

# MIGRATE 3<sup>rd</sup> International Summer School

## Invited Lecturers

### **Prof. Carlo Massimo Casciola (University of Rome La Sapienza, Italy)**



Carlo Massimo Casciola is full professor of Fluid Dynamics at the University of Rome La Sapienza, Department of Mechanical and Aerospace Engineering, and Senior Fellow of the Sapienza School for Advanced Studies. He was awarded the ERC Advanced Grant 2013, BIC: Following Bubbles from Inception to Collapse, focused on cavitation, heterogeneous nucleation, bubble collapse, bubble-wall interactions, bio-medical applications of cavitation. He is developing a demonstrator for cavitation enhanced endothelial layer permeability based on a blood-vessel-on-chip founded by the ERC PoC Grant 2017, INVICTUS, In Vitro Cavitation Through Ultrasound.

### **Prof. Alina Alexeenko (Purdue University, USA)**



Alina Alexeenko is a Professor of Aeronautics and Astronautics at Purdue University. She received her BS/MS in Math from Novosibirsk State University in 1997/99 and a PhD in Aerospace Engineering from Penn State in 2003 and was a WiSE fellow at the University of Southern California before joining Purdue in 2006. Her research is in micropropulsion, high-altitude aerothermodynamics, microsystems and vacuum technology. She leads research on new MEMS technologies for smallsat and is a founding co-Director of LyoHUB, an industry-university consortium on advanced lyophilization, a vacuum sublimation drying technology widely applied in bio/pharma manufacturing.

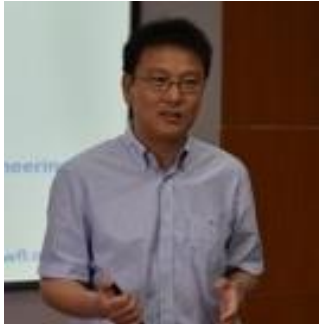
### **Prof. Giampaolo Mistura (Padua University, Italy)**



Giampaolo Mistura received his Master in Physics from Padua University (I) and the PhD in Physics from Penn State University (USA). He then went to the University of Konstanz (D) and to the High Magnetic Field Laboratory in Grenoble (F). Since 1996 he is at the Physics and Astronomy Department of Padua University, where he is currently full professor in Experimental Physics of Matter. His main research interests include microfluidics, soft matter and nanofriction.

## Migrate Network's Lecturers

### **Prof. Yonghao Zhang (University of Strathclyde, United Kingdom)**



Yonghao Zhang (YHZ) is Weir Professor of Thermodynamics and Fluid Mechanics in the Department of Mechanical & Aerospace Engineering at the University of Strathclyde, Glasgow, UK. He leads the James Weir Fluids Laboratory ([www.jwfl.ac.uk](http://www.jwfl.ac.uk)), working on both fundamental research and industrial applications. His expertise is in the fluid dynamics of at the micro/nano scales, which presents an important technological challenge, with long-term research and industrial implications.

### **Dr. ir. Arjan J.H. Frijns (Eindhoven University of Technology, the Netherlands)**



Dr.ir. Arjan J.H. Frijns is appointed in the Energy Technology group (dept. Mechanical Engineering, Eindhoven University of Technology). He is author/co-author of more than 45 journal publications (h-factor 12 on Scopus) and co-chair of the conference series on Non-Equilibrium Gas Flows (NEGF). Key areas of expertise include numerical analysis, gas dynamics, fluid dynamics, micro- and nanofluidics, heat transfer and heat storage. His main interests include fundamental research on heat transfer at the micro-scales, multi-scale modeling (MD, DSMC, hybrid MD-DSMC and CFD) as well as on experimental validation.

### **Dr. ir. Silvia V. Gaastra-Nedea (Eindhoven University of Technology, the Netherlands)**



Dr. ir. Silvia V. Gaastra-Nedea is working in the Energy Technology group, Mechanical Engineering, Technical University Eindhoven. Her expertise is on atomistic simulations of reactive systems and in the application of methods like Density Functional Theory (DFT), Monte Carlo (MC), hybrid DSMC-Molecular Dynamics and Reactive Force Field (ReaxFF) Molecular Dynamics (MD) on heat transfer and heat storage systems. She has a strong background in multiscale modeling and HPC computing. Her expertise on simulations for analysis of gas-surface interactions was used in multiple applications scaling from investigation of heat transfer in micro-nano channels to chemically reactive flows in aerospace applications. These publications had more than 87 citations in scopus. Her expertise on heat storage involved building methodologies for investigating both phase change and thermochemical materials for compact heat storage. She participated in a number of EU projects (SAM.SSA, GASMEMS) and ESA supported projects.

**Dr. David Newport (University of Limerick, Ireland)**

Dr. David Newport is currently a Senior Lecturer at the University of Limerick, with a background in thermofluids centred on thermal management of electronic systems and natural convection heat transfer. At present David's research is focussed on Process and Biomedical applications for microfluidics, with an emphasis on experimental methods. He has a long standing interest in the development of optical metrology techniques for microfluidic flows, in particular interferometry. His current research interests include advection of cell suspensions in microflows, in-vitro models of the blood-brain-barrier, detection of VOCs in air using miniaturized sensors and micro-vascular flows.

**Dr. Pierre Perrier (Aix-Marseille University, France)**

Since 1999, Pierre Perrier is a Research Engineer at the Institut Universitaire des Systèmes Thermiques Industriels (IUSTI, UMR 7343), which is a research laboratory from Aix-Marseille University and the CNRS (National Center for Scientific Research) in Marseille, France. He obtained a Master's Degree in Physics, a Ph.D. degree in Energy and Mechanics and the accreditation to supervise research (HDR) from Aix-Marseille University in 1993, 1998 and 2008, respectively. His research interest concern microfluidic flows at low and high speed, thermal creep flows, imaging & measuring techniques in fluid mechanics, mass spectrometry & ion process, bio-mechanics and fluid structure.

**Dr. Ryan Enright (Nokia Bell Labs, Ireland)**

Dr. Ryan Enright earned his B. Eng. (Hons) and PhD. degrees in Mechanical Engineering from the University of Limerick in 2004 and 2008, respectively. He was a Research Assistant at Bell Labs in Murray Hill, New Jersey from 2005-2007 during his doctoral work. After receiving his PhD., he was a CTVR postdoctoral associate at the University of Limerick from 2008-2009 and a postdoctoral fellow at the Massachusetts Institute of Technology from 2009-2012. He joined Nokia Bell Labs Ireland in 2012 where he is a Senior Member of Technical Staff and currently the technical lead for the Thermally Integrated Photonics Systems (TIPS) program, the High Heat Flux (HHF) program and a Research-in-Residence at the CRANN Institute, Trinity College Dublin. Ryan conducts experimental and theoretical research in the area of micro/nanoscale heat and mass transfer and has a strong interest in applied surface science. Ryan has coauthored more than 25 journal contributions and currently holds seven granted patents with fifteen patents pending. Ryan's research has been honoured with awards including a SFI-funded PhD. fellowship, a 2009 IRCSET Inspire/Marie Curie Mobility Fellowship, two SFI-funded National Access Program awards, and best paper awards at the 2012 ASME International Micro/Nanoscale Heat and Mass Transfer Conference and the 2014 IEEE ITherm Conference.

**Dr. Martin Wüest (INFICON, Balzers, Liechtenstein)**



Martin Wüest is Senior Scientist Sensor Research in the Vacuum Control business unit of INFICON Ltd in Balzers, Liechtenstein. In his function he is involved in research and development of new total pressure sensors ranging from ionization and heat transfer gauges to membrane deflection gauges as well as intellectual property coordinator. He studied physics at the University of Bern, Switzerland, followed by a post-doc in space physics at the Southwest Research Institute in San Antonio, Texas, where he was involved in the design and calibration of space hardware for magnetospheric and planetary missions. He edited a reference monograph on calibration of space particle instruments.

Today he is also involved in vacuum technology standardization in the International Organization for Standardization (ISO), as Chair of the Awards and Scholarship Committee of the International Union for Vacuum Science, Technique and Applications (IUVSTA). He is a Fellow of the AVS society.

**Dr. Michel Delanaye (Mitis SA, Liège, Belgium)**



Michel Delanaye is the founder of MITIS SA, a start-up company located in Liège (Belgium) specialized in the development of clean distributed small cogeneration systems. He holds a PhD in Mechanical Engineering from the University of Liège in the area of Computational Fluid Dynamics with emphasis on aerodynamics. Michel was awarded a Fulbright grant, NATO postdoctoral fellowship and US National Research Council Associate position at NASA Ames Research Council from 1996 to 1999. Michel had positions at NUMECA Int as R&D engineer and general manager at Cenaero. He is also the founder of GeonX SA, a start-up company developing software in the field of virtual

manufacturing, acquired in 2017 by General Electric.

**Prof. Dr.-Ing. habil. Juergen J. Brandner (Karlsruhe Institute of Technology, Germany)**



Prof. Dr.-Ing. habil. Juergen J. Brandner, born 1967.

Studies in Chemistry at University of Heidelberg and Electrical Engineering at Technical University of Karlsruhe. PhD in Mechanical Engineering at the Technical University of Karlsruhe. Habilitation in Micro Process Engineering at Technical University of Dresden. Professor at Technical University of Dresden.

Prof. Brandner received the Linde-Award 2009 of Technical University of Dresden (Best Habilitation Thesis) as well as the NEULAND Innovation Award of KIT in 2014, 2015 and 2016. He is working in microstructure devices for about 20 years now, currently being head of the Microstructures and Process

Sensors Group at Institute of Microstructure Technology of Karlsruhe Institute of Technology (KIT). He provides lectures in Micro Process Engineering at Technical University of Dresden, Miniaturized Heat Exchanger Devices at Karlsruhe Institute of Technology and, as a visiting professor, in Micro Process Engineering at the East China University of Science and Technology, Shanghai, as well as at Tsinghua University in Beijing, China. He is author or co-author of about 360 publications in international journals and international conferences as well as contributing to 12 textbooks.