19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

Monday, June 19 2023				
Short Course on Multiphase Flows				
Time		Lecturer	Affiliation	Title
11:00	12:30	Registration		
12:30	12:40	T. Höhne	Helmholtz-Zentrum Dresden-Rossendorf, Germany	General Information
12:40	12:50	G. Gerbeth	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Welcome
12:50	13:50	G. Scheuerer	ISimQ GmbH, Warngau, Germany	Lecture 1: Mathematical Models for Multiphase Flows: Overview & Basic Equations
13:50	14:10	Break with Coffee, Tea & Beverages		
14:10	15:10	G. Scheuerer	ISimQ GmbH, Warngau, Germany	Lecture 2: Lagrangian Two-Phase Flow Modelling
15:10	15:30	Break with Coffee, Tea & Beverages		
15:30	16:30	R. Rzehak	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 3: Euler-Euler Modelling of Disperse Flows
16:30	16:50	Break with Coffee, Tea & Beverages		
16:50	17:50	U. Hampel	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 4: Measurement Techniques and Experimental Investigations for Multiphase Flows
18:00		Transfer to Dresden		

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

Tuesday, June 20 2023				
Short Course on Multiphase Flows				
Time		**Lecturer**	**Affiliation**	**Title**
08:30	09:00	**Registration**		
09:00	10:00	M. Peric	Siemens, Germany	Lecture 5: Modelling of free-surface flows with focus on the VOF Method
10:00	10:20	**Break with Coffee, Tea & Beverages**		
10:20	11:20	M. Peric	Siemens, Germany	Lecture 6: Interfacial Heat and Mass Transfer Models
11:20	11:40	**Break with Coffee, Tea & Beverages**		
11:40	12:40	R. Rzehak	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 7: Poly-Disperse Bubbly Flows & Chemical Reaction
12:40	12:45	**Group Photo**		
12:45	13:45	**Lunch**		
13:45	14:45	T. Höhne	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 8: Multiscale Multiphase Flow Modelling - AIAD & GENTOP
14:45	15:05	**Break with Coffee, Tea & Beverages**		
15:05	16:05	H. Hessenkemper	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 9: Optical measurement techniques in bubbly flows: From pattern recognition with neuronal networks to 3D liquid flow fields with Tomographic PIV
16:05	16:25	**Break with Coffee, Tea & Beverages**		
16:25	17:25	F. Schlegel	HZDR Germany / OpenFOAM foundation, UK	Lecture 10: A Morphology Adaptive Multifield Two-Fluid Model
17:25	17:45	All	Discussion, Questions & Answers	
18:00		**Transfer to Dresden**		
19:00		**Short Course Dinner @ Restaurant "Wenzel"**		

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

Wednesday, June 21 2023			
Short Course on Multiphase Flows - Code Capablities & Experimental (Parallel Sessions)			
Time		**Lecturer**	**Affiliation**	**Title**
Code capabilties part			
Plenum			
09:00	09:35	Amine Ben Hadj Ali	ANSYS Germany	Lecture 11: Multiphase Flow Features in ANSYS: Model Transition Journey
09:35	10:10	C. Santarelli	Siemens Germany	Lecture 12: Multiphase Flow Capabilities in Simcenter STAR-CCM+
10:10	10:45	F. Schlegel	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 13: Multiphase Developments with OpenFOAM Foundation Software
10:45	**11:00**	**Break with Coffee, Tea & Beverages**		
Parallel Sessions			
11:00	12:00	Henning Eickenbusch	ANSYS Germany	Lecture 14: Meet the Specialists from ANSYS
11:00	12:00	C. Santarelli & F. Klippel	Siemens Germany	Lecture 15: Simcenter STAR-CCM+ demonstration
11:00	12:00	F. Schlegel	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Lecture 16: BarCamp - OpenFOAM in Industry & in Academia
Experimental part			
09:00	12:00	E. Schleicher & A. Bieberle	Helmholtz-Zentrum Dresden-Rossendorf, Germany	Interactive Seminar on the Application of Two-Phase Flow Measuring Techniques - Wire-Mesh Sensors & Gamma CT
12:00	**13:00**	**Lunch**		

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

12:30	13:00	Registration Conference		
		Wednesday, June 21 2023 - Multiphase Flow Conference - Session 1		
Chair:		T. Höhne	Helmholtz-Zentrum Dresden-Rossendorf	
Time		**Presenter**	**Affiliation**	**Title**
13:00	13:10	D. Lucas	Helmholtz-Zentrum Dresden-Rossendorf	Welcome
13:10	13:35	E. Frederix	NRG Petten, The Netherlands	Extension of the two-fluid model to bubble size distribution moment velocities
13:35	14:00	I.A. Bolotnov	North Carolina State University, USA	Machine-learning accelerated interface-capturing simulations for engineering-scale applications
14:00	14:25	B. Tiedemann	Dresden University	Computational Study on Particle-Bubble Collision in Flotation Under Gravity
14:25	14:50	G. Giamagas	University of Undine, Italy	Interaction between capillary waves and hydrodynamic turbulence in a two-layer oil-water flow
14:50	15:15	M. Colombo	University of Sheffield, UK	Implementation of a high-order algebraic interface reconstruction method for multiphase flow simulations in the DNS code CHAPSim2
15:15	15:45	Coffee, Tea & Beverages		
		Multiphase Flow Conference - Session 2		
Chair:		A. Ali	ANSYS Germany	
Time		**Presenter**	**Affiliation**	**Title**
15:45	16:10	M. Zednikova	ICPF.CAS, Prague, Czech Republic	Interaction of bubble with the vortex-ring in the presence of surfactant
16:10	16:35	J. A. Murillo Rincon	University of Bologna, Italy	Experimental and computational study of a continuous gas-liquid inline separator
16:35	17:00	L. Rousseau	University of Tours, France	Fall of a sphere into a liquid-solid suspension of variable concentration
17:00	18:00	Visit of the Experimental Facilities @ Institute of Fluid Dynamics		
18:00		Transfer to Dresden		

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

Thursday, June 22 2023				
Multiphase Flow Conference - Session 3				
Chair:		**R. Rzehak**	**Helmholtz-Zentrum Dresden-Rossendorf**	
Time		**Presenter**	**Affiliation**	**Title**
09:00	09:45	R. Ni	Johns Hopkins University, USA	Keynote: Deformation and breakup of bubbles in turbulence by small eddies
09:45	10:10	S. Raut	TU Dublin, Ireland	Philic and Phobic Behaviour of an Evaporating Sessile Droplet on a Heated Substrate
10:10	10:35	A. Quintino	NTNU, Norway	Development of a hybrid gas-liquid pipe flow model to predict pressure gradient with uncertainty – A machine learning approach
10:35	**10:55**	**Coffee, Tea & Beverages**		
Multiphase Flow Conference - Session 4				
Chair:		**C. Santarelli**	**Siemens, Germany**	
Time		**Presenter**	**Affiliation**	**Title**
10:55	11:20	B. Peters	University of Luxembourg	A Transient And Highly Resolving Multiphase Approach For Blast Furnaces Based On The XDEM Technology
11:20	11:45	J. E. Olsen	SINTEF, Norway	Drainage of two immiscible liquids through a particle bed
11:45	12:10	E. Ruiz-Gutierrez	Newcastle University, UK	Modelling capillary forces in the Volume-of-Fluid method for three or more phases
12:10	**12:15**	**Group Photo**		

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

12:15	13:15	Lunch		
Multiphase Flow Conference - Session 5				
Chair:		I. Tiselj	JSI Ljubljana, Slowenia	
Time		**Presenter**	**Affiliation**	**Title**
13:15	13:40	S. Shabani	Silesian University of Technology, Gliwice, Poland	The search for the most suitable CFD software and method in prediction of the steam condensing flows
13:40	14:05	G. Tagliavini	PSI, Switzerland	Interface-resolving CFD approach for boiling phenomena on unstructured grids
14:05	14:30	C. Marchioli	University of Udine, Italy	Dynamics of slender flexible fibers in turbulent channel flow
14:30	16:00	Poster Session with Coffee, Tea & Beverages - Votes for the Best Poster Award - see Poster list		
Multiphase Flow Conference - Session 6				
Chair:		Y. Liao	Helmholtz-Zentrum Dresden-Rossendorf	
16:00	16:25	F. Bürkle	Dresden University	Investigation of the flow inside a Taylor bubble in a tube with a short constriction
16:25	16:50	J. Kuhnert	ITWM Frauenhofer	MESHFREE numerical modelling of liquid-liquid multiphase flows
16:50	17:15	M. Kassemi	NCSER & NASA Glenn Research Center, USA	Validation of Two-Phase CFD Models Developed for Simulation of Propellant Storage and Transfer Operations on Ground and in Microgravity
17:15	17:40	T. Gianfelice	Ruhr University Bochum	Numerical Modeling of Degassing for a Cavitating Nozzle Flow
17:40	18:05	R. Forehand	University of Central Florida, USA	Hypersonic Shock-Raindrop Interaction: Understanding the Role of Cavitation in High-Speed Droplet Fragmentation
18:10		Transfer to Dresden		
19:00		Conference Dinner @ Restaurant "Augustiner"		

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

Friday, June 23 2023				
Multiphase Flow Conference - Session 7				
Chair:		F. Schlegel	Helmholtz-Zentrum Dresden-Rossendorf	
Time		**Presenter**	**Affiliation**	**Title**
09:00	09:45	I. Tiselj	JSI Ljubljana, Slowenia	Keynote: Stagnant Taylor bubble experiments in vertical counter-current flow"
09:45	10:10	S. Burgmann	University Wuppertal	Phase-averaged three-dimensional flow measurements inside an oscillating drop
10:10	10:35	H. Bhatia	IFP Energies nouvelles, France	Effect of Impurities on Condensation of Supercritical Carbon Dioxide in a de Laval nozzle using a Real Fluid Model
10:35	11:00	H. K. Baust	Karlsruhe Institute of Technology	The development of a digital twin for solid bowl centrifuges: potentials of digitalization and multiscale modeling
11:00	11:25	A. Soldati	TU-Wien, Austria	Heat transfer in drop-laden turbulent channel flow
11:25	**11:45**	**Coffee, Tea, Snacks & Beverages**		
Multiphase Flow Conference - Session 8				
Chair:		D. Lucas	Helmholtz-Zentrum Dresden-Rossendorf	
Time		**Presenter**	**Affiliation**	**Title**
11:45	12:10	P. Neofytou	NCSR Demokritos, Greece	Computational assessment of emergency ammonia underwater discharge to seawater from a platform supply vessel
12:10	12:35	M. Abdelsayed	University of Bundeswehr Munich	A parametric study on the effect of inflow turbulence on primary atomization of liquid jets
12:35	13:00	L. Nagel	Robert Bosch GmbH, Renningen	An Artificial Viscosity Model for Reducing Parasitic Currents in VoF Simulation of Lab-on-Chip Components
13:00	13:25	X. Zhang	K1-MET GmbH Linz, Austria	VOF method combined with dynamic overset grids to study particle-steel/slag interface interactions in inclusion removal process
13:25	**13:30**	**Closure**		

Poster - Best poster will be selected by the participants		
A. Düll	Karlsruhe Institute of Technology	Experimental and numerical investigation of the influence of surface structure modifications on the hydrodynamics of a falling film absorber
A. Iberl	University of the Bundeswehr Munich	Numerical Investigation of Gas Bubble Behavior for Pool Scrubbing in Nuclear Reactors using the Volume-of-Fluid Method
A. Skrypnik	Helmholtz-Zentrum Dresden - Rossendorf	Neutron radiography of bubble layering and liquid drainage in aqueous foam
B. Blau	Hochschule Trier	Water-in-gasoline emulsion droplet size distributions: Comparison of experimental and numerical results
B.-C. Kim	University of Ulsan, South Korea	Uncertainty Quantification for the Drag Reduction of Microbubble-laden Fluid Flow in a Horizontal Channel
Ch. Georgiadis	Université catholique de Louvain, Belgium	Towards pore-resolved multiphase simulations of electrolyte-bubble flow through 3D electrodes for alkaline water electrolysis.
Ch. Sun	Shanghai Nuclear Engineering Research and Design Institute, China	Analysis of Vapor-Liquid Two-Phase Flow with Eulerian Two-Phase Flow Module in SCFD
E. Bicer	FNC Technology, Gyeonggi-do, South Korea	Estimation of Turbulence Parameters in Pool Scrubbing Conditions
F. Schlegel	Helmholtz-Zentrum Dresden - Rossendorf	A Morphology-Adaptive Multifield Two-Fluid Model: Recent developments and applications
H. F. Hosen	NTNU, Norway	Experiment and simulation on single bubble rising in non-Newtonian fluids: effect of fluid rheology on bubble hydrodynamic
H. Rox	Dresden University	Bubble growth on laser micro structured nickel electrodes in alkaline water electrolysis
I. Batayneh	Royal Institute of Technology, Stockholm, Sweden	Modeling Of Triggering and Steam Explosion Pressure Propagation with Validation Against KROTOS Experiments
I. Charmchi	University of Gent, Belgium	Optimization of continuous spin freezing in single vial unit by implementing computational fluid dynamics: Solidification modeling and simulation
J. Alvarez	Unicamp, Campinas, Brazil	On the role of turbulent flow in the binary interaction of barchans
J. Sun	Beijing Jiaotong University, China	Experimental Study on the Contact Angle Characteristics of Silicon Surface Peak-like Microstructure
J. Tihon	ICPF.CAS, Prague, Czech Republic	Rise velocity of Taylor bubbles in inclined channels.
L. Knüpfer	Helmholtz-Zentrum Dresden - Rossendorf	An experimental study on radial bubble size variations in polydisperse foams with an invasive sampling method
M.-S. Kim	Korea Maritime and Ocean University, South Korea	Multiphase and Multidimensional Modeling of Fuel-Coolant Interaction in Nuclear Reactor Severe Accident

19th Multiphase Flow Conference and Short Course:
Simulation, Experiment and Application
Dresden, June 19-23 2023

Poster - Best poster will be selected by the participants		
M. Falsafioon	Natural Resources Canada, Quebec, Canada	CFD Modeling of Transcritical CO2 Ejectors by means of Homogeneous Binary Mixture Model
P. Porombka	Helmholtz-Zentrum Dresden - Rossendorf	Euler-Euler simulation of multi-regime two-phase flow with thin liquid films
P. Neofytou	NCSR Demokritos, Greece	Simulation of medical nanoparticle deposition in an in-vitro setup
R. Höhn	Universitat Rovira i Virgili, Spain	Experimental Analysis of Three-phase Gas-Liquid-Solid Intermittent Flows in Vertical Pipelines
R. Ramesh	TU Delft, The Netherlands	Creating lumped models for fluidized bed gasifiers using CFD
S. A. Mohammed	University of Zakho, Iraq	Enhanced Void Fraction Determination for Two phase Oil-Gas Flow Using Nonintrusive Techniques and Artificial Neural Network
S. Hänsch	Helmholtz-Zentrum Dresden - Rossendorf	The sustainable development of closure models for bubbly flows
S. V. Kethanur Balasubramaniam	Virginia Polytechnic Institute and State University, USA	Analysis of Instabilities in Cavitating Flows from High Frequency PIV Data
T. Ma	Helmholtz-Zentrum Dresden - Rossendorf	Fate of bubble clusters and their rise velocities in a quiescent liquid
T. Wacławczyk	Warsaw University of Technology, Poland	On differences between deterministic and statistical models of the interphase region
T. Zürner	Helmholtz-Zentrum Dresden - Rossendorf	Bubble generation by a plunging jet in the column of a pressurised pneumatic flotation cell
V. Habiyaremye	NRG Petten, The Netherlands	Comparison of population balance models for polydisperse bubbly flow in horizontal and vertical pipe flows
V. Oliveira	Unicamp, Campinas, Brazil	Interfacial Oscillations in Bidisperse Beds
V. Tholan	Dresden University	Comparison of measured gas fraction with theoretical approach (Drift Flux model) within a Reflux Flotation cell
Y. Han	Helmholtz-Zentrum Dresden - Rossendorf	Interfacial effects at gas bubbles growing at microelectrodes
Y. Li	Beijing Jiaotong University, China	Experimental study of the two-phase flow regimes and thermal performance of vapor chamber
Z. Zhou	Royal Institute of Technology, Stockholm, Sweden	Numerical study of the interface behavior during submerged gas injection