DECHEMA

12 – 15 September 2022 · Eurogress Aachen

(Bio)Process Engineering – a Key to Sustainable Development

A joint event of ProcessNet and DECHEMA-BioTechNet Jahrestagung 2022 together with 13th ESBES Symposium

https://dechema.de/JT2022

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und Biotechnologie e.V.
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IN COOPERATION WITH

European Society of Biochemical Engineering Sciences

DECHEMA BioTechNet

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VDI – Gesellschaft Verfahrenstechnik und Chemieingenieurwesen (VDI-GVC)

Monday, 12 September 2022

18:00 - 18:30	Brüssel	**WELCOME / AWARDS** • **DECHEMAX Awards** • **Student Awards**
18:30 - 19:15		**EVENING LECTURE** **The Anthropocene – the era of humankind. About progress and crises, technology and sustainable development** Prof. Dr. Armin Grunwald, Institute for Technology Assessment and Systems Analysis (ITAS), Karlruhe/D
19:15 - 21:00	**Get-together at Eurogress Aachen**	

Tuesday, 13 September 2022

09:00 - 09:30	Brüssel	**OPENING / HONOURS / AWARDS** **VDI Medal of Honor** **ProcessNet-Medaillen**			
09:30 - 10:15		**DECHEMA Awards lecture** **Sustainable biomanufacturing in plants – a brief story of process and product development** Prof. Dr. Johannes Buyel, Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D			
10:15 - 11:00		**PLENARY LECTURE** **Green methanol, part of Uhde's green technologies** Dr. Alexander Schulz, thyssenkrupp Industrial Solutions AG, Bad Soden/D			
11:00 - 11:30	Coffee Break				
	Berlin 1	**Berlin 2**	**Berlin 3**	**Brüssel**	**Konferenzraum 1**
11:30 - 11:55 12:00 - 12:25 12:30 - 12:55	**Biotechnology** Bioprocess monitoring I	**Biotechnology** Integrated bioprocessing	**(Bio)pharmaceutical processing** Process scalability	**Circular (Bio)Economy** Circular (Bio)Economy I	**Plant and process concepts** Novel process concepts
13:00 - 14:15	Lunch Break (1st floor)				
14:15 - 15:00	Brüssel	**CIT-LECTURE** **Life and production on surfaces** Prof. Dr. Roland Ulber, TU Kaiserslautern/D			
15:05 - 15:30 15:35 - 16:00 16:05 - 16:30	**Biotechnology** Bioprocess monitoring II	**Biotechnology** Surfaces: biofilms and microparticles	**(Bio)pharmaceutical processing** Digital Twins	**Circular (Bio)Economy** Materials cycles and recycling I	**Plant and process concepts** Processes for Power-to-X
16:30 - 17:00	Coffee Break				
17:00 - 18:00	**Biotechnology** Poster Pitches P 2.01 - P 2.28	**Biotechnology** Poster Pitches P 2.29 - P 2.52	**Circular (Bio)Economy / (Bio) pharmaceutical processing** Poster Pitches P 3.01 - 3.06 / P 4.01 - 4.19	**Fluid and solids process engineering** Poster Pitches P 7.01 - P 7.32	**Plant and process concepts / Digital transformation** Poster Pitches P 1.01 - P 1.18 / P 5.01 - P 5.08
18:00 - 20:00	**POSTER PARTY**				

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Monday, 12 September 2022	
	18:00 - 18:30
	18:30 - 19:15
Get-together at Eurogress Aachen	19:15 - 21:00

Tuesday, 13 September 2022					
					09:00 - 09:30
					09:30 - 10:15
					10:15 - 11:00
Coffee Break					11:00 - 11:30
Konferenzraum 2	**Konferenzraum 4/5**	**Konferenzraum 7/8/9**	**Konferenzraum 6**	**Konferenzraum 3**	
Digital transformation AI methods and applications I	**Fluids and solids process engineering** Fluid dynamics in disperse sytems	**Fluids and solids process engineering** Crystallization	**Youth Programme organized by kjVI**	**Energy transition** Energy transition I	11:30 - 11:55 12:00 - 12:25 12:30 - 12:55
Lunch Break (1st floor)					13:00 - 14:15
					14:15 - 15:00
Digital transformation AI methods and applications II	**Fluids and solids process engineering** Multiphase fluid flow	**Fluids and solids process engineering** Phase equilibria	**Youth Programme organized by kjVI**	**Energy transition** Energy transition II	15:05 - 15:30 15:35 - 16:00 16:05 - 16:30
Coffee Break					16:30 - 17:00
	Energy transition / Industrial water and wastewater technology / New materials for process engineering Poster Pitches P 6.01 - P 6.11 / P 8.01 - 8.07 / P 9.01 - P 9.03				17:00 - 18:00
POSTER PARTY					18:00 - 20:00

