenjing	Ye	11-2	Yufei	Zhang
16-7	Xianfan	Xu	14-1	Shannon	Yee	4-1	Yuwen	Zhang
1-5	Yaqiong	Xu	3-4	Taehan	Yeo	7-1	Yuwen	Zhang
5-1	Yimin	Xuan	6-1	Xuan	Yimin	11-5	Yuwen	Zhang
5-2	Yimin	Xuan	5-4	Haitong	Yu	11-6	Yuwen	Zhang
15-1	Bing	Xue	11-3	Haiyan	Yu	11-7	Yuwen	Zhang
1-3	Chundong	Xue	11-3	Peng	Yu	8-1	Zhen	Zhang
10-2	Fei	Xue	14-2	Wei	Yu	5-3	Zhuomin	Zhang
2-2	Geni	Yan	1-3	Zhicheng	Yu	5-4	Zhuomin	Zhang
11-3	Shen	Yan	1-5	Dan	Yuan	5-3	Bo	Zhao
1-5	Sheng	Yan	3-3	Feng	Yuan	5-4	Bo	Zhao
9-1	Xuejun	Yan	3-2	Pengyu	Yuan	5-3	Changying	Zhao
14-2	Xuejun	Yan	6-1	Xu	Yuanpei	5-5	Changying	Zhao
8-2	Yan	Yan	11-1	Kai	Yue	6-1	Hongbo	Zhao
3-4	Yuying	Yan	5-1	Hiroo	Yugami	5-5	J.M.	Zhao
3-4	Zhibin	Yan	5-3	Hiroo	Yugami	12-1	jingbo	Zhao
1-4	Chun	Yang	5-4	Hiroo	Yugami	12-1	Nannan	Zhao
1-6	Chun	Yang	9-1	Jeonghoon	Yun	13-1	Nannan	Zhao
3-4	Chun	Yang	15-1	Jeonghoon	Yun	2-1	Ningbo	Zhao
4-1	Chun	Yang	11-3	Yan	Zeng	5-2	Sainan	Zhao
4-3	Chun	Yang	2-1	Yi	Zeng	5-5	Yang	Zhao
15-1	Chun	Yang	2-3	Chaoyang	Zhang	9-1	Yang	Zhao
3-3	Fanghao	Yang	1-2	Chengbin	Zhang	11-2	Yang	Zhao
4-3	Fanghao	Yang	11-5	Di	Zhang	14-2	Yang	Zhao
2-3	Jianguo	Yang	5-5	Haochun	Zhang	5-4	Yi	Zhao
3-1	Juekuan	Yang	11-3	Haochun	Zhang	3-4	Yugang	Zhao
3-2	Juekuan	Yang	11-4	Hengyun	Zhang	4-2	Wenxiu	Zheng
3-3	Juekuan	Yang	11-7	Jiahui	Zhang	3-2	Zhenchen	Zheng
9-1	Juekuan	Yang	10-3	Jin	Zhang	2-1	Xin	Zhong
11-2	Juekuan	Yang	11-4	Jingzhi	Zhang	11-6	Bo	Zhou
14-2	Juekuan	Yang	12-1	Jingzhi	Zhang	11-3	Chenn	Zhou

# Author Index

SESSION #	AUTHOR FIRST NAME	AUTHOR LAST NAME
3-2	Leping	Zhou
11-4	Naixiang	Zhou
4-3	Wei	Zhou
15-1	Yi	Zhou
11-7	Chuanyong	Zhu
1-3	guiping	Zhu
11-4	guiping	Zhu
3-1	Kai	Zhu
3-2	Kai	Zhu
13-1	Liang	Zhu
11-2	Lin	Zhu
1-1	Pingan	Zhu
1-3	Pingan	Zhu
5-2	Qunzhi	Zhu
8-2	Yu	Zhu
11-7	Zhibing	Zhu
2-1	Ziqin	Zhu







**MNHMT**  
**Micro/Nanoscale Heat & Mass**  
**Transfer International Conference**