

International Symposium on Thermal Effects in Gas flows in Microscale ISTEGIM 2019 - A MIGRATE event

Keynote Lecturers

Prof. Alina Alexeenko (Purdue University, USA)



Alina Alexeenko is a Professor of Aeronautical and Astronautical Engineering at Purdue University. Her research is in computational and experimental studies of rarefied gas flow phenomena occurring in both high-altitude flight, such as smallsat propulsion, spacecraft contamination, plume interactions, high-altitude aerothermodynamics, in emerging technologies, such as micro-electro-mechanical systems for space communications and micropropulsion, and in vacuum manufacturing processes. Broadening applications of rarefied gas dynamics is one of her long-term research goals. Alexeenko's group at Purdue has developed fast computational algorithms and solvers for the deterministic solution of rarefied flow problems. Such new techniques are especially useful in studying low-speed and/or unsteady flows and have allowed her group to address several challenging problems, such as aerodynamic damping in MEMS devices and shock wave propagation in microscale geometries. Additionally, her research has led to novel microdevice concepts that exploit unique microscale, rarefied flow physics for gas sensing and smallsat propulsion. Prof. Alexeenko received a B.S. in Mathematics from Novosibirsk State University in 1997, an M.S. in Applied Mathematics from Novosibirsk State University in 1999, and a Ph.D. in Aerospace Engineering from Penn State in 2003. During 2004-2006, she was a research consultant for the Air Force Research Laboratory at Edwards Air Force Base and a postdoctoral scholar in the Aerospace and Mechanical Engineering Department at the University of Southern California. Prof. Alexeenko became Assistant Professor at Purdue University in 2006 and was promoted to Associate Professor in 2012 and Full Professor in 2016. In 2014, she founded the Advanced Lyophilization Technology Consortium (LyoHUB). Prof. Alexeenko has served on the International Advisory Committee of the Rarefied Gas Dynamics Symposium since 2016 and as Chair of the AIAA Thermophysics Technical Committee during 2016-2018. Professor Alexeenko has authored 80+ journal articles, 110+ conference papers, 3 book chapters, and 5 patent applications.

Dr. Michel Delanaye (MITIS SA, Belgium)



Michel Delanaye is founder and CEO of MITIS SA, a Belgian start-up active in the development of innovative microCHP systems. He received his B/MS and PhD in Mechanical Engineering from University of Liège, Belgium in 1997. He was awarded a Fulbright, NATO and later NRC fellowship as a postdoctoral researcher at NASA Ames Research Center, USA. He held positions as technical leaders in start-ups and general manager of an aerospace research center. In 2012, he founded two start-ups MITIS and GeonX. The latter was successfully acquired by General Electric in 2017 for its advanced simulation capabilities in metal additive manufacturing. Now, he is full time managing and developing MITIS products in the field of micro combined heat and power based on small microturbines for industrial and residential sectors.

Dr. Mikhael Bechelany (CNRS/European Institute of Membranes, France)



Mikhael Bechelany (born in March 1979) obtained his PhD in Materials Chemistry from the University of Lyon (France) in 2006. His PhD work was devoted to the synthesis and characterization of silicon and boron based 1D nanostructures (nanotubes, nanowires and nanocables). Then, he worked as a post-doc at EMPA (Switzerland). His research included the fabrication of nanomaterials (nanoparticles and nanowires), their organization and their nanomanipulation for applications in different field such as photovoltaic, robotic, chemical and bio-sensing. In 2010, he became a Scientist at CNRS. His current research interest in the European Institute of Membranes (UMR CNRS 5635) in Montpellier (France) focuses on novel synthesis methods for metals and ceramics nanomaterials like Atomic Layer Deposition (ALD), electrospinning and/or on the nanostructuring using nanospheres lithography, Graphene and Graphene like materials. His research efforts include the design of nanostructured membranes for health, environmental and renewable energy applications.

Prof. Dr. Jens Anders, (University of Stuttgart, Germany)



Jens Anders received the master's degree from the University of Michigan in 2005, the Dipl.-Ing. degree from the Leibniz University Hannover in 2007, and the Ph.D. degree from the École polytechnique fédérale de Lausanne in 2011.

From 2013 to 2017, he was an Assistant Professor of biomedical integrated sensors with the Institute of Microelectronics at the University of Ulm. He is currently a Full Professor and the Director of the Institute of Smart Sensors at the University of Stuttgart.

Dr. Anders has authored or co-authored several books and book chapters as well as approximately 100 journal and conference papers.

His current research interests include dynamic systems' modeling and circuit design for sensing applications in various fields including materials science, nondestructive testing, quality control, biomedical applications and quantum sensing.

Dr. Anders served as a Program Committee Member of the IEEE Sensors, ESSCIRC and ESSDERC conferences. He received the 2003 President's Award of the Leibniz University of Hannover, the 2006 Best Thesis Award of the VDE Chapter Hannover, the E.ON Future Award 2007, the VDE ITG ISS Study Award 2008, the VDE ITG Outstanding Publication Award 2012, the ICBME 2008 Outstanding Paper Award, and the IEEE Sensors 2017 Best Live Demo Award.

Prof. Dr. Matthias Rädle (Mannheim University of Applied Sciences, Germany)



Matthias Rädle is a Professor of Measurement and Control and Physics at Mannheim University of Applied Sciences where he also serves as Head of the Institute for Process Measurement and Innovative Energy Systems and Deputy Head of the Center for Mass Spectrometry and Optical Spectroscopy. He received his Diploma in Physics from Kaiserslautern University in 1984 and received his doctorate in Experimental Physics from Kaiserslautern University in 1988. For 13 years he worked with BASF in the development of sensor technology and was head of the development group in the field of fertilizers. In 2001 he joined Mannheim University of Applied Sciences. Dr. Rädle's research is in sensor technology and process spectroscopy, specializing in the development of optical, fiber optic, spectroscopic and image analysis equipment in the UV, VIS, NIR, MIR, fluorescence and Raman. He has authored over 130 journal and conference papers and is a co-inventor on 73 patents. Dr. Rädle has been collaborating broadly with industry on design and improvement of optical equipment and processes since 2001 and is a Deputy Director of the Institute for Medical Technology of the University Heidelberg and Mannheim University of Applied Sciences.

Peter Doyle (Brussels Photonics Team (B-PHOT), Vrije Universiteit Brussel (VUB), Belgium)



Peter Doyle acts as a Central Business Coach for the ACTPHAST initiative (www.actphast.eu), which is the EU photonics innovation incubator for companies and researchers, based out of the Brussels Photonics Team (B-PHOT) at the Vrije Universiteit Brussel (VUB). Since launching in November 2013, ACTPHAST has provided photonics innovation support to over 120 European companies, mostly SMEs, as well as European researchers from academic institutes, across more than 10 application domains helping to accelerate new product launches and generating nearly 1BN€ in new company revenues, 100M€ in new venture capital funding and 1000 new jobs.

Peter not only acts as a business coach to innovators, but is also an entrepreneur himself. He has been a co-founder, board member and senior executive in a number of start-ups in Semiconductors, Cybersecurity, Communications, MedTech and Renewables, including a successful IPO on the London Stock Exchange and the NASDAQ in New York reaching a peak valuation of \$10bn, and continues to play an active role in advising and collaborating with founders on new ventures.

Peter is based in Brussels and Dublin, where he originally graduated from University College Dublin with a first class honours degree in International Commerce.