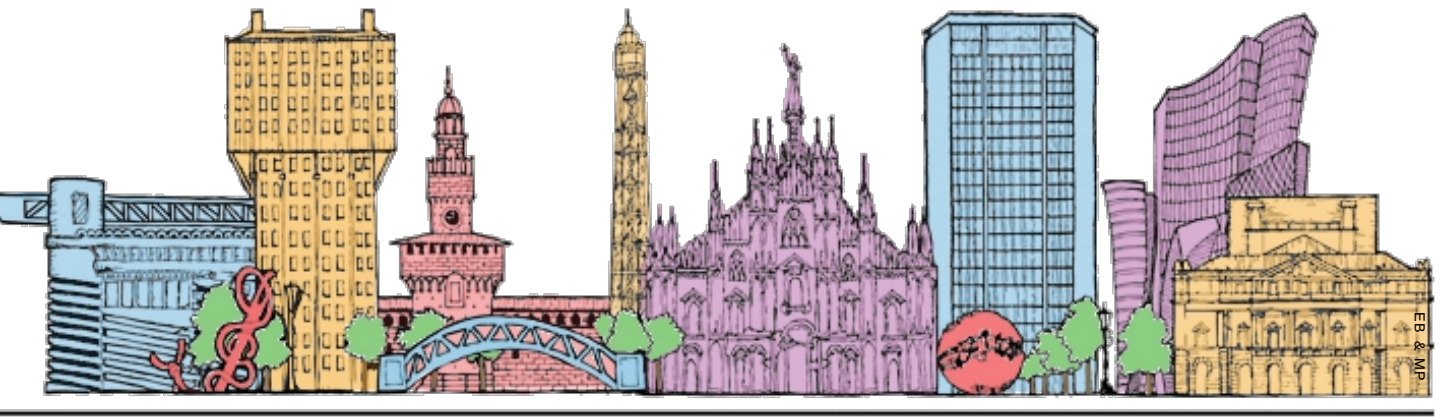
5th INTERNATIONAL CONFERENCE

MNF 2016

Micro and Nano Flows

PROGRAMME



11-14 September 2016, Milan, Italy

POLITECNICO MILANO 1863

Brunel University London

www.mnf2016.com

Session Overview

	Day 0 - 11 Sept. 2016		
18:00 - 21:00	***Welcome reception***		

	Day 1 - 12 Sept. 2016		
7:45 - 9:00	***Users Registrations***		
			ROOM De Donato
9:15 - 9:50	***Welcome addresses***	- Rector of Politecnico - Deputy VC (Research), Brunel - Chair	Professor Giovanni Azzone Professor Goeff Rodgers Professor Tassos Karayiannis
9:50 - 10:20	***Keynote lecture***	Professor Srinivas Garimella	
10:20 - 10:50	***Coffee break***		
	ROOM S.0.2	***ROOM S.0.3***	***ROOM S.0.4***
10:50 - 12:50	***BIO1*** - *Lab-on a-chip 1*	***MP1*** - *Liquid-liquid, droplets*	***SP1*** - *experimental*
12:50 - 13:35	***Lunch break***		
			ROOM De Donato
13:35 - 14:05	***Keynote lecture***	Dr. Pietro Asinari	
14:05 - 14:25	***Sponsor Presentation 1***	Andrea Arensi, M.Eng. - ANSYS	
14:30 - 16:10	***BIO2*** - *Lab-on-a-chip 2*	***MP2*** - *Bubbles, droplet & solids 1*	***SP2*** - *Modelling 1*
16:10 - 16:30	***Coffee break***		
16:30 - 18:10	***BIO3*** - *Lab-on-a-chip 3*	***MP3*** *Bubbles, droplet & solids 2*	***SP3*** - *Applications*

	Day 2 - 13 Sept. 2016		
08:00 - 09:00	***Users Registrations***		
09:00 - 09:30	***Keynote lecture*** Prof Gian Luca Morini		***ROOM De Donato***
	ROOM S.0.2	***ROOM S.0.3***	***ROOM S.0.4***
09:35 - 10:55	***BIO4*** *- Lab-on-a-chip 4*	***MP4*** *- Heat transfer*	***SP4*** *- Modelling 2*
10:55 - 11:15	***Coffee break***		
11:15 - 12:55	***BIO5*** *- Lab-on-a-chip 5*	***MP5*** *- Condensation 1*	***SP5*** *- Modelling 3 & Heat Transfer 1*
12:55 - 13:40	***Lunch break***		
13:40 - 14:10	***Keynote lecture*** Professor Roger D. Kamm		***ROOM De Donato***
14:10 - 14:30	***Sponsor Presentation 2*** Beatrice Carasi, M.Eng - COMSOL		
14:35 - 16:15	***BIO6*** *– Lab-on-a-chip 6 & Biomedical 1*	***MP7*** *- Boiling 1*	***MP6*** *- Modelling 1 & Condensation 2*
16:15 - 16:35	***Coffee break***		
16:35 - 17:55	***BIO7*** *- Biomedical 2*	***MP8*** *- Boiling 2*	***SP6*** *- Heat transfer 2*
19:45	***Conference dinner - Castello Sforzesco***		

	Day 3 - 14 Sept. 2016		
08:30 - 09:00	***Users Registrations***		
09:00 - 09:30	***Keynote lecture*** Professor Carlotta Guiducci		***ROOM De Donato***
	ROOM S.0.2	***ROOM S.0.3***	***ROOM S.0.4***
09:35 - 11:15	***BIO8*** *-Complex flows & suspensions in microsystems (Special Session)*	***MP9*** *– Modelling 2*	***NNF1*** *- Nanofluids 1*
11:15 - 11:35	***Coffee break***		
11:35 - 12:55	***BIO9*** *- Lab-on-a-chip 7*	***MP10*** *- Visualisation/experimental*	***NNF2*** *- Nanofluids 2*
12:55 - 13:40	***Lunch break***		
13:40 - 14:10	***Keynote lecture*** Professor Vladimir V. Kuznetsov		***ROOM De Donato***
14:15 - 15:55	***BIO10*** *- Applications*	***MF11*** *- Boiling 3*	***SP7*** *- Heat transfer 3*
16:00 - 16:10	Conference closure & farewell		
16:10	***Farewell Coffee break***		

Scientific Programme

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Day 0 – Sunday 11 Sept. 2016

18:00 – 21:00 Welcome reception and registration – (Room: Aula Magna)

Day 1 – Monday 12 Sept. 2016

7:45 – 9:00 Registration

9: 15 Welcome addresses (Room De Donato)

