DECHEMA

VDI

PROGRAMME

25 – 28 September 2022
HYPERION-Hotel · Berlin/D

4th International Symposium on Multiscale Multiphase Process Engineering (MMPE)

www.dechema.de/mmpe2022

ProcessNet
EINE INITIATIVE VON DECHEMA UND VDI-GVC

GENERAL INFORMATION

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COMMITTEE

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SPONSORS

EXHIBITORS

PROGRAMME

Sunday, 25 September 2022 — 18.00 – 20.00

Welcome Reception

Tuesday, 27 September 2022 — 19.30 – 23.30

Banquet

The banquet will take place at the "Spreespeicher". This unique location at Berlin`s Eastern Harbour is a historic granary where temporary design meets industrial charm. A shuttle bus will depart from the conference hotel (HYPERION Hotel) to the Banquet at 18:45. However, you are also welcome to arrive individually.

Address:
Spreespeicher Eventlocation
Stralauer Allee 2
10245 Berlin

(Banquet is included in the registration fee.)

Wednesday, 28 September 2022 — 11.00 – 14.00

Sight Seeing Tour by Ship and Farewell

2.5 hour city tour of historic and modern Berlin via Spree, canals and harbors.
We will start at 10:00 at the HYPERION Hotel and take public transport to the pier "Friedrichstraße / Reichtagsufer". Of course you can also arrive there individually. The ship departs at 11:00 and ends at the same place at 14:00. After the boat trip, we will also take you back to the hotel together. So you can leave your luggage comfortably in the hotel during the boat trip.

Adress of the pier:
Reichstagufer 18, 10117 Berlin

(Sightseeing Tour is included in the registration fee.)

As of 9 September 2022
Subject to alterations. Submission title and authors information as given by the authors.
No proof by DECHEMA.

PROGRAMME

Sunday, 25 September 2022

17:00	*Registration at HYPERION Hotel*
18:00	*Welcome Reception*

Monday, 26 September 2022

08:30	**Opening Remarks** Session Chair: M. Kraume, TU Berlin/D & M. Ohta, Tokushima University/J
	KEYNOTE LECTURE
08:40	**On Some Challenges in Bubble Dynamics Modeling** A. Tomiyama[1],[1] Kobe University, Kobe/J
	Multiphase Flows
09:20	Experimental investigation of the hydrodynamics in a three-phase bubble column A. Sommer[1]; J. Schmidtpeter[1]; H. Hessenkemper[1]; R. Rzehak[1]; M. Draw[1]; K. Eckert[1], [1] Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden/D
09:40	**Role of acoustic bubbles in ultrasonic degreasing** K. Ando[1], [1] Keio University, Yokohama/J
10:00	**Surfactant effect on bubble-induced turbulence** T. Ma[1]; H. Hessenkemper[1]; D. Lucas[1]; A. Bragg[2], [1] Helmholtz-Zentrum Dresden -Rossendorf (HZDR), Dresden/D; [2] Duke University, Durham/USA
10:20	**COFFEE BREAK**
	Fundamentals & Fine Bubbles
10:40	**Batch generation of ultrafine bubbles in water by rapid condensation of steam and gas mixture** K. Terasaka[1]; T. Tetsuka[2]; K. Taguchi[2]; S. Fujioka[1], [1] Keio University, Yokohama/J; [2] Graduate School of Keio University, Yokohama/J
11:00	**Direct measurement of the internal pressure of ultrafine bubble using radioactive nuclei** M. Tanigaki[1]; T. Yamakura[2]; D. Hayashi[2]; Y. Ueda[3]; A. Taniguchi[4]; Y. Tokuda[5]; Y. Ohkubo[4] [1] Kyoto University, Kumatori, Osaka/J; [2] Kyoto University, Kyoto/J; [3] Kyoto University, Uji/J; [4] Kyoto University, Kumatori/J; [5] Shiga University, Ohtsu/J
11:20	**Optical evaluation for ultrafine bubble cleaning of contamination in a flow channel** D. Niehaus[1]; E. Fujita[2]; M. Schlüter[1]; K. Terasaka[3] [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] Graduate School of Keio University, Yokohama/J; [3] Keio University, Yokohama/J
11:40	**Electrical properties of CO_2 Ultra Fine Bubble Water** Y. Ueda[1]; S. Ozeki[2]; T. Okuda[3]; Y. Tokuda[4];[1] Kyoto University, Kyoto/J; [2] KyotoUniversity, Kyoto/J; [3] Ryukoku University, Shiga/J; [4] Shiga University, Shiga/J
12:00	**Pressure drop of single bubble in Taylor flows through square microchannels** R. Kurimoto[1]; K. Hayashi[1]; A. Tomiyama[1]; [1] Kobe University, Kobe/J
12:20	**On the local influence of surface active agents on mass transfer from gas bubbles** D. Bothe[1]; A. Tomiyama[2]; [1] Technische Universität Darmstadt, Darmstadt/D; [2] Kobe University, Kobe/J
12:40	**LUNCH BREAK**

PROGRAMME

Monday, 26 September 2022

13:40	**Poster 3-min Presentations P-01 - P-27**
15:20	**COFFEE BREAK**
	Emulsions
15:40	**Elucidation of ultrasonic emulsification phenomena through direct observation and three-phase multiphase flow simulation** T. Yamamoto[1]; S. Komarov[1]; [1] Tohoku university, Sendai/J
16:00	**Multiphase mass transfer in reactive microemulsion systems** L. Böhm[1]; M. Petzold[1]; M. Kraume[1]; [1] Technische Universität Berlin, Berlin/D
16:20	**Dynamics of polymer solution droplet on high temperature surface** H. Masuda[1]; K. Wada[1]; S. Okumura[1]; H. Iyota[1]; [1] Osaka Metropolitan University, Osaka/J
16:40	**Kinematics of the liquid film lamella in two-component drop impact** B. Stumpf[1]; I. Roisman[1]; C. Tropea[1]; J. Hussong[1]; [1] Technische Universität Darmstadt, Darmstadt/D
17:00	*Poster Party with Beer & Pretzel, Industrial Exhibition*
18:30	*Closing*

PROGRAMME

Tuesday, 27 September 2022

	KEYNOTE LECTURE
08:30	**How HPC and AI are changing the investigation of polydisperse multiphase flows: a multiscale modelling perspective** D. Marchisio; Politecnico di Torino/IT
	Computational Fluid Dynamics - Particle Flows
09:10	**Direct numerical simulation of particles, rigid and flexible fibers interacting with a drop** G. Lecrivain[1]; U. Hampel[1]; R. Yamamoto[2]; T. Taniguchi[2]; [1] Helmholtz-Zentrum Dresden-Rossendorf, Dresden/D; [2] Kyoto University, Kyoto/J
09:30	**Population balance modeling for crystal growth of L-glutamic acid in an oscillatory baffle crystallizer** T. Horie[1]; J. Tanigawa[2]; A. Manaka[3]; Y. Komoda[2]; N. Ohmura[2]; [1] Osaka Metropolitan University, Osaka/J; [2] Kobe University, Hyogo/J; [3] Shionogi & Co., Ltd., Osaka/J
09:50	**High-resolution numerical simulation of particulate flow permeating through fibrous filter obtained from X-ray CT images** T. Ishigami[1]; [1] Hiroshima University, Higashi-Hiroshima/J
10:10	**Collision rates of small solid particles with rigid deformed bubbles in laminar flow and possible adhesion** M. Sommerfeld[1]; M. Taborda[1]; [1] Otto-von-Guericke-Universität Magdeburg, Halle (Saale)/D
10:30	**COFFEE BREAK**
	Computational Fluid Dynamics-Bubble Columns
10:50	**Large eddy simulation of bubble column bubbly flows by considering sub-grid scale turbulent dispersion added mass stress effect on modulating bubble transport** S. Long[1]; X. Yang[1]; J. Yang[2]; X. Huang[3]; W. Shi[4]; M. Sommerfeld[5]; [1] University of Nottingham Ningbo China, Ningbo/CN; [2] University of Hull, Hull/UK; [3] Wrexham Glyndŵr University , Wrexham/UK; [4] Huaqiao University, Xiamen/CN; [5] Otto-von-Guericke-Universität Magdeburg, Halle/D
11:10	**CFD prediction of mixing and mass transfer characteristics of bioreactors using a Lattice-Boltzmann approach** J. Thomas[1]; J. Wutz[2]; [1] M-Star Simulations, LLC, Ellicott City/USA; [2] M-Star Center Europe GmbH, Sargstedt/D
11:30	**Bubble plume hydrodynamics: comparison of Eulerian simulations to experiments** A. Liné[1]; [1] Toulouse University, Toulouse/F
11:50	**Modelling turbulent free-surface flows with an Eulerian approach considering size distribution** T. Eppinger[1]; [1] Siemens Industry Software GmbH, Nürnberg/D
12:10	**New Powerful Method for Flow Regime Identification in Bubble Columns Based On State-of-the-Art Measurements** S. Nedeltchev[1]; F. Mörs[2]; A. Mühlbauer[3]; M. Hlawitschka[4]; F. Graf[2]; T. Kolb[2]; H. Bart[3] [1] Polish Academy of Sciences, Gliwice/PL; [2] Karlsruhe Institute of Technology, Karlsruhe/D; [3] TU Kaiserslautern, Kaiserslautern/D; [4] Johannes Kepler Universität Linz, Linz/A
12:30	**CFD-based compartment modelling of multiphase reactors** R. Schröder[1]; S. Schwarz[1]; C. Theßeling[1]; M. Grünewald[1]; [1] Ruhr-Universität Bochum, Bochum/D
12:50	**LUNCH BREAK**

PROGRAMME

Tuesday, 27 September 2022

	KEYNOTE LECTURE
13:50	**Gas-liquid flow-induced characteristics of dispersed synthetic bioparticles** M. Yoshimoto; Yamaguchi University, J
	Liquid Flows
14:30	**Effect of various operating conditions on the internal circulation of liquid-liquid slug flows** S. Fujioka[1]; T. Tetsuka[2]; A. Hirata[1]; K. Terasaka[1]; [1] Keio University, Yokohama/J; [2] Graduate School of Keio University, Yokohama/J
14:50	**Impact of aluminum particles on drop size distributions and phase separation in liquid/liquid systems** L. Hohl[1]; S. Röhl[1]; M. Kraume[1]; [1] Technische Universität Berlin, Berlin/D
15:10	**Does bubble cascade form only in stout beer?** T. Watamura[1]; K. Sugiyama[2]; Y. Yotsumoto[3]; M. Suzuki[3]; H. Wakabayashi[3] [1] Kyoto Institute of Technology, Sakyo-ku, Kyoto/J; [2] Osaka University, Osaka/J; [3] Kirin Holdings Co. Ltd., Yokohama/J
15:30	**COFFEE BREAK**
15:50	**Poster 3-min Presentations P-28 - P-57**
17:30	*Posters & Industrial Exhibition*
18:45	*Transfer to Banquet by Shuttle Bus*
19:30	*Banquet "Spreespeicher"*
23:30	*Shuttle bus back to HYPERION Hotel*

Wednesday, 28 September 2022

10:00	*Transfer by public transport „from Hotel to pier"*
11:00	*Shipping Tour as Farewell*
14:00	*Return trip to Hotel*
14:30	*International collaborations and exchanges (Participation is optional)*
15:30	*End of conference*

POSTER PROGRAMME

	Fundamentals including hydrodynamics and mass and heat transfer properties
P-01	**On the nature and formation of microlayer evaporation with ethanol-water mixture on a superheated solid substrate** K. Sinha[1]; K. Schweikert[1]; A. Sielaff[1]; P. Stephan[1]; [1] Technische Thermodynamik, TU Darmstadt, Darmstadt/D
P-02	**Particle plume settling in a still water tank** T. Zürner[1]; D. De Souza[2]; C. Toupoint[2]; D. Mezouane[2]; R. Monchaux[2] [1] Helmholtz-Zentrum Dresden-Rossendorf, Dresden/D; [2] ENSTA Paris, Institut Polytechnique de Paris, Palaiseau/F
P-03	**Condensation of water on PDMS-coated surfaces** T. Pfeiffer[1]; M. Kappl[2]; H. Butt[2]; P. Stephan[1]; T. Gambaryan-Roisman[1]; [1] TU Darmstadt, Darmstadt/D; [2] Max Planck Institute for Polymer Research, Mainz/D
P-04	**The influence of surfactant transfer on transport processes and interfacial phenomena in disperse multiphase systems** J. Schulz[1]; L. Böhm[1]; M. Kraume[1]; [1] Technische Universität Berlin, Berlin/D
P-05	**Influence of electro-osmotic flow on motion of microbubbles under an electric field** A. Murakami[1]; T. Sugiura[1]; [1] Keio University, Yokohama/J
P-06	**An Experimental Study of the Bubble Velocity Discontinuity in Viscoelastic Liquids** S. Yokoyama[1]; H. Yamaki[1]; M. Ohta[1], [1] Tokushima University, Tokushima/J
P-07	**Determination of volumetric mass transfer coefficient kLa by means of pressure step method in an aerated stirred tank reactor** I. Haase[1]; L. Hübenbecker[1]; J. Fitschen[1]; S. Orvalho[2]; M. Zednikova[2]; M. Schlüter[1] [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] University of Chemistry and Technology, Prag/CZ
P-08	**Unique bubble shape under pressure-oscillating field** K. Yurikusa[1]; R. Nagumo[2]; S. Iwata[1]; T. Takahashi[3]; [1] Nagoya Institute of Technology, Nagoya/J; [2] Nagoya Institute of technology, Nagoya/J; [3] Nagaoka University of Technology, Nagaoka/J
P-09	**Experimental investigation on pool boiling of ethanolwater mixtures in a wide pressure range on a smooth copper surface** Y. Xanthopoulou[1]; [1] Technical University Darmstadt, Darmstadt /D
P-10	**Hydrodynamics and heat transfer during spreading, imbibition and evaporation of drops on nanofiber coatings** M. Heinz[1]; P. Stephan[1]; T. Gambaryan-Roisman[1]; [1] Technische Universität Darmstadt, Darmstadt/D
P-11	**Bubbly flows in a vertical pipe with horizontal oscillation** K. Hayashi[1]; H. Kato[1]; N. Yoshida[1]; R. Kurimoto[1]; A. Tomiyama[1]; [1] Kobe University, Kobe/J

POSTER PROGRAMME

	Advanced measurement and experimental techniques
P-12	**Evaluation of mixing characteristic of static mixers by flow visualization techniques** T. Saeki[1]; A. Kaide[2]; K. Watanabe[3]; [1] Yamaguchi University, Ube-city, Yamaguchi-pref./J; [2] Yamaguchi University, Ube-city, Yamaguchi-Prefecture, Japan/J; [3] Yamaguchi University, Ube-city/J
P-13	**Spatially resolved measurement of concentration and temperature fields using Schlieren technique** H. Junne[1]; [1] Technische Univeristät Berlin, Berlin/D
P-14	**Comparison of different fouling sensors for in-line tracking of deposit formation during continuous emulsion polymerisation of vinyl acetate copolymers** S. Rust[1]; M. Klippert[1]; W. Pauer[1]; M. Osenberg[2]; E. Spoor[3]; T. Teumer[3]; [1] Hamburg University, Hamburg/D; [2] Ruhr-Universität Bochum, Bochum/D; [3] Hochschule Mannheim, Mannheim/D
P-15	**Study on spinning behavior of organogelator: PMDA-R** A. Kaide[1]; T. Saeki[1]; T. Ishida[1]; [1] Yamaguchi University, Ube-city, Yamaguchi-Prefecture, Japan/J
P-17	**Using ultrasound for characterizing overflowing froth** L. Knüpfer[1]; H. Emmerich[2]; L. Büttner[2]; J. Czarske[2]; K. Eckert[1]; S. Heitkam[1]; [1] Helmholtz-Zentrum Dresden-Rossendorf, Dresden/D; [2] TU Dresden, Dresden/D
P-18	**Algorithm to analyse the bubble size and form distribution of partially overlapping bubbles** J. Görgen[1]; J. Hartwig[1]; J. Chocholek[1]; G. Krekel[1]; M. Ulbricht[2]; [1] Hochschule Niederrhein, Krefeld/D; [2] Universität Duisburg-Essen, Essen/D
P-19	**Elongated bubble in slightly inclined pipe : comparison of DNS simulation to experiments** A. Liné[1]; [1] Toulouse University, Toulouse/F
P-20	**Continuous measurement of rheological properties of non-Newtonian food fluids by using a pressure difference** N. Ikeda[1]; A. Kimoto[1]; S. Fujioka[2]; K. Terasaka[2]; [1] Graduate School of Keio University, Yokohama-shi/J; [2] Keio University, Yokohama-shi/J
P-21	**Experimental and Numerical Determination of Lifelines in a 3 L, 200 L and 15000 L Stirred Tank Reactor to Estimate the Flow-Following Capability of Lagrangian Sensor Particles** S. Hofmann[1]; C. Weiland[1]; P. GopalSingh[1]; M. Kamp[1]; J. Fitschen[1]; A. von Kameke[2]; M. Hoffmann[1]; M. Schlüter[1]; [1] Hamburg University of Technology (TUHH), Hamburg/D; [2] Hamburg University of Applied Sciences, Hamburg/D

POSTER PROGRAMME

Computational fluid dynamics (CFD) and simulation

P-22 **Improvement of Simple CLSVOF Method in the Full Eulerian Framework**
N. Shimada[1]; [1] Sumitomo Chemical Co. Ltd., Ehime, Japan/J

P-23 **POD-based Characterization of Mixing Mechanism in a Tote Blender**
Q. SHI[1]; M. SAKAI[1]; [1] The University of Tokyo, Tokyo/J

P-24 **A dusty gas approach for electrostatic precipitation of monodisperse aerosols using One-Dimensional Turbulence**
J. Medina[1]; C. Bacher[1]; H. Schmidt[1]; U. Riebel[1]; [1] BTU Cottbus - Senftenberg, Cottbus/D

P-25 **Reynolds stress budgets in homogeneous bubble-laden flow**
B. Ott[1]; H. Hessenkemper[2]; T. Ma[2]; J. Fröhlich[1]; [1] TU Dresden, Dresden/D; [2] Helmholtz-Zentrum Dresden -Rossendorf (HZDR), Dresden/D

P-26 **Rotationally symmetric interaction of an impinging drop with a thin wall film of the same liquid – proposal of a benchmark case**
M. Bagheri[1]; B. Stumpf[1]; I. Roisman[1]; C. Tropea[1]; J. Hussong[1]; M. Wörner[2]; H. Marschall[1]
[1] Technische Universität Darmstadt, Darmstadt/D; [2] Karlsruher Institut für Technologie (KIT), Karlsruhe/D

P-27 **A Computational Study of Drop Deformation and Breakup in Viscoelastic Simple Shear Flows**
S. Nakashima[1]; M. Ohta[1]; M. Sussman[2]; [1] Tokushima University, Tokushima/J; [2] Florida State University, Tallahassee/USA

Micro- and nano-dispersion systems, microreactors and nanotechnology

P-28 **Novel capillary-wave micro-bioreactor with innovative vertical mixing technique and full process monitoring via optical sensors**
K. Viebrock[1]; L. Frey[1]; D. Rasch[1]; S. Meinen[1]; D. Rabl[2]; T. Mayr[2]; A. Dietzel[1]; R. Krull[1]
[1] Braunschweig University of Technology, Braunschweig/D; [2] Graz University of Technology, Graz/A

P-29 **Effects of Temperature and Superficial Gas Velocity on the Stability of Pre- or Post-PEGylated Liposomes in a Bubble Column**
M. Yoshimoto[1]; M. Iwasaki[1]; [1] Yamaguchi University, Ube/J

P-30 **Sol-gel Transition-based Production and Morphology Control of Collagen Tubes Assisted by Laminar-flow Microfluidic System**
M. Takagi[1]; K. Momiyama[1]; M. Yamada[1]; R. Utoh[1]; M. Seki[1]; [1] Chiba University, Chiba/J

P-30.1 **Tandem Acoustic Emulsification Process for Preparation of Polystyrene Particles**
D. Kobayashi; A. Kawashima; Tokyo Denki University/J

Multiphase reaction, catalytic reaction engineering and bioreactors

P-31 **Selective Catalytic Conversion of 5-HMF to Diols or Triols**
B. Pomeroy[1]; B. Likozar[1]; M. Grilc[1]; [1] National Institute of Chemistry, Ljubljana/SLO

P-32 **Hydeoxygenation of palmitic acid over NiMoS/Al2O3 catalyst - kinetics and transport**
M. Žula[1]; M. Grilc[1]; B. Likozar[1]; [1] Kemijski inštitut, Ljubljana/SLO

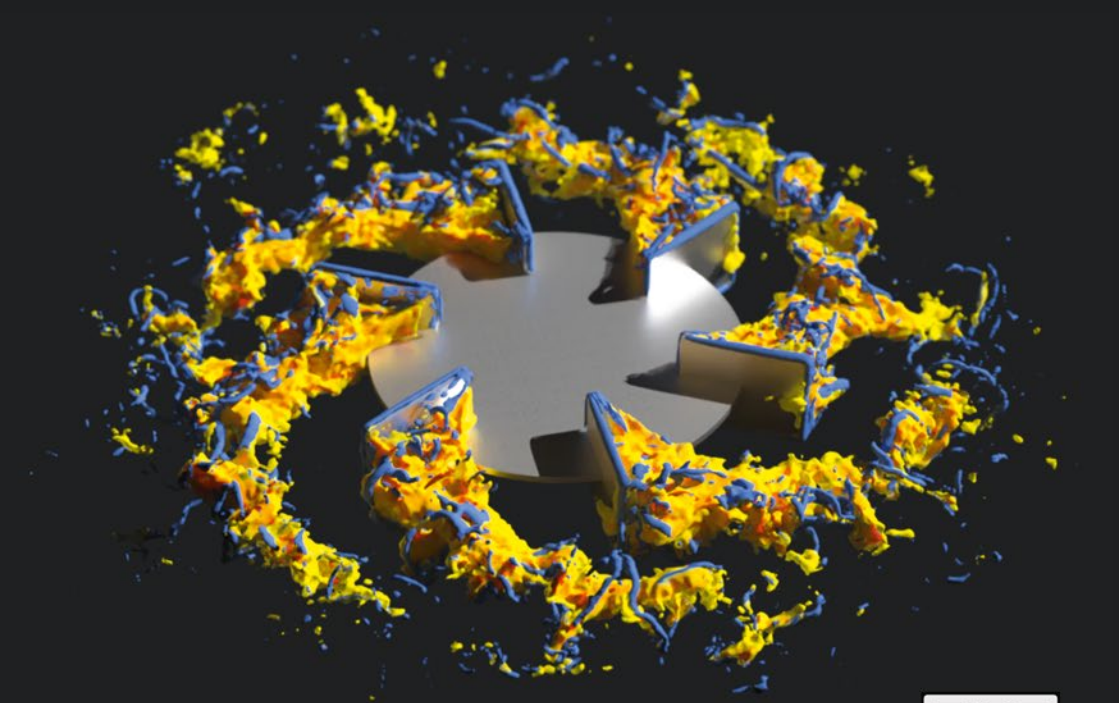
P-33 **Applications of a fully sensor-equipped 3D-printed micro bubble column reactor in biopharmaceutics and biocatalysis**
G. Schultz[1]; L. Frey[1]; D. Vorländer[1]; D. Rasch[1]; G. Wehinger[2]; T. Mayr[3]; J. Bahnemann[4]; R. Krull[1]; [1] TU Braunschweig, Braunschweig/D; [2] TU Clausthal, Clausthal-Zellerfeld/D; [3] TU Graz, Graz/A; [4] Leibniz Universität Hannover, Hannover/D

P-34 **A Multiscale Approach for Fast and Accurate Simulation of CO2 Capture Processes Applying Reactive Transport at Boundary Layer**
S. Hirohama[1]; R. Cos[1]; J. Steimel[1]; J. Kattapuram[1]; I. Boys[1]; C. Smith[1]; C. Depew[1]; A. Bansal[1]; [1] AVEVA Group plc, Cambridge/UK

POSTER PROGRAMME

P-35	**Difference in interfacial chemisorption on calcite and vaterite** S. Yamanaka[1]; R. Sasamoto[1]; Y. Kanda[1]; [1] Muroran Institute of Technology, Muroran/J
P-36	**Unsteady Mass Transfer in Bubble Wakes Analyzed by Lagrangian Coherent Structures in a Flat-Bed Reactor** L. Kursula[1]; F. Kexel[1]; M. Hoffmann[1]; M. Schlüter[1]; A. von Kameke[2]; [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] Hamburg University of Applied Sciences, Hamburg/D
P-37	**Influence of Taylor Bubble Shapes on Wake Structures** F. Kexel[1]; T. Merbach[1]; A. von Kameke[2]; M. Hoffmann[1]; A. Tomiyama[3]; M. Schlüter[1]; [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] Hamburg University of Applied Sciences, Hamburg/D; [3] Kobe University, Kobe/J
P-38	**Biocatalytic gas/liquid-reactions in a capillary reactor setup for process development** J. Surkamp[1]; T. Eroglu[1]; P. Stork[1]; T. Pyka[1]; N. Kockmann[1], [1] TU Dortmund, Dortmund/D
	Multiphase flow aspects of bubble columns, extraction columns, loop reactors, fluidized beds
P-40	**Local Hydrodynamics in Bubble Column – Measurements Based on Optical Needle Probe** F. Mörs[1]; F. Graf[1]; T. Kolb[1]; [1] Karlsruhe Institute of Technology, Karlsruhe/D
P-41	**Dynamics of bubble cutting by interaction with a solid cylinder** M. Börnhorst[1]; T. Homan[2]; P. Rohlfs[1]; N. Deen[2]; M. Wörner[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [2] Eindhoven University of Technology (TU/e), Eindhoven/NL
P-42	**Effect of surfactant-related lift force modifications in bubble columns** H. Hessenkemper[1]; D. Lucas[1]; [1] Helmholtz-Zentrum Dresden -Rossendorf (HZDR), Dresden/D
P-43	**A comparison of liquid-liquid separation in a continuous gravity settler using orifice plates or a stirring tank for initial dispersion** S. Ye[1]; L. Hohl[1]; M. Kraume[1]; [1] Technical University of Berlin, Berlin/D
P-44	**Hydrodynamics of sub- millimetric bubbles on an inclined channel in counter flow condition** V. Tholan[1]; A. Sommer[1]; P. Shi[1]; S. Heitkam[2]; K. Eckert[3]; [1] Helmholtz-Zentrum Dresden -Rossendorf (HZDR), Dresden/D; [2] Technische Universität Dresden, Dresden/D; [3] Helmholtz-Zentrum Dresden -Rossendorf (HZDR) and Technische Universität Dresden, Dresden/D
P-45	**Effect of Buble Dynamics and Liquid Viscosity in Reactive Bubble Columns** M. Taborda[1]; P. Kováts[2]; A. Dreher[2]; K. Zähringer[2]; M. Sommerfeld[1]; [1] Otto-von-Guericke-Universität Magdeburg, Halle (Saale)/D; [2] Otto-von-Guericke-Universität, Magdeburg/D
P-46	**New Unified Concept for the Prediction of the Mass Transfer Coefficients in Both Homogeneous and Heterogeneous Bubble Columns** S. Nedeltchev[1]; [1] Polish Academy of Sciences, Gliwice/PL

	Applications including innovative reactor design, novel reactor configurations and advanced energy and environmental systems
P-47	**Prediction of oscillation occurrence in a horizontal cylindrical vessel** Y. Kanai[1]; Y. Yoshizuru[1]; K. Suzukawa[1]; [1] FUKUOKA University, Fukuoka/J
P-49	**Dynamics of near-wall laser-induced bubbles in gelatin gel** T. Miyano[1]; K. Ando[1]; [1] Keio University, Yokohama/J
P-50	**Synthesis of silica fine particles using liquid-liquid slug flow in a mini channel** M. Iwasaki[1]; S. Fujioka[2]; K. Terasaka[2]; [1] Graduate School of Keio University, Yokohama/J; [2] Keio University, Yokohama/J
P-51	**Continuous crystallization of glycine using milli-scale gas liquid slug flow** D. Nomoto[1]; S. Fujioka[2]; K. Terasaka[2]; [1] Graduate School of Keio University, Yokohama/J; [2] Keio University, Yokohama/J
P-52	**Effect of Inside Surface Baffle on Suspension of Floating Solid Particles** H. Furukawa[1]; Y. Mabuchi[1]; T. Ota[1]; Y. Kato[1]; [1] Nagoya Institute of Technology, Gokiso, Showa-ku, Nagoya/J
P-54	**Detailed characterization of a 2000 L single-use bioreactor based on a transparent twin** V. Bernemann[1]; M. Leupold[2]; J. Fitschen[1]; M. Schlüter[1] [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] Sartorius AG, Göttingen/D
	Fine bubbles
P-55	**Ultrafine bubble concentrating in residual water by evaporation or slow-progressive freezing** M. Ishimaru[1]; K. Terasaka[2]; S. Fujioka[2]; [1] Graduate School of Keio University, Yokohama/J; [2] Keio University, Yokohama/J
P-56	**Continuous generation of ultrafine bubble water by rapid condensation of steam and non-condensable gas mixture** K. Taguchi[1]; K. Terasaka[2]; S. Fujioka[2]; [1] Graduate School of Keio University, Yokohama/J; [2] Keio University, Yokohama/J
P-57	**Effect of Viscosity on Microbubble Generation from a Horizontally Vibrating Nozzle** R. Asada[1]; S. Fujioka[2]; K. Terasaka[2]; [1] Graduate School of Keio University, Yokohama/J; [2] Keio University, Yokohama/J
	Last minute posters
P-58	**Bubble breakup after interaction with the vortex-ring in the presence of surfactants** M. Zednikova[1]; T. Semlerová[1]; J. Tihon[1]; S. Orvalho[1] [1] Institute of Chemical Process Fundamentals of the CAS, Prague/CZ
P-59	**Kinetics of hydrogen adsorption and desorption on platinum catalyst** Ž. Lavrič[1]; A. Zamljen[1]; M. Grilc[1] [1] National Institute of Chemistry, Ljubljana/SLO
P-60	**Effect of viscosity on bubble column hydrodynamics – a multiscale investigation** S. Orvalho[1]; M. Zednikova[1]; P. Basarova[2] [1] Institute of Chemical Process Fundamentals of the CAS, Prague/CZ; [2] University of Chemical Technology, Prague/CZ
P-61	**Dispersion of Viscoelastic Fluids in Porous Structures: An Experimental and Computational Investigation** A. Kyrloglou[1]; U. Fritsching[1] [1]Leibniz-Institut für Werkstofforientierte Technologien - IWT / Universität Bremen/D
P-62	**Impact of Wetting on Droplet Breakup in a Microchannel Constriction** P. Giefer[1]; U. Fritsching[2] [1] Leibniz Institut für Werkstofforientierte Technologien - IWT, Bremen/D; [2] University of Bremen, Bremen/D



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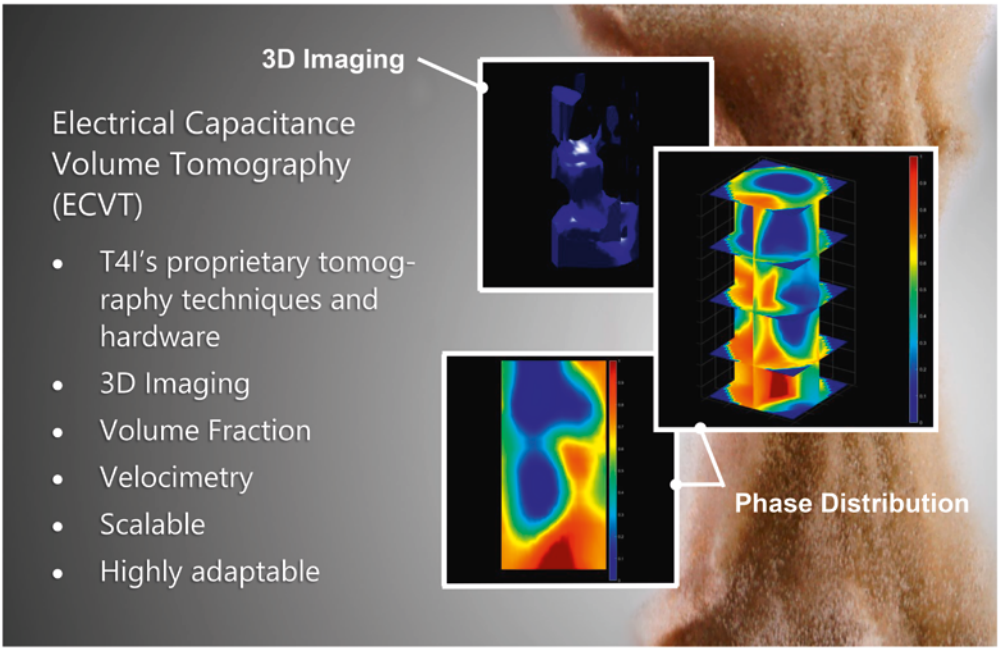

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