Wednesday, 14 September 2022

09:00 - 09:45	Brüssel	PLENARY LECTURE **Digital Transformation of Chemical Engineering Science** Prof. Dr.-Ing. Hans Hasse, TU Kaiserslautern/D			
	Berlin 1	**Berlin 2**	**Berlin 3**	**Brüssel**	**Konferenzraum 1**
09:50 - 10:15 10:20 - 10:45	**Biotechnology** Analysing heterogeneity	**Biotechnology** Co-cultivation	**(Bio)pharmaceutical processing** Hybrid modelling	**Plant and process concepts** Arnold Eucken Prize Lecture	**Circular (Bio)Economy** Materials cycles and recycling II
10:50 - 11:20	Coffee Break				
11:20 - 11:45 11:50 - 12:15 12:20 - 12:45	**Biotechnology** Monitoring and prediction	**Biotechnology** Optimised production	**(Bio)pharmaceutical processing** Chromatography optimization	**Plant and process concepts** Process modelling and simulation	**Circular (Bio)Economy** High temperature technology for the Green Deal goals I
12:45 - 14:15	Lunch Break				
12:45 - 14:15	Europa	ChemCar Competition			
14:15 - 14:40 14:45 - 15:10 15:15 - 15:40	**ESBES Award Session**	**Youth Programme organized by kjVI**	**New materials for processes** Advanced catalyst materials	**Plant and process concepts** Modular plant concepts	**Circular (Bio)Economy** High temperature technology for the Green Deal goals II
15:40 - 16:15	Coffee Break				
16:15 - 16:40 16:45 - 17:10 17:15 - 17:40	**Biotechnology** Process intensification: aeration	**Biotechnology** Downstream processing I	**New materials for processes** New materials for processes II	**Plant and process concepts** Reactor and reaction engineering	**Circular (Bio)Economy** High temperature technology for the Green Deal goals III
17:45 - 18:45	Networking @DECHEMA booth				
20:00 - 23:00	Europa	MEET AND EAT **Award Ceremony ChemCar Competition**			

Thursday, 15 September 2022

09:00 - 09:45	Brüssel	PLENARY LECTURE **Towards Carbon-neutral Plastic Bioupcycling** Prof. Sierin Lim, Nanyang University of Technology, Singapore/SGP			
09:45 - 09:55		• **ESBES Award Ceremony** • **Poster Awards**			
	Berlin 1	**Berlin 2**	**Berlin 3**	**Brüssel**	**Konferenzraum 1**
10:00 - 10:25 10:30 - 10:55	**Biotechnology** Synthetic and systems biology	**Biotechnology** Separation	**(Bio)pharmaceutical processing** Production and recovery	**Circular (Bio)Economy** Bioeconomy I	**Plant and process concepts** Smart engineering and operations
10:55 - 11:30	Coffee Break				
11:30 - 11:55 12:00 - 12:25 12:30 - 12:55	**Biotechnology** Advanced production systems	**Biotechnology** Downstream processing II	**(Bio)pharmaceutical processing** Advanced technologies	**Circular (Bio)Economy** Bioeconomy II	**Plant and process concepts** Measurement and control
12:55 - 14:00	Lunch Break				
12:55 - 14:00	Brüssel	ChemPLANT Competition			
14:00 - 14:25 14:30 - 14:55 15:00 - 15:25 15:30 - 15:55	**Biotechnology** Electrobiotechnology	**Biotechnology** Cultivation of microalgae and cyanobacteria		**Circular (Bio)Economy** Bioeconomy III	**Plant and process concepts** Electrification of chemical processes
16:00	End of Conference				

