

GLS-15 TECHNICAL PROGRAM as of 8/7/2022

SESSION COLOR LEGEND
Applications of Multiphase Contactors/Novel Configuration and Intensification in Multiphase Contactors
Experimental and Numerical Techniques in Multiphase Contactors
Fundamentals in Multiphase Contactors

Monday, August 8, 2022

7:30 AM - 5:00 PM	Registration
9:15-9:30 AM	Welcome words (co-chairs)
CRX C307	
9:30-10:00 AM	<u>(VIRTUAL) Effect of Particle Aspect Ratio and Orientation on the Particle-Scale Liquid Spreading in Packed Beds, Aniket Ambekar - CRX C307</u>
10:00-10:20 AM	<u>(VIRTUAL) Effects of the Downcomer Hydrodynamics on the Drift Flux in a Reflux Flotation Cell, Brady Wright - CRX C307</u>
10:20-10:40 AM	<u>(VIRTUAL) Investigation of Gas/Liquid Flow Behavior in a Multiphase Plug Flow Reactor in Peroxone Process for Water Treatment, Yanxia Xu - CRX C307</u>
CRX C308	
9:30-10:00 AM	<u>(VIRTUAL) H2 Mass Transfer – Key Factor for Efficient Biological Methanation: Comparison between Pilot-Scale Experimental Data, 1D Model and CFD Model, Vincent Ngu - CRX C308</u>
10:00-10:20 AM	<u>(VIRTUAL) Bubble-induced turbulence in CFD simulation of bubble columns: BIT-SIT coupling, Jiachen Liu - CRX C308</u>
10:20-10:40 AM	<u>(VIRTUAL) Dpm-Vof Simulations of a Bubble Plume Rising in Two Immiscible Liquids, Sayantan Biswas - CRX C308</u>
CRX C309	
9:30-10:00 AM	<u>(VIRTUAL) Recent Advances in the Hydrochlorination of Glycerol, Ananias Medina - CRX C309</u>
10:00-10:20 AM	<u>(VIRTUAL) Characterization of Viscous Gas-Liquid & Gas-Liquid-Solid Flows in a Slurry Reactor with Varying Liquid Viscosity, Vimal Kumar - CRX C309</u>
10:20-10:40 AM	<u>Heat Transfer with Single- and Dual-Gas Distribution in a Pressurized Bubble Column, Keon Bae - CRX C309</u>

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10:40-11:10 AM	Coffee break - CRX C100 Lobby
CRX C307	
11:10-11:30 AM	<u>(VIRTUAL) Role of Slag Layer in Liquid-Phase Mixing in a Basic Oxygen Furnace (BOF): Cold Flow Measurements and Eulerian Multifluid Simulations</u> , Sayantana Biswas - CRX C307
11:30-11:50 AM	<u>Advanced Oxidation Processes at Ambient Conditions for Olive Oil Extraction Industry Wastewater Degradation</u> , Eva Domingues - CRX C307
11:50 AM - 12:10 PM	<u>Gas-Liquid Cylindrical Cyclone Used As a Flash Separation Device to Improve Methane Recovery in Hpw's for Biogas Upgrading</u> , Eliot Wantz - CRX C307
12:10-12:30 PM	<u>Investigation of Marangoni Convection Near Bubbles Generated at Different Electrodes</u> , Aled Meulenbroek - CRX C307
CRX C308	
11:10-11:30 AM	<u>(VIRTUAL) Effect of Particle Shape and Liquid Properties on Local Liquid Distribution in a Trickle Bed</u> , Devesh Saxena - CRX C308
11:30-11:50 AM	<u>(VIRTUAL) A Rational Approach to Design Bioreactors for Large-Scale Plant Cell Cultivations</u> , M. Vidya Muthulakshmi - CRX C308
11:50 AM - 12:10 PM	<u>Gas-Liquid Mass Transfer Around a Taylor Bubble during the Formation and Flowing Stage in a Square Flow-Focusing Milli-Channel</u> , Nicolas Dietrich - CRX C308
12:10-12:30 PM	<u>CFD Modeling of Polydispersed Two-Phase Flow Through a Bubble Cap Distributor</u> , Jonathan Totten - CRX C308
CRX C309	
11:10-11:30 AM	<u>The Effect of <i>Alcanivorax Borkumensis</i> SK2, a Hydrocarbon-Metabolising Organism, on Gas Holdup in a 4-Phase Bubble Column Bioprocess</u> , Ayman Abufalgha - CRX C309
11:30-11:50 AM	<u>(VIRTUAL) Wetting Study of a Trickle Bed Reactor</u> , Arvin Tavanaei - CRX C309
11:50 AM - 12:10 PM	<u>(VIRTUAL) Bubble Dynamics and Bubble Interaction Effects on Bubbly Flows with Mass Transfer Using Euler/Lagrange Modeling Approach</u> , Manuel Alejandro Taborda Ceballos - CRX C309
12:10-12:30 PM	<u>An Enhanced Dgd Approach for Estimating Bubble Size Distributions in Microbubble-Aerated Contaminated Systems</u> , Rong Leng - CRX C309
12:30-2:00 PM	Lunch - University Centre

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CRX C307	
2:00-2:30 PM	Effect of pH on Gas-Liquid Mass Transfer in an Oscillatory Flow Reactor , José Antonio Couto Teixeira - CRX C307
2:30-2:50 PM	Ultrasound Resonance to Intensify Gas-Liquid Processes in Microreactors , Simon Kuhn - CRX C307
2:50-3:10 PM	Investigation of Hydrogen Bubble Growth in Alkaline Water Electrolysis Using an Immersed Boundary Method , Niels Deen - CRX C307
3:10-3:30 PM	Methanol Synthesis Via CO₂ Hydrogenation in a Slurry Reactor Using In₂O₃-Based Catalysts , Dominic Pjontek - CRX C307
CRX C308	
2:00-2:30 PM	Assessment of the Flow Modulation Technique for Measuring Axial Liquid Dispersion Coefficients in Trickle-Bed Reactors , Sara Marchini - CRX C308
2:30-2:50 PM	Numerical and Experimental Investigation of Fluidized Bed Drying , Martijn De Munck - CRX C308
2:50-3:10 PM	(VIRTUAL) Numerical Simulation of Bioleaching Pond Reactors Coupling CFD and Heat Balance Modelling , Douglas Pino-Herrera - CRX C308
3:10-3:30 PM	Numerical Studies of the Hydrodynamic Characteristics in Hollow Bubble Columns , Glen Cletus DSouza - CRX C308
CRX C309	
2:00-2:30 PM	Analysis of Particle Interaction with Rigid and Mobile Deformed Single Bubbles , Martin Sommerfeld - CRX C309
2:30-2:50 PM	Calculation of Temperature Change (global warming) By Considering the Entire Earth As a Gas-Liquid-Solid (atmosphere-ocean-land, respectively) System , Dimitre Karamanev - CRX C309
2:50-3:10 PM	(VIRTUAL) Hydrodynamic Interaction of a Collection of a Periodic Array of Elliptical Particles in Shear Flow with Limited Mobility , Rahul Venkata Ramaraju - CRX C309
3:10-3:30 PM	Two-Step Fatty Acid Esters Conversion to Cyclic Carbonates Using Heterogeneous Catalyst and Semi-Batch Reactor Technology , Tapio Salmi - CRX C309
3:30-4:00 PM	Coffee break - CRX C100 Lobby
CRX C307	
4:00-4:20 PM	(VIRTUAL) Computational Fluid Dynamic Analysis of a Continuous Bioreactor with Spiroid , Thomas R. Hanley - CRX307
4:20-4:40 PM	(VIRTUAL) Main Transition Velocities in Bubble Columns Based on a New Reconstruction Method from the Information Entropy Theory , Stoyan Nedeltchev - CRX307

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4:40-5:00 PM	(VIRTUAL) Latest Developments in Both Flow Regime Identification and Mass Transfer in Bubble Columns: Review , Stoyan Nedeltchev - CRX307
5:00-5:20 PM	Advancing multiphase absorption-reactive crystallization processes for accelerated carbon transformations and CO2-sourced hydrometallurgy , Greeshma Gadikota - CRX307
CRX C308	
4:00-4:20 PM	Networking Break
4:20-4:40 PM	Effect of Liquid Surface Tension on Hydrodynamic and Oxygen Mass Transfer in a Square Bubble Column Using LES , Diego R. González Weiberlen - CRX308
4:40-5:00 PM	(VIRTUAL) Two-Phase Dynamics of an Industrial-Scale Distillation Tray Obtained Via Advanced Multiplex Flow Profiler , Vineet Vishwakarma - CRX308
5:00-5:20 PM	Validation of a New Method for Taylor Flow Characterization in a Monolith Using a 84-Channel Resistive Sensor , Murilo Ricardo Do Nascimento Arrais - CRX308

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Tuesday, August 9, 2022

7:30 AM - 4:00 PM

Registration

8:15-9:15 AM

Plenary lecture.

[\(VIRTUAL\) Multiscale Modelling & Simulations of Multiphase Flows: Applications to Packed Bed Reactors](#), **Vivek Buwa** - CRX C140

CRX C307

9:30-10:00 AM

[\(VIRTUAL\) Development of Novel Gas-Liquid-Solid Reactor System for Enhanced Pco2 Swing Carbon Mineralization with Controlled Mass Transfer](#), **Guanhe Rim** - CRX C307

10:00-10:20 AM

[Hydrodynamics and Mass Transfer Characteristics of Gas-Liquid Flow in Micropacked Bed Reactors: Effect of Contact Angle](#), **Hongbin Wang** - CRX C307

10:20-10:40 AM

[\(VIRTUAL\) Numerical Study of Liquid-Liquid Two-Phase Flow through Coiled Flow Inverters: Effect of Volume Fraction, Dean Number and Orientation](#), **Vimal Kumar** - CRX C307

CRX C308

9:30-10:00 AM

[\(VIRTUAL\) Multi-Fluid Eulerian Simulation of Combined Size and Density Varying Binary Mixtures in an Inclined Channel: Influence of Particle Density Difference](#), **Priyabrata Puhan** - CRX C308

10:00-10:20 AM

[\(VIRTUAL\) Eulerian Multi-Fluid Simulations of Gas Volume Fraction Fluctuations in Dense Gas-Liquid Flow in Bubble Columns](#), **Sujata Sen** - CRX C308

10:20-10:40 AM

[Effect of Particle-Wall and Particle-Particle Contact on Heat Transfer Analysis through Particle-Resolved CFD Simulation](#), **Ankita Kumari** - CRX C308

CRX C309

9:30-10:00 AM

[\(VIRTUAL\) Influence of the Gas Phase on Hydrodynamics in a Stirred Tank Under Anaerobic Dark Fermentation Conditions](#), **Zaineb Trad** - CRX C309

10:00-10:20 AM

[A Comparison of Hydrodynamics and Structure in Random Spherical and Cylindrical Packed Beds](#), **Amirhossein Eghbalmanesh** - CRX C309

10:20-10:40 AM

[Transient Investigation of the Carbon Chain Length and Molecule Structure Effect over the Epoxidation of Light Olefins over TS-1 Catalyst on a Trickle Bed Reactor](#), **Matias Alvear** - CRX C309

10:40-11:10 AM

Coffee break - CRX C100 Lobby

CRX C307

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11:10-11:30 AM	Recovery of Acidic Gases from Gas Mixture By Hydrate Technology , Ankita Kumari - CRX C307
11:30-11:50 AM	(VIRTUAL) Dynamic Modeling of Trickle Bed Reactor: Case Study of Arabinose Oxidation , Mouad Hachhach - CRX C307
11:50 AM - 12:10 PM	(VIRTUAL) Process Intensification Using Microreactor for CO2 Absorption in Aqueous Amine Solutions , Anchu Ashok - CRX C307
12:10-12:30 PM	(VIRTUAL) Semi-Hydrogenation of Pd-Immobilized MOF Catalyst in a Packed Bed Microreactor , Anchu Ashok - CRX C307
CRX C308	
11:10-11:30 AM	(VIRTUAL) Support Vector Regression Models for Slurry Bubble Column Reactor , Manoj Kumar Beriya - CRX C308
11:30-11:50 AM	(VIRTUAL) Effect of Particle Shape on the Structure of Packed Bed Packed Using Different Loading Techniques , Aashna Suneja - CRX C308
11:50 AM - 12:10 PM	Eulerian Simulations of Local Liquid Distribution in a Trickle Bed: Effect of Particle Shape and Physical Properties , Rohit Singh Gulia - CRX C308
12:10-12:30 PM	Detailed Investigation of Different Diffusion Models for Reactive Catalytic Systems in Isolated Particles and Slender Packed Beds , Claire Claassen - CRX C308
CRX C309	
11:10-11:30 AM	The Effect of Bubble Approach Velocity and Liquid Properties on Coalescence of Bubbles , Sandra Orvalho - CRX C309
11:30-11:50 AM	Extension of Stochastic Collision Approach for Non-Spherical Particles in Three-Phase Flows , Martin Sommerfeld - CRX C309
11:50 AM - 12:10 PM	Aupd Catalysts for the Direct Synthesis of Hydrogen Peroxide in a Trickle Bed Reactor and Advanced in-Situ ftir Spectroscopy , Christoph Schmidt - CRX C309
12:10-12:30 PM	Modeling of the Calcium Carbonate Phase Transformation in Reverse Emulsion from Amorphous CaCO3 to Calcite , Jean Tallon - CRX C309
12:30-2:00 PM	Lunch - University Centre
CRX C307	
2:00-2:30 PM	Ultrafine Bubble Generation By Rapid Condensation of Mixed Vapor of Non-Condensable Gas and Steam , Koichi Terasaka - CRX C307
2:30-2:50 PM	Experimental and numerical investigation of bulk bubble nucleation in supersaturation conditions , Ivo Roghair - CRX C307

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2:50-3:10 PM	Hydrodynamic and Mass Transport Approach for Aluminum Open Cell Foams in Reactive Distillation , Laura Reyes - CRX C309
3:10-3:30 PM	Effect of Interfacial Characteristics on the Gas Holdup and Flow Regimes Encountered in Microbubble-Aerated Columns , Adel Al Taweel - CRX C307
CRX C308	
2:00-2:30 PM	Experimental and CFD Study of Mass Transfer in Gas-Liquid-Solid Catalytic Reactors: From 3D-Printed Milli-Reactor to Trickle-Bed Reactors , Yacine Haroun - CRX C308
2:30-2:50 PM	(VIRTUAL) Bioleaching Pond Technology Upscaling for the Reprocessing of a Sulfidic Polymetallic Mining Residue , Douglas Pino-Herrera - CRX C308
2:50-3:10 PM	Applying Mode Analysis for Morphology Dependent Evaluation of Particle Scale Averaged Diffusion-Reaction in Porous Media , David Rieder - CRX C308
3:10-3:30 PM	Improving FCC Reactor Cyclone Performance Using Computational Modeling , Scott Golczynski - CRX C308
CRX C309	
2:00-2:30 PM	Three-Dimensional Experimental Investigation of the Motion of an Elongated Bubbles in a 1° Inclined Pipe in Water , Alain Liné - CRX C309
2:30-2:50 PM	(VIRTUAL) Numerical Study of Pressure Drop inside a Spherical Packed Bed: A Comparison of the Pore Network Model and a Immersed Boundary Method , Ali Fathiganjehlou - CRX C309
2:50-3:10 PM	Direct Numerical Simulation of the Dynamics of Freely Interacting Solid Particles in a Hele-Shaw Cell , Shashank S. Tiwari - CRX C309
3:10-3:30 PM	(VIRTUAL) CFD Modelling of in-Flight Collision Outcomes over a Wide Range of Weber Numbers in a Single Droplet-Particle System of Near Unity Size Ratios , Subhasish Mitra - CRX C309
3:30-3:45 PM	Coffee break - CRX C100 Lobby
3:45-4:30 PM	Plenary lecture. On the use of multiphase flow imaging techniques in process engineering applications , Uwe Hampel - CRX C140
4:30-5:30 PM	Rest/Personal Time
5:30-6:15 PM	Transfer to Museum
6:15-9:00 PM	GLS 15 Banquet Dinner and Awards Ceremony

GLS-15 TECHNICAL PROGRAM as of 8/7/2022

Wednesday, August 10, 2022

**7:30 AM -
12:00 PM**

Registration

8:15-8:25 AM

Presentation for GLS16, **Uwe Hampel** - CRX C140

8:25-9:25 AM

Plenary lecture, **L-S Fan** - CRX C140

CRX C307

9:40-10:00 AM

[Application of MP-PIC Method to Ebullated Bed Reactors](#), **Peter Blaser** - CRX307

10:00-10:20
AM

[Modelling of a Complex Multiphase System in Semibatch Reactor: Epoxidation of Fatty Acids in the Presence of Solid Catalysts](#), **Tapio Salmi** - CRX C307

10:20-10:40
AM

[\(VIRTUAL\) The Clustering Behavior in a Riser Unit in a CFD-DEM Simulation: The Effect of Collision Model](#), **Juan Ramirez Hernandez** - CRX C307

CRX C308

9:40-10:00 AM

[\(VIRTUAL\) Dynamics of Particle-Scale Liquid Distribution in Trickle Beds: Measurements and Volume-of-Fluid Simulations](#), **Rohit Singh Gulia** - CRX C308

10:00-10:20
AM

[\(VIRTUAL\) Bubble-induced turbulence in CFD simulation of bubble columns of different diameter](#), **Jiachen Liu** - CRX C308

10:20-10:40
AM

[\(VIRTUAL\) Eulerian Simulations of Mono- & Poly-Dispersed Liquid-Solid Flow through a Horizontal Slurry Pipe](#), **Prantik Das** - CRX C308

CRX C309

9:40-10:00 AM

[\(VIRTUAL\) Bubble Size Distribution in a Bubble Column with Internals: Experiments and CFD-PBM Simulations](#), **Xiaoping Guan** - CRX C309

10:00-10:20
AM

[\(VIRTUAL\) Experimental Study on Inter-Bubble Distances in Dense Bubbly Flows](#), **Ragna Kipping** - CRX C309

10:20-10:40
AM

[Numerical Investigation of the Primary Atomization Process of a Laminar Liquid Jet in a Gas Media](#), **Cristina García Llamas** - CRX C309

**10:40-11:10
AM**

Coffee break - CRX C100 Lobby

11:10 AM -
12:30 PM

IP Strategy and Commercialization - CRX C140

12:30-2:00 PM

Lunch - University Centre