Professor Marco Ricotti (Rector's delegate for Research of Politecnico di Milano),

Professor Goeff Rodgers (Deputy Vice-Chancellor-Research-, Brunel University)

Professor Tassos Karayiannis (Chair)

9:50 Keynote lecture (Room De Donato): **Professor Srinivas Garimella "Convective condensation at small scales: Experimental and analytical advances"**
Session Chair: Prof. F. Inzoli

10:20 Coffee break

10:50 – 12:30	**BIO1 - Lab-on a-chip 1 - Session Chair: Prof. S. Balabani**	**Room S.0.2**
MICROFLUIDIC-ENABLED SCREENING OF KIDNEY ORGANOGENESIS Mr. Nick Glass, Dr. Minoru Takasato, Ms. Pei Xuan Er, Prof. Melissa Little, Prof. Ernst Wolvetang, **Prof. Justin Cooper-White**		ID. 172
MICRO-SCALE ENGINEERED SCAR-LIKE TISSUES AS IN VITRO MODEL TO INVESTIGATE FIBROBLAST PROLIFERATION AND PHENOTYPE SWITCH TYPICAL OF A WOUND HEALING PROCESS Ms. Chiara Conficconi, Ms. Marta Lemme, Dr. Paola Occhetta, **Dr. Giulia Cerino**, Ms. Roberta Visone, Mr. Emanuele Gaudiello, Dr. Marija Plodinec, Prof. Alberto Redaelli, Dr. Marco Rasponi, Dr. Anna Marsano		ID. 126
HIGH-THROUGHPUT PRE-CONCENTRATION FOR BACTERIA USING ACOUSTOFLUIDIC CHIP **Dr. Yan-yu Chen**, Dr. Sha Xiong, Prof. Ai-Qun Liu		ID. 232
A MICROSCALE BIOMIMETRIC PLATFORM FOR GENERATION AND ELECTRO-MECHANICAL STIMULATION OF 3D CARDIAC CONSTRUCTS **Ms. Roberta Visone**, Dr. Paola Occhetta, Mr. Giuseppe Talo', Dr. Matteo Moretti, Dr. Marco Rasponi		ID. 73

LAB-ON-A-CHIP MICROFLUIDIC PLATFORMS TO MONITOR THE SHEAR-INDUCED THROMBOTIC RISK IN BLOOD CONTACTING DEVICES — ID. 64
Ms. Annalisa Dimasi, Dr. Filippo Consolo, Dr. Marco Rasponi, Prof. Gianfranco B Fiore, Dr. Lorenzo Valerio, Dr. Federico Pappalardo, Prof. Danny Bluestein, Dr. Marvin J Slepian, **Prof. Alberto Redaelli**

10:50 – 12:50	**MP1 - Liquid-liquid, droplets - Session Chair: Prof. R. Osellame**	**Room S.0.3**

SCALE-OUT OF LIQUID-LIQUID FLOWS IN SMALL CHANNELS — ID. 167
Mr. Eduardo Garciadiego Ortega, Dr. Dimitrios Tsaoulidis, Prof. Panagiota Angeli

VISCOSITY INFLUENCE ON FLOW PATTERN MAP OF IMMISCIBLE LIQUID-LIQUID FLOW IN A T-SHAPED MICROCHANNEL — ID. 43
Ms. Anna Yagodnitsyna, Mr. Alexander Kovalev, Dr. Artur Bilsky

MEASUREMENTS OF MICRO-MUSHROOM PATTERNS IN A MAGNETIC MICROMIXER — ID. 196
Dr. Gökhan Ergin

ASPHALTENE AGGREGATION AND DEPOSITION IN TRANSPARENT T-SHAPED MICRO-CHANNEL — ID. 206
Dr. Afshin Goharzadeh, Mr. Yougong Zhuang, Dr. Yit Fatt Yap

PLUG FORMATION IN A MICROCHANNEL IN TWO-PHASE FLOWS WITH NON-NEWTONIAN LIQUIDS — ID. 98
Ms. Evangelia Roumpea, Dr. Maxime Chinaud, Prof. Panagiota Angeli

DYNAMIC MOTION OF DROPLETS ON SLIPPERY LUBRICANT-IMPREGNATED SURFACES WITH MICRO TEXTURES — ID. 69
Ms. Jingxian Zhang, Dr. Zhaohui Yao, Dr. Pengfei Hao, Dr. Bing Bao

10:50 – 12:30	**SP1 – Experimental - Session Chair: Prof. D. Emerson**	**Room S.0.4**

THE EFFECT OF ASYMMETRY ON MICROMIXING IN CURVILINEAR MICROCHANNELS — ID. 89
Mr. Sarp Akgönül, Ms. Arzu Ozbey, Mr. Mehrdad Karimzadehkhouei, Prof. Ali Kosar

FLOW CONFIGURATIONS IN A Y SPLITTING-JUNCTION MICROCHANNEL — ID. 59
Prof. Giovanni Paolo Romano, Dr. Marco Pecorario,

WALL SHEAR STRESS MEASUREMENT IN MICRO-CHANNEL — ID. 33
Dr. Zhaohui Yao

EXPERIMENTAL INVESTIGATION OF SUPERSONIC TWO-DIMENSIONAL FREE MICROJETS — ID. 195
Dr. Vladimir Aniskin

VELOCITY MEASUREMENTS IN AN OMEGA-MICROMIXER USING STEREO-MICROPIV — ID. 211
Dr. Gökhan Ergin

12:50 Lunch break

13:35 Keynote lecture (Room De Donato): **Prof. Pietro Asinari "Multiscale Simulation of Nanofluids for Solar Thermal Energy"**
Session Chair: Prof. T. Karayiannis

14:05 Sponsor Presentation 1 (Room De Donato): **Andrea Arensi M.Eng. (ANSYS)**
"CAE Simulation Platform for product development"

14:30 – 16:10 BIO2 - Lab-on a-chip 2 - Session Chair: Prof. A. Redaelli — Room S.0.2

CHARACTERISATION OF MICROFLUIDIC SYSTEMS USING OPTICAL METHODS AT DYNAMIC FLOW RATES — ID. 36
Mr Joerg Schroeter , Mr. Lino Del Bianco , Dr. Christian Damiani, Prof. Stephan Klein, Prof. Bodo Nestler

3D FEM DISSIPATION MODEL OF SUSPENDED MICRO CHANNEL RESONATORS — ID. 83
Ms. Annalisa De Pastina, Dr. Andrea Fani, Prof. François Gallaire, Prof. Luis Guillermo Villanueva

HIGH-THROUGHPUT MICROFLUIDIC PLATFORM FOR GUIDING MESENCHYMAL STROMAL CELL PERFUSED MICROMASSES TOWARDS CHONDROGENIC DIFFERENTIATION — ID. 74
Dr. Paola Occhetta, Dr. Andrea Barbero, Dr. Marco Rasponi, Prof. Ivan Martin

ON-CHIP MAGNETIC PLATFORM FOR SINGLE-PARTICLE MANIPULATION WITH INTEGRATED ELECTRICAL FEEDBACK — ID. 128
Mr. Marco Monticelli, **Dr. Daniela Petti**, Dr. Edoardo Albisetti, Prof. Riccardo Bertacco

DYNAMICS OF CELL-FREE LAYER FORMATION AFTER ARTERIOLAR BIFURCATIONS AND ITS PHYSIOLOGICAL EFFECTS — ID. 51
Mr Yan Cheng Ng, Dr Bumseok Namgung, Prof Sangho Kim

14:30 – 16:10 MP2 - Bubbles, droplet & solids 1 - Session Chair: Prof. Y. Yan — Room S.0.3

INVESTIGATION OF ELASTICITY IN MICROMIXING OF LOW VISCOSITY EMULSIONS — ID. 219
Dr. Valentina Preziosi, Dr. Giovanna Tomaiuolo, Prof. Sergio Caserta, Prof. Stefano Guido

MICROFLUIDIC CHARACTERISATION OF ULTRALOW INTERFACIAL TENSION DROPLETS BY THERMAL CAPILLARY WAVE ANALYSIS — ID. 200
Dr. Guido Bolognesi, Mr. Yuki Saito, Dr. Arwen I. I. Tyler, Dr. Andrew D. Ward, Prof. Colin D. Bain, Dr. Oscar Ces

TRAINS OF PARTICLES IN FINITE-REYNOLDS-NUMBER MICRO SQUARE FLOW — ID. 40
Mr. Yanfeng Gao, Mrs. Pascale Magaud, Prof. Lucien Baldas, Mrs. Christine Lafforgue, Mrs. Micheline Abbas, Prof. Stéphane COLIN

A NOVEL CHIP DESIGN WITH SIDE-CHANNEL PRE-ALIGNMENT FOR PARTICLE SORTING — ID. 231
Dr. Sha Xiong, Prof. Ai-Qun Liu, Dr. Yan-yu Chen

EXPERIMENTAL ANALYSIS OF DROPLET FORMATION IN A MICRO CROSS-JUNCTION — ID. 210
Mr. Behnam Rostami, Prof. Beatrice Pulvirenti, Mr. Giacomo Puccetti, Prof. Gian Luca Morini

14:30 – 16:10 SP2 – Modelling 1 - Session Chair: Dr. S. Lorenzani — Room S.0.4

MIXING THROUGH VORTEX SHEDDING IN A MICROFLUIDIC CHANNEL: A NUMERICAL SIMULATION STUDY — ID. 87
Mr. Nitin Mythreya, **Mr. Venkat Subba Rao**, Dr. Aravinda Raghavan, Dr. Meenakshi Viswanathan

PRESSURE DROP ANALYSIS IN A RECTANGULAR MICROCHANNEL WITH STAGGERED ARRANGEMENTS OF CYLINDRICAL MICRO PIN FINS — ID. 143
Mr. Ali Mohammadi, Prof. Ali Kosar

MODELLING ANALYSIS OF MASS TRANSPORT IN POLYMER ELECTROLYTE FUEL CELLS POROUS MEDIA WITH THE AID OF COMPUTATIONAL FLUID DYNAMICS — ID. 65
Dr. Andrea Baricci, Dr. Riccardo Mereu, Mr. Mirko Messaggi, Dr. Matteo Zago, Prof. Fabio Inzoli, Prof. Andrea Casalegno

NUMERICAL AND EXPERIMENTAL INVESTIGATION OF THE LEVITATION AND FLOW CREATED BY ULTRASONIC FIELDS IN NARROW GAPS — ID. 76
Mr Marcus Schmidt, Mr Kai Saalbach, Prof Peter Reinke, Mr Tom Beckmann, Dr Jens Twiefel

ACCELERATING A MULTISCALE FLUIDIC MODEL WITH GAUSSIAN PROCESSES — ID. 183
Dr David Stephenson, Dr James Kermode, Prof Duncan Lockerby

16:10 Coffee break

16:30 – 17:50	**BIO3 - Lab-on a-chip 3 - Session Chair: Prof. C. Koenig**	**Room S.0.2**

FLUID DYNAMIC MODELING OF A SIZE-BASED SORTER LAB-ON-CHIP FOR THE INERTIAL TRAPPING OF CIRCULATING TUMOR CELLS — ID. 155
Ms. Annalisa Volpe, Mr. Antonio Ancona, Prof. Giuseppe Pascazio,

MICRO-CHIP FOR SINGLE CELL ISOLATION WITH LASER-INDUCED FORWARD TRANSFER — ID. 124
Dr. Yu Deng, Prof. Zhongning Guo, Mr. Wensheng Hong, Mr. Wenhao Mai, Mr. Ruilin Zhang

SPACE-TIME CHROMATOGRAPHY OF MESOSCOPIC SUSPENDED OBJECTS IN PERIODICALLY PATTERNED MICROFLUIDIC DEVICES — ID. 118
Prof. Stefano Cerbelli, Prof. Massimiliano Giona

CYCLIC UNIAXIAL STRAIN ON 3D MICROCONSTRUCTS: A NOVEL HEART-ON-A-CHIP PLATFORM FOR THE GENERATION OF FUNCTIONAL CARDIAC MICROTISSUES — ID. 149
Dr. Anna Marsano, Dr. Chiara Conficconi, Ms. Marta Lemme, Dr. Paola Occhetta, Mr. Emanuele Gaudiello, Dr. Emiliano Votta, Dr. Giulia Cerino, Prof. Alberto Redaelli, **Dr. Marco Rasponi**

16:30 – 18:10	**MP3 - Bubbles, droplet & solids 2 - Session Chair: Dr. F.G. Ergin**	**Room S.0.3**

LIGHT ACTUATED MICRO DROPLET EJECTION FOR 3D PRINTING — ID. 27
Prof. Christophe Moser, Mr. Paul Delrot. Dr. Miguel Modesto, Prof. Demetria Psaltis,

ROLE OF VISCOELASTICITY IN DROPLET FORMATION INSIDE A MICROFLUIDIC T-JUNCTION — ID. 100
Mr. Enrico Chiarello, Prof. Giampaolo Mistura, Dr. Matteo Pierno, Prof. Mauro Sbragaglia

DROP MOTION INDUCED BY VERTICAL VIBRATIONS — ID. 49
Mr. Paolo Sartori, Ms. Silvia Varagnolo, Dr. Matteo Pierno, Prof. Giampaolo Mistura, Dr. Francesco Magaletti, Prof. Carlo Massimo Casciola

ACOUSTOTHERMAL HEATING FOR DROPLET MANIPULATION — ID. 57
Mr. Jinsoo Park, Mr. Jin Ho Jung, Mr. Byung Hang Ha, Mr. Ghulam Destgeer, Mr. Husnain Ahmed, Dr. Hyung Jin Sung

TWO-PHASE FLOW IN T – JUNCTION MICROCHANNELS — ID. 119
Dr. Davide Caprini, Dr. Giorgia Sinibaldi, Dr. Mauro Chinappi, Prof. Luca Marino, Prof. Carlo Massimo Casciola,

16:30 – 17:30	**SP3 – Applications - Session Chair: Dr. P. Hao**	**Room S.0.4**

HEAT TRANSFER OPTIMIZATION IN COMPACT AIR HEAT EXCHANGER — ID. 202
Dr Tomasz Muszynski, Dr Slawomir Koziel

FABRICATION OF NANOPOROUS MEMBRANES THROUGH SILICON TEMPLATES : TWO DIFFERENT APPROACHES — ID. 197
Mr Stefano Varricchio, Dr Niccoló Piacentini, Dr Arnaud Bertsch, Prof Philippe Renaud

MAGNETIC NANOFLUIDS HELP IMPROVE THE EFFICIENCY OF SOLAR THERMAL COLLECTOR — ID. 237
Prof Yuying Yan

Day 2 - 13 Sept. 2016

8:00 – 9:00 Registration

9:00 Keynote lecture (Room De Donato): **Prof Gian Luca Morini "The challenge to measure single-phase convective heat transfer coefficients in microchannels"**

Session Chair: Prof. A. Redaelli

9:35 – 10:55	**BIO4 - Lab-on-a-chip 4 - Session Chair: Prof. C. Guiducci**	**Room S.0.2**
FLOW AND MASS TRANSFER OPTIMIZATION IN A BIOTHERAPEUTIC PURIFICATION DEVICE BASED ON NANOFIBRE MATERIAL **Dr. Cesar Augusto Cortes Quiroz**, Dr. Alice R. Mazzer, Dr. Iwan Roberts, Dr. Oliver Hardick, Dr. Daniel Bracewell		ID. 166
A MICROFLUIDIC DEVICE FOR STUDYING DRUG TRANSPORT THROUGH ENDOTHELIAL BLOOD BRAIN BARRIER CELLS MONOLAYERS **Mr. Giovanni Stefano Ugolini**, Dr. Marco Rasponi, Prof. Alberto Redaelli		ID. 55
AN INTEGRATED MICROFLUIDIC DIGITAL PCR SYSTEM FOR ALGINATE DROPLET FORMATION, EFFICIENT DIRECT PCR AMPLIFICATION AND IMAGING **Ms. Lijun Li**, Dr. Linfen Yu, Dr. Tianzhun Wu		ID. 178
DESIGN AND PROCESS OPTIMIZATION IN MICROFLUIDIC DEVICES FOR DNA AMPLIFICATION Mrs. Ioanna Kefala, **Mr. Vasileios Papadopoulos**, Mrs. Georgia Kaprou, Dr. George Kokkoris, Dr. Angeliki Tserepi		ID. 146

09:35 – 10:55	**MP4 – Heat transfer - Session Chair: Dr. T. Muszynski**	**Room S.0.3**
EXPERIMENTAL STUDY OF THE EFFECT OF AN ELECTRICAL FIELD ON A LIQUID VAPOR INTERFACE IN A NARROW CHANNEL **Mr. Baptiste Blaineau**, Dr. Sébastien Dutour, Dr.Thierry Callegari, Dr. Pascal Lavieille, Dr. Marc Miscevic, Dr. Stéphane Blanco, Dr. Yves Bertin		ID 131
SIMULATIONS OF MICROSCALE WATER FLOWS IN A SQUARED LID CAVITY UNDER FREEZING CONDITIONS USING ENERGY **Dr. Toru Yamada**, Dr. Erik Johansson, Prof. Jinliang Yuan, Dr. Shinji Tamano, Prof. Yohei Morinishi, Prof. Bengt Sunden		ID 66
COMPARISON OF WORKING FLUID COMBINATIONS IN A MICROCHANNEL MEMBRANE ABSORBER **Prof. Mercedes de Vega**, Prof. María Venegas, Prof. Néstor García-Hernando		ID 54
IMPROVEMENT OF THERMOSYPHON PERFORMANCE BY WALL WETTABILITY MODIFICATION **Dr. Rafał Andrzejczyk**, Dr. Tomasz Muszynski		ID 204

9:35 – 10:55	**SP4 – Modelling 2 - Session Chair: Prof. G. L. Morini**	**Room S.0.4**
INFLUENCE OF THE BOUNDARY CONDITIONS ON THE DAMPING FORCES EXERTED BY GAS MIXTURES IN HIGH-FREQUENCY MEMS DEVICES **Dr. Silvia Lorenzani**		ID. 58
NON-EQUILIBRIUM EFFECTS ON STEADY FLOW PAST A STATIONARY CIRCULAR MICRO-CYLINDER **Dr. Xiaojun Gu**, Prof. David Emerson		ID. 109
ANALYSIS AND DESIGN OF A NEW MICROPUMP DOABLE WITH A SIMPLE MICRO-FABRICATION PROCESS **Prof. Raffaele Ardito**, Dr. Emanuele Bertarelli, Prof. Alberto Corigliano, Dr. Marco Ferrera		ID. 145

NON-EQUILIBRIUM DYNAMICS OF DENSE GAS UNDER TIGHT CONFINEMENT — ID. 41
Dr Lei Wu

10:55 Coffee break

11:15 – 12:35	**BIO5 - Lab-on-a-chip 5 - Session Chair: Prof. J. Cooper-White**	**Room S.0.2**

MEASUREMENT OF MOLECULAR DIFFUSION IN THE VICINITY OF LIQUID-SOLID INTERFACE BY TOTAL INTERNAL REFLECTION RAMAN IMAGING — ID. 194
Mr. Masaharu Kinoshita, Mr. Tetsuro Tateishi, Dr. Reiko Kuriyama, Prof. Yohei Sato

HYDRODYNAMIC STRUCTURES TO IMPROVE CELL CAPTURING IN MICROCHANNELS — ID. 23
Dr. Elena Bianchi, Ms. Monica Piergiovanni, Mr. Matteo De Gennaro, Dr. Simone Bersini, Ms. Mara Gilardi, Dr. Chiara Arrigoni, Ms. Junko Enomoto, Prof. Junji Fukuda, Dr. Alfonso Gautieri, Dr. Matteo Moretti, Prof. Gabriele Dubini

SIMULATION OF BIO-PARTICLE SEPARATION USING INERTIAL MICROFLUIDICS IN A SPIRAL MICROCHANNEL FOR BIOMEDICAL APPLICATIONS — ID. 209
Mr. Reza Rasooli, Mr. Onur Kaan Karaoğlu, **Dr. Barbaros Cetin**

MAGNETIC ARTIFICIAL CILIA FABRICATED IN AN OUT-OF-CLEANROOM ROLL-PULLING PROCESS GENERATE SIGNIFICANT MICROFLUIDIC PUMPING — ID. 11
Dr. Ye Wang, Dr. Ruth Cardinaels, Prof. Patrick Anderson, **Prof. Jaap den Toonder**

11:15 – 12:55	**MP5 – Condensation 1 - Session Chair: R. Andrzejczyk**	**Room S.0.3**

NANO-PCMS FOR ENHANCED THERMAL ENERGY STORAGE APPLICATIONS — ID 163
Dr. Laura Colla, Dr. Laura Fedele, Dr. Simone Mancin, Dr. Sergio Bobbo, Dr. Michela Arfé, **Dr. Davide Ercole**, Prof. Oronzio Manca

STEADY STATE AND TRANSIENT NUMERICAL SIMULATIONS OF CONDENSATION IN SMALL DIAMETER CHANNELS — ID 140
Mr. Paolo Toninelli, Dr. Stefano Bortolin, Mr. Marco Azzolin, Prof. Davide Del Col

HIGH PRESSURE CONDENSING REFRIGERANT FLOWS THROUGH MICROCHANNELS PART 1: PRESSURE DROP MODELS — ID 213
Dr. Brendon Keinath, **Prof. Srinivas Garimella**

HIGH PRESSURE CONDENSING REFRIGERANT FLOWS THROUGH MICROCHANNELS PART 2: HEAT TRANSFER MODELS — ID 214
Dr. Brendon Keinath, **Prof. Srinivas Garimella**

PERFORMANCE OF SHELL-AND-TUBE CONDENSER WITH MINICHANNELS FOR THE MICRO DOMESTIC ORC — ID 104
Dr. Jan Wajs, **Prof. Dariusz Mikielewicz**, Ms. Blanka Jakubowska

11:15 – 12:55	**SP5 - Modelling 3 & Heat Transfer 1 - Session Chair: Prof. R. Ardito**	**Room S.0.4**

TRANSIENT DYNAMICS OF ELASTIC HELE-SHAW CELL DUE TO EXTERNAL FORCES WITH APPLICATION TO IMPACT MITIGATION — ID. 92
Mr. Arie Tulchinsky, Prof. Amir Gat

NUMERICAL MODELLING OF ELECTRO-OSMOTIC FLOW IN POROUS MICRO-CHANNELS — ID. 39
Ms. Simona Di Fraia, Prof. Nicola Massarotti, Prof. Perumal Nithiarasu

HEAT TRANSFER ENHANCEMENT IN COUNTER-FLOW-HEAT-EXCHANGER FOR USE IN MICROFABRICATED JOULE-THOMSON CRYOCOOLER — ID. 21
Mr. Leonid Fraiman

STRUCTURAL OPTIMIZATION OF MICROJET ARRAY COOLING SYSTEM — ID. 201
Dr. Tomasz Muszynski, Prof. Dariusz Mikielewicz

PARAMETRIZATION STUDY OF THE THERMALLY DRIVEN RAREFIED FLOW BETWEEN SAW-TOOTH LIKE SURFACES — ID. 148
Mr Giorgos Tatsios, Prof Dimitris Valougeorgis, Dr Jie Chen, Prof Lucien Baldas, Prof Stéphane Colin, Prof Stefan Stefanov

12:55 Lunch break

13:40 Keynote lecture (Room De Donato): **Prof Roger D. Kamm "Microfluidic Models of Metastatic Cancer"**

Session Chair: Prof. G. Dubini

14:10 Sponsor presentation 2 (Room De Donato): **Beatrice Carasi (COMSOL) "Modeling Microfluidic Devices in COMSOL Multiphysics"**

14:35 – 16:15	**BIO6 - Lab-on-a-chip 6 & Biomedical 1 - Session Chair: Dr. M. Rasponi**	**Room S.0.2**

DEVELOPMENT OF "EVANESCENT WAVE FOR A CHIP" FOR DISTRIBUTION MEASUREMENTS OF PHYSICAL QUANTITIES IN THE VICINITY OF LIQUID-SOLID INTERFACE — ID. 193
Mr. Atsuhisa Uchigasaki, Ms. Maho Urushidani, Prof. Yohei Sato

ACTIVE MICRO-MIXER FOR BIOMEDICAL APPLICATIONS — ID. 223
Dr. Simone Ferrari, Prof. Gabriele Dubini, **Prof. Luca Cortelezzi**

THE EFFECT OF RBC STIFFNESS ON MICROHEMODYNAMICS — ID. 168
Mr. Andreas Passos, Dr. Stavroula Balabani

CHARACTERISTICS OF RED BLOOD CELL PERFUSION IN MICROFLUIDIC MODELS OF PULMONARY CAPILLARY NETWORKS — ID. 32
Mrs. Hagit Stauber, Dr. Dan Waisman, Prof. Netanel Korin, Prof. Josue Sznitman

LOCAL AGGREGATION CHARACTERISTICS OF MICROSCALE BLOOD FLOWS — ID. 169
Dr. Efstathios Kaliviotis, Dr. Stavroula Balabani, Dr. Joseph Sherwood

14:35 – 16:15	**MP7 – Boiling 1 - Session Chair: Dr. S. Gedupudi**	**Room S.0.3**

DYNAMICS OF DROPLETS EVAPORATING ON STRUCTURED SURFACES — ID 179
Dr. Gail Duursma, **Dr. Coinneach Dover**, Mr. Nathan West, Dr. John Christy, Prof. Khellil Sefiane

TRANSIENT FLOW BOILING LOCAL HEAT TRANSFER IN A MULTI-MICROCHANNEL EVAPORATOR UNDER A HEAT FLUX DISTURBANCE — ID 224
Mr. Houxue Huang, Dr. Nicolas Lamaison, Prof. John Thome

TEM STUDY ON PHASE CHANGE IN A NANO LIQUID CELL — ID 199
Ms. Yoko Tomo, Prof. Koji Takahashi, Dr. Takashi Nishiyama, Mr. Tatsuya Ikuta, Prof. Yasuyuki Takata

EXPERIMENTAL INVESTIGATION OF THERMAL PERFORMANCE OF ALUMINUM-GROOVED MICRO HEAT PIPES — ID 190
Mr. Hossein Alijani, **Dr. Barbaros Cetin**, Prof. Zafer Dursunkaya

GRAPHENE POWDER PROCESSING FOR WATER SOLAR DISTILLATION USING NANOFLUIDS — ID 235
Dr. Nadhira Laidani, Dr. Francesca Marchetti, Dr. Hafeez Ullah, Prof. Marina Scarpa, Dr. Cecilia Maestri, Prof. Said Makhlouf, Dr. Gloria Gottardi, Dr. Ruben Bartali, Dr. Victor Micheli

14:35– 16:15 MP6 - Modelling 1 & Condensation 2 - Session Chair: Prof. D. Del Col	Room S.0.4
MASS TRANSFER CHARACTERIZATION OF CHEMICAL ABSORPTION OF CO2 IN MICROCHANNEL ABSORBERS **Mr. Ziqiang Yang**, Dr. Tariq Saeed Khan, Dr. Mohamed Alshehhi, Dr. Yasser Al Wahedi	ID. 13
NANOSTRUCTURED COATINGS FOR WATER/SURFACE SLIP: A MOLECULAR DYNAMICS APPROACH **DR. SRINIVASA RAMISETTI**, DR. MATTHEW BORG, PROF. DUNCAN LOCKERBY, PROF. JASON REESE	ID. 37
GROWTH AND DEWETTING OF CONDENSATION MICRODROPLETS ON SUPERHYDROPHOBIC SURFACES WITH TWO-TIER ROGHNESS **DR. PENGFEI HAO**	ID. 68
R1234YF CONDENSATION INSIDE A HORIZONTAL 3.4 MM ID MICROFIN TUBE **DR ANDREA DIANI**, PROF. ALBERTO CAVALLINI, PROF. LUISA ROSSETTO	ID. 173
ACCURATE AND INEXPENSIVE THERMAL TIME-OF-FLIGHT SENSOR FOR MEASURING REFRIGERANT FLOW IN MINICHANNELS **MS. ALLISON MAHVI**, MR. BACHIR EL FIL, PROF. SRINIVAS GARIMELLA	ID. 212

16:15 Coffee break

16:35 – 17:55 BIO7 - Biomedical 2 - Session Chair: Dr. E. Kaliviotis	Room S.0.2
IN-VITRO M-PIV IN CONTRACTING LYMPHATIC VESSELS **Dr. Konstantinos Margaris**, Dr. Zhanna Nepiyushchikh, Prof. James Moore, Jr., Dr. Dave Zawiejia, Dr. Richard Black	ID. 72
CFD MODEL OF MOUSE LIVER MICROCIRCULATION BASED ON A 3D RECONSTRUCTION **Ms. Monica Piergiovanni**, Dr. Elena Bianchi, Ms. Lucia Ganzer, Ms. Giada Capitani, Ms. Irene Li Piani, Prof. Matteo Iannacone, Prof. Luca G. Guidotti, Prof. Gabriele Dubini	ID. 137
μ-PARTICLE IMAGE VELOCIMETRY AND COMPUTATIONAL FLUID DYNAMIC STUDY OF CELL SEEDING WITHIN A 3D POROUS SCAFFOLD **Dr. Ana Campos**, Mr. Tommaso Grossi, Dr. Elena Bianchi, Prof. Gabriele Dubini, Prof. Damien Lacroix	ID. 48
FLOW MIXING AND DISPERSION PHENOMENA IN LUNG-INSPIRED MICROFLUIDIC STRUCTURES Dr. Rami Fishler, **Prof. Josue Sznitman**	ID. 31

16:35– 17:55 MP8 – Boiling 2 - Session Chair: Dr.A. MirzaGheitaghy	Room S.0.3
INVESTIGATION ON THE BUBBLE CUSHION DURING CONTACTLESS BOILING IN MICRO-EVAPORATORS **Dr. Cor Rops**, Ms. Joy Huiberts, Mr. Giel Priems, Prof. Cees Geld	ID 77
TRANSITION FROM SUBCOOLED TO SATURATED FLOW BOILING ON THE BASIS OF ENERGY DISSIPATION BALANCE IN MINICHANNELS **Prof. Dariusz Mikielewicz**, Prof. Jaroslaw Mikielewicz	ID 82
POOL BOILING ENHANCEMENT ON NANOSTRUCTURED COPPER OXIDE SURFACES PREPARED BY WET CHEMICAL METHOD WITH VARIOUS HYDROPHILICITY **Mr. Amir MirzaGheytaghi**, Ms. Shahrzad Tabatabaei, Dr. Hamid Saffari	ID 186

1-D MODELLING OF PRESSURE FLUCTUATION AND FLOW REVERSAL DURING FLOW BOILING IN A MICRO-CHANNEL WITH VAPOUR VENTING MEMBRANE — ID 129
Mr. Ahmed Mohiuddin, Dr. Sateesh Gedupudi

16:35 – 17:55	**SP6 - Heat transfer 2 - Session Chair: Prof. D. Emerson**	**Room S.0.4**

EVALUATION OF HEAT LOSSES IN COUNTER FLOW MICRO HEAT EXCHANGERS — ID. 42
Mr. Anatoly Parahovnik, Dr. Nir Tzabar, Prof. Gilad Yossifon

HIGH PERFORMANCE TUBULAR HEAT EXCHANGER WITH MICROJET HEAT TRANSFER ENHANCEMENT — ID. 86
Dr. Jan Wajs, Prof. Dariusz Mikielewicz, **Dr. Elzbieta Fornalik-Wajs**, Mr. Michał Bajor

HEAT TRANSFER ENHANCEMENT IN MICROJET HEAT EXCHANGER — ID. 203
Dr. Tomasz Muszynski, Dr. Rafał Andrzejczyk

ENHANCEMENT OF HEAT TRANSFER CHARACTERISTICS OF MICROCHANNEL HEAT SINK WITH MICRO-RIBS TO INDUCE LONGITUDINAL VORTICES — ID. 30
Prof. Yeong-Ley Tsay, Prof. Jen-chieh Cheng

Starting at 19:45 - Conference dinner (Castello Sforzesco)

Day 3 - 14 Sept. 2016

8:30 – 9:00 Registration

9:00 Keynote lecture (Room De Donato): **Prof. Carlotta Guiducci "Advancements in electrical-based techniques on chip for single-cell level analytics"**

Session Chair: Dr. E. Bianchi

09:35 – 11:15	**BIO8 -Complex flows & suspensions in microsystems (Special Session) - Session Chair: Prof. R. D. Kamm**	**Room S.0.2**

THE ROLE OF VON WILLEBRAND FACTOR AND PLATELET MARGINATION IN THEIR ADHESION — ID. 95
Mr Masoud Hoore, Dr Kathrin Müller, Dr Dmitry Fedosov, Prof Gerhard Gompper

ANALYZING A SINGLE DEFORMABLE CELL IN AN INCLINED CENTRIFUGE MICROSCOPE: A NUMERICAL STUDY — ID. 217
Mr Arash Alizad Banaei, Dr Jean-Christophe Loiseau, Prof Luca Brandt, Dr Suguru Miyauchi, Prof Toshiyuki Hayase

DEFORMABILITY AND SIZE BASED CAPSULE SORTING — ID. 216
Ms Doriane Vesperini, Ms Nadège Munier, Ms Pauline Maire, Dr Anne-virginie Salsac, Dr Anne Le Goff

HIGH-ACCURACY PARTICLE SIZING IN SHEATH LESS MICROFLUIDIC IMPEDANCE CYTOMETRY — ID. 185
Dr Federica Caselli, Prof Paolo Bisegna

STUDY OF THE PHASE SEPARATION EFFECT IN CAPILLARY-SIZE MICRO-CHANNELS — ID. 208
Mr Adlan Merlo, Dr Paul Duru, Dr Sylvie Lorthois

9:35– 11:15	MP9 – Modelling 2 - Session Chair: Prof. P. Asinari	Room S.0.3

CFD SIMULATION OF PRECIPITATION IN SOLVENT-DISPLACEMENT PROCESSES — ID. 61
Mr Matteo Rizzotto, Mr Mattia Sponchini, Prof Davide Moscatelli, Prof Renato Rota, Prof Valentina Busini

DETERMINING TRANSPORT PROPERTIES BY MOLECULAR DYNAMICS — ID. 221
Dr Angelo Damone

PRESSURE DROP MODELLING IN GAS CHANNELS OF POLYMER ELECTROLYTE FUEL CELLS — ID. 56
Dr Zan Wu, Prof Matin Andersson, **Prof Benqt Sunden**

HYBRID NUMERICAL SIMULATIONS OF DIGITAL ROCK FROM PORE SCALE TO DARCY SCALE — ID. 236
Dr Moussa Tembely, Dr. Ali Alsumaiti, Dr Khurshed Rahimov, Dr Mohamed Soufiane Jouini

SIMULATION OF R134A FLOW BOILING IN MICROCHANNELS — ID 233
Dr. Rahim Jafari

9:35 – 11:15	Nanofluids 1 - Session Chair: Dr. R. Mereu	Room S.0.4

DIAMAGNETIC NANOFLUID BEHAVIOUR IN THE STRONG MAGNETIC FIELD — ID. 93
Mrs Aleksandra Roszko, **Dr Elzbieta Fornalik-Wajs**, Prof Sasa Kenjeres

NUMERICAL STUDY OF NATURAL CONVECTION FOR AL2O3 AND CUO NANOFLUIDS INSIDE DIFFERENT ENCLOSURES — ID. 96
Dr Sahar Abbood, Dr Zan Wu, **Prof Bengt Sunden**

DOES PARTICLE SIZE MATTER IN NANOFLUIDS' THERMAL PROPERTIES? — ID. 97
Dr Michael Frank, Prof Dimitris Drikakis

A NOVEL DE-NOISING SCHEME FOR EFFECTIVE EXTRACTION OF ENSEMBLE SOLUTION FROM NANO/MICROFLUID SIMULATIONS — ID. 218
Dr Malgorzata Zimon, Dr Robert Prosser, Prof David Emerson

ATOMICALLY CONTROLLED ELECTROCHEMICAL REACTION FOR COST-EFFECTIVE AND HIGH-THROUGHPUT FABRICATION OF NANOPORES IN 2D MATERIALS — ID. 222
Dr Gianpaolo Turri, Prof Aleksandra Radenovic, **Dr Ke Liu**

11:15 Coffee break

11:35 – 12:55	BIO9 –Lab on a chip 7 - Session Chair: Dr. P. Occhetta	Room S.0.2

MICROFLUIDIC DEVICE FOR HIGH THROUGHPUT SPIM ON CHIP — ID. 60
Dr Petra Paiè, Dr Francesca Bragheri, Prof Andrea Bassi, Dr Roberto Osellame

INTEGRATED TEMPERATURE CONTROL SYSTEM FOR MICROFLUIDIC CULTURE OF NEMATODES — ID. 116
Ms Maria Cristina Letizia, Mr Matteo Cornaglia, Prof Martin Gijs

HIGHLY DEFORMABLE HYDROGEL NANOFILAMENTS IN POISEUILLE FLOW — ID. 35
Ms Sylwia Pawłowska, Dr Filippo Pierini

THREAD-BASED MICROFLUIDICS: SPONTANEOUS CAPILLARY FLOW IN HOMOGENEOUS AND HETEROGENEOUS MICROFIBER BUNDLES — ID. 176
Prof Kenneth Brakke, Mr David Gosselin, Dr Erwin Berthier, **Dr Jean Berthier**

11:35 – 12:55	**MP10 – Visualisation/Experimental - Session Chair: Prof. V. Kuznetsov**	**Room S.0.3**

INFLUENCE OF THE SHAPE OF AN ORIFICE ENTRANCE ON THE FLOW PATTERN AND DROPLET DEFORMATION DURING HIGH-PRESSURE HOMOGENISATION — ID. 102
Ms. Ariane Bisten, Prof Heike P Schuchmann

ENERGETIC EFFICIENCY OF MIXING IN A MICRO-FLUIDIZED BED — ID. 80
Dr Vladimir Zivkovic, Ms Nadia Ridge, Prof Mark Biggs

NANOMANIPULATING AND SENSING SINGLE PARTICLES INTERACTIONS WITH COMBINED ATOMIC FORCE MICROSCOPY OPTICAL TWEEZERS (AFM/OT) — ID. 25
Dr Filippo Pierini, Mr Krzysztof Zembrzycki, Dr Paweł Nakielski, Ms Sylwia Pawłowska, Prof Tomasz Aleksander Kowalewski

GOLD NANOPARTICLE SYNTHESIS IN GAS-LIQUID-LIQUID FLOW IN A MICROCHANNEL — ID. 110
Dr Nikolay Cherkasov, Prof Evgeny Rebrov

11:35 – 12:55	**Nanofluids 2 - Session Chair: Prof. F. Inzoli**	**Room S.0.4**

EFFECT OF INLET TEMPERATURE ON CONVECTIVE HEAT TRANSFER OF GAMMA-AL2O3/WATER NANOFLUID IN MICROTUBE — ID. 90
Mr Mehrdad Karimzadehkhouei, Ms Arzu Ozbey, Mr Sarp Akgönül, **Mr Ali Mohammadi**, Dr Kursat Sendur, Prof M. Pinar Menguc, Prof Ali Kosar

COOLING PROCESS OF NANOFLUID IN A CAVITY SUBMITTED TO NON-ISOTHERMAL HEATING — ID. 181
Dr Ismail Arroub, Prof Ahmed Bahlaoui, Prof Abdelghani Raji, Prof Mohamed Hasnaoui, Prof Mohamed Naïmi

CHARACTERISTICS OF FLUID FLOW AND HEAT TRANSFER OF NANOFLUID FLOW IN MICROCHANNELS WITH MICROMIXERS — ID. 16
Prof Mohammad Hemmat Esfe, Prof Wei-Mon Yan, **Mr Chung-Hao Kao**

NANOFLUID FLOW AND HEAT TRANSFER IN BOUNDARY LAYERS AT SMALL NANOPARTICLE VOLUME FRACTION — ID. 26
Prof Joseph Liu, Mr Mark Fuller, Ms Ling Ka Wu, Mr Alexander Czulak, Mr Alexander G. Kithes, Mr Collin J. Felten

12:55 Lunch break

13:40 Keynote lecture (Room De Donato): **Prof. Vladimir V. Kuznetsov**

"Fundamental Issues Related to Flow Boiling and Two-Phase Flow Patterns in Microchannels - Experimental Challenges and Opportunities"

Session Chair: Dr. R. Mereu

14:15 – 15:35	**BIO10 – Applications - Session Chair: Dr. Y. Deng**	**Room S.0.2**

SPONTANEOUS CAPILLARY FLOW LIMIT IN DIVERGING OPEN U-GROOVES AND SUSPENDED CHANNELS — ID. 175

Dr Jean Berthier, Prof Kenneth Brakke, Mr David Gosselin, Dr Fabrice Navarro, Dr Erwin Berthier

DYNAMIC MODELLING OF MICROFLUIDIC NETWORKS USING WAVE DIGITAL FILTERS — ID. 120
Dr Alberto Bernardini, Dr Elena Bianchi, Ms Monica Piergiovanni, Prof Augusto Sarti, Prof Gabriele Dubini

ELECTROOSMOTIC FLOW THROUGH AN A-HEMOLYSIN NANOPORE — ID. 113
Mrs Emma Letizia Bonome, Dr Fabio Cecconi, **Dr Mauro Chinappi**

INTERACTION EFFECTS OF MICRO/NANOPARTICLES ON TARGETED MAGNETIC-PARTICLE DELIVERY IN A BLOOD MICROVESSEL — ID. 105
Prof Huei Chu Weng, Mr Cheng-hung Cheng

14:15 – 15:55 MP11 – Boiling 3 - Session Chair: Prof. S. Garimella — **Room S.0.3**

1-D MODELLING OF THE INFLUENCE OF NUCLEATION FREQUENCY ON PRESSURE FLUCTUATIONS AND FLOW REVERSAL DURING FLOW BOILING IN RECTANGULAR MICRO-CHANNELS — ID. 139
Mr. Mahesh Kurup, **Dr Sateesh Gedupudi**

EVAPORATION AND BOILING IN NARROW GAP — ID. 125
Prof Mitsushiro Matsumoto, Mr Keita Ogawa, Mr Yuichi Yasumoto

EXPERIMENTAL INVESTIGATION OF FLUID FLOW AND HEAT TRANSFER OF FLOW BOILING IN MINICHANNELS AT HIGH REDUCED PRESSURE — ID. 99
Mr Alexander Belyaev, Prof. Alexey Dedov, Prof Alexander Komov, Prof Alexander Varava

PERFORMANCE OF A MICRO SCALE INTEGRATED THERMAL MANAGEMENT SYSTEM — ID. 12
Dr Mohamed Mahmoud, Prof Tassos Karayiannis

EFFECT OF NANOSTRUCTURE IN MICROPOROUS SURFACES ON POOL BOILING AUGMENTATION — ID. 187
Mr Amir MirzaGheytaghi, Dr Hamid Saffari, Prof Guo Qi Zhang

14:15 – 15:35 SP7 - Heat transfer 3 - Session Chair: Prof. D. Mikielewicz — **Room S.0.4**

MEASUREMENT OF THERMAL TRANSPIRATION FLOW THROUGH A MICROTUBE — ID. 147
Dr Jie Chen, **Dr Marcos Rojas-Cardenas**, Dr Lucien Baldas, Prof Stéphane Colin, Dr Christine Barrot

HEAT TRANSFER INTENSIFICATION IN VERTICAL SHELL -AND COIL HEAT EXCHANGERS; EXERGY AND NTU ANALYSIS — ID. 205
Dr Rafał Andrzejczyk, Dr Tomasz Muszynski

FLUID FLOW AND HEAT TRANSFER OF A NON-NEWTONIAN FLUID IN A MICRO -ANNULUS IN THE PRESENCE OF VISCOUS DISSIPATION — ID. 152
Prof Marco Lorenzini, Prof Irene Dapra, Prof Giambattista Scarpi

ELECTROCHEMICAL MODELLING AND SIMULATION OF LITHIUM-ION BATTERY COOLING — ID. 114
Dr Angelo Greco, Prof Xi Jiang

16:00 Conference closure & farewell (Room De Donato)

16:10 Farewell Coffee break