Wednesday, 14 September 2022

Konferenzraum 2	Konferenzraum 4/5	Konferenzraum 7/8/9	Konferenzraum 6	Konferenzraum 3	
					09:00 - 09:45
Digital transformation Enabling technologies and strategies for industry 4.0 I	**Fluids and solids process engineering** Adorption I	**Industrial water and wastewater** Industrial wastewater management	**Youth Programme organized by kjVI**	**Energy transition** Energy transition III	09:50 - 10:15
					10:20 - 10:45
Coffee Break					10:50 - 11:20
Digital transformation From simple models to digital twins I	**Fluids and solids process engineering** Adsorption II	**Industrial water and wastewater** Water management for Power-to-X	**Youth Programme organized by kjVI**	**Energy transition** Energy transition IV	11:20 - 11:45
					11:50 - 12:15
					12:20 - 12:45
Lunch Break					12:45 - 14:15
					12:45 - 14:15
Digital transformation From simple models to digital twins II	**Fluids and solids process engineering** Adsorption and absorption	**Industrial water and wastewater** Sustainable wastewater treatment	**Youth Programme organized by kjVI**	**Energy transition** Energy transition V	14:15 - 14:40
					14:45 - 15:10
					15:15 - 15:40
Coffee Break					15:40 - 16:15
Digital transformation Enabling technologies and strategies for industry 4.0 II	**Fluids and solids process engineering** Liquid-liquid phase separation		**Youth Programme organized by kjVI**		16:15 - 16:40
					16:45 - 17:10
					17:15 - 17:40
Networking @DECHEMA booth					17:45 - 18:45
					20:00 - 23:00

Thursday, 15 September 2022

Konferenzraum 2	Konferenzraum 4/5	Konferenzraum 7/8/9	Konferenzraum 6	Konferenzraum 3	
					09:00 - 09:45
					09:45 - 09:55
	Fluids and solids process engineering Reactor geometry optimization I	**Fluids and solids process engineering** Technical challenges	**Youth Programme organized by kjVI**	**Education 4.0** Virtual reality and hybrid learning	10:00 - 10:25
					10:30 - 10:55
Coffee Break					10:55 - 11:30
Circular (Bio)Economy Biorefineries	**Fluids and solids process engineering** Reactor geometry optimization II	**Fluids and solids process engineering** Modelling	**Youth Programme organized by kjVI**	**Education 4.0** New ways of education and collaboration	11:30 - 11:55
					12:00 - 12:25
					12:30 - 12:55
Lunch Break					12:55 - 14:00
Circular (Bio)Economy Unconventional conversion technologies in circular economy		**Youth Programme organized by kjVI**	**Youth Programme organized by kjVI**	**Education 4.0** Devices for training and learning	14:00 - 14:25
					14:30 - 14:55
					15:00 - 15:25
					15:30 - 15:55
End of Conference					16:00

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	Brüssel	
Chair:	*A. Förster[1]; [1]DECHEMA e.V., Frankfurt am Main/D*	Chair:
18:00	**WELCOME / AWARDS** **DECHEMAX Awards** **DECHEMA Student Awards 2022**	18:00
18:30	**Evening Lecture** **The Anthropocene – the era of humankind. About progress and crises, technology and sustainable development** A. Grunwald[1]; [1] KIT Karlsruhe, Karlsruhe/D	18:30
19:15	**GET-TOGETHER** (registration necessary)	19:15
21:00	**End of day 1**	21:00

	Brüssel	
Chair:	*S. Angster[1]; J. Dahlhaus[2]; L. Woppowa[3]; [1] DECHEMA e.V., Frankfurt am Main/D; [2] BASF SE, Ludwigshafen/D; [3] VDI-GVC, Düsseldorf/D*	Chair:
09:00 – 09:30	**OPENING / HONOURS / AWARDS** **VDI Medal of Honor** **ProcessNet Medals Ceremony**	09:00 – 09:30
09:30 – 10:15	**DECHEMA Award Lecture** **Sustainable biomanufacturing in plants – a brief story of process and product development** J. Buyel[1]; [1] Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D	09:30 – 10:15
Chair:	*N. Kockmann[1]; [1]TU Dortmund/D*	Chair:
10:15 – 11:00	**PLENARY LECTURE** **Green methanol, part of Uhde's green technologies** A. Schulz[1]; [1] thyssenkrupp Industrial Solutions AG, Bad Soden/Taunus/D	10:15 – 11:00
11:00 – 11:30	Coffee Break	11:00 – 11:30

	Berlin 1	Berlin 2	
	Biotechnology Bioprocess monitoring I	**Biotechnology** Integrated bioprocessing	
Chair:	*G. Striedner[1]; [1]University of Natural Resources and Life Sciences, Vienna/A*	*B. Bühler[1]; [1]Helmholtz-Zentrum für Umweltforschung GmbH - UFZ, Leipzig/D*	Chair:
11:30 – 11:55	**Parallelized Online Measurement of Hydrogen for Time-Efficient Characterization of Microbial Hydrogen Producers** K. Miebach[1]; M. Finger[1]; J. Büchs[1]; [1] RWTH Aachen, Aachen/D	**Integrated processing meets scale-down** F. Mayer[1]; M. Cserjan-Puschmann[1]; C. Sam[2]; M. Soos[3]; G. Striedner[1]; [1] University of Natural Resources and Life Sciences, Vienna (BOKU), Vienna/A; [2] Boehringer Ingelheim RCV GmbH & Co KG, Vienna/A; [3] UCT Prague, Prague/CZ	11:30 – 11:55
12:00 – 12:25	**Microbial Process Monitoring for Optimization of Biotechnological Production** T. Schröter[1]; S. Hofbrucker MacKenzie[1]; K. Schindlbeck[1]; M. Himmelhaus[1]; [1] FlulDect GmbH, Jena/D	**Integration of adaptive syntheses in the sustainable production of bio-fuels and chiral fine chemicals** M. Allahham[1]; [1] Forschungszentrum Jülich GmbH, Erkelenz/D	12:00 – 12:25
12:30 – 12:55	**Benchtop NMR Spectroscopy in Wine Production: A Practical Tool for Monitoring Bioprocesses** J. Phuong[1]; E. Steimers[1]; P. Nickolaus[2]; U. Fischer[2]; E. von Harbou[1]; Y. Matviychuk[3]; D. Holland[3]; H. Hasse[1]; K. Münnemann[1]; [1] TU Kaiserslautern, Kaiserslautern/D; [2] Dienstleistungszentrum Ländlicher Raum (DLR) Rheinpfalz, Neustadt an der Weinstraße/D; [3] University of Canterbury, Christchurch/NZ	**Biotechnological Production of Microbial Oils from Carbon Dioxide Using Microalgae and Oleaginous Yeasts in an Integrated Process** A. Koruyucu[1]; K. Blums[1]; T. Peest[1]; A. Gniffke[1]; T. Brück[1]; D. Weuster-Botz[1]; [1] Technical University of Munich, Garching/D	12:30 – 12:55
12:55 – 14:15	Lunch Break		12:55 – 14:15

	Brüssel	
Chairs:	*A. Liese[1]; B. Böck[2]; [1]Technische Universität Hamburg (TUHH), Hamburg/D; [2]Chemie Ingenieur Technik, Weinheim/D*	Chairs:
14:15 – 15:00	**CIT Lecture** **Life and production on surfaces** R. Ulber[1]; [1] TU Kaiserlautern, Kaiserslautern/D	

	Berlin 1	Berlin 2	
	Biotechnology Bioprocess monitoring II	**Biotechnology** Surfaces: biofilms and microparticles	
Chair:	*G. Striedner[1]; [1]University of Natural Resources and Life Sciences, Vienna/A*	*N. Tippkötter[1]; [1]University of Applied Sciences Aachen, Jülich/D*	Chair:
15:05 – 15:30	**Controlling Aspergillus niger morphology in a rocking motion bioreactor: an alternative investigation platform for fungi** T. Kheirkhah[1]; P. Neubauer[1]; S. Junne[1]; [1] TU Berlin, Berlin/D	**Influence of the surface on eukaryotic biofilms** A. Schmeckebier[1]; A. Zayed[2]; R. Ulber[3]; [1] TU Kaiserlautern, Kaiserslautern/D; [2] Tanta University, Tanta/ET; [3] TU Kaiserslautern, Kaiserslautern/D	15:05 – 15:30
15:35 – 16:00	**Combining on-line and at-line measurements for monitoring of cell distributions in bioreactors** A. Schaum[1]; P. Jerono[1]; T. Meurer[1]; [1] Kiel University, Kiel/D	**Phototrophic biofilms: Invasive and non-invasive Tools for characterization** D. Strieth[1]; [1] TU Kaiserslautern, Kaiserslautern/D	15:35 – 16:00
16:05 – 16:30	**In line microscopy for exploring single-cell features in Yarrowia lipolytica cultivations during scale up and scale down** S. Junne[1]; J. Scouten[2]; J. Cziommer[1]; S. Maaß[3]; P. Neubauer[1]; [1] Technische Universität Berlin/D; [2] Universität Potsdam/D; [3] Sopat GmbH, Berlin/D	**Depletion flocculation induced casein microparticles as a vehicle for bioactive compounds** M. Asaduzzaman[1]; J. Schulte[1]; R. Gebhardt[1]; [1] RWTH Aachen University, Aachen/D	16:05 – 16:30
16:30 – 17:00	Coffee Break		16:30 – 17:00
Chair:	*B. Bühler[1]; [1]Helmholtz-Zentrum für Umweltforschung GmbH - UFZ, Leipzig/D*	*J. Büchs[1]; [1]RWTH Aachen, Aachen/D*	Chair:
17:00 – 18:00	**Poster Pitches** P 2.01 - P 2.28	**Poster Pitches** P 2.29 - P 2.52	17:00 – 18:00
18:00 – 20:00	**POSTER PARTY in the poster exhibition**		18:00 – 20:00

	Brüssel	
Chair:	*S. Angster[1]; J. Dahlhaus[2]; L. Woppowa[3]; [1] DECHEMA e.V., Frankfurt am Main/D; [2] BASF SE, Ludwigshafen/D; [3] VDI-GVC, Düsseldorf/D*	Chair:
09:00 – 09:30	**OPENING / HONOURS / AWARDS** **VDI Medal of Honor** **ProcessNet Medals Ceremony**	09:00 – 09:30
09:30 – 10:15	**DECHEMA Award Lecture** **Sustainable biomanufacturing in plants – a brief story of process and product development** J. Buyel[1]; [1] Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D	09:30 – 10:15
Chair:	*N. Kockmann[1]; [1]TU Dortmund/D*	Chair:
10:15 – 11:00	**PLENARY LECTURE** **Green methanol, part of Uhde's green technologies** A. Schulz[1]; [1] thyssenkrupp Industrial Solutions AG, Bad Soden/Taunus/D	10:15 – 11:00
11:00 – 11:30	Coffee Break	11:00 – 11:30

	Berlin 3	Brüssel	
	(Bio)pharmaceutical processing Process scalability	**Circular (Bio)Economy** Circular (Bio)Economy I	
Chair:	*K. Graumann[1]; [1] Phoenestra GmbH, Linz/A*	*K. Rübberdt[1]; [1] DECHEMA e.V., Frankfurt/D*	Chair:
11:30 – 11:55	**Fast track production: Accelerated timeline from vial to bioreactor** M. Weise[1]; R. Bux[1]; T. Schlienz[1]; N. Da Silva[1]; L. Weller[1]; P. Gronemeyer[1]; P. Dobberthien[1]; [1] Boehringer Ingelheim Pharma GmbH & Co.KG, Biberach an der Riß/D	**Circularity to foster the development of new value chains and innovative technologies** R. Kelle[1]; [1] Evonik Industries AG, Hanau-Wolfgang/D	11:30 – 11:55
12:00 – 12:25	**Efficient Modeling of Bioreactors – From Lab Scale to Industrial Scale** J. Khinast[1]; C. Witz[2]; P. Eibl[1]; [1] Graz University of Technology, Graz/A; [2] Simvantage GmbH, Graz/A		12:00 – 12:25
12:30 – 12:55	**Development of Scalable Stem Cell Cultivation Processes in Bioreactors** R. Prielhofer[1]; C. Lindner[1]; M. Reininger[1]; A. Sohail[1]; K. Graumann[1]; [1] Phoenestra GmbH, Linz/A		12:30 – 12:55
12:55 – 14:15	Lunch Break		12:55 – 14:15

	Brüssel	
Chairs:	*A. Liese[1]; B. Böck[2]; [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] Chemie Ingenieur Technik, Weinheim/D*	Chairs:
14:15 – 15:00	**CIT Lecture** **Life and production on surfaces** R. Ulber[1]; [1] TU Kaiserlautern, Kaiserslautern/D	

	Berlin 3	Brüssel	
	(Bio)pharmaceutical processing Digital Twins	**Circular (Bio)Economy** Materials cycles and recycling I	
Chair:	*A. Staby[1]; [1] Novo Nordisk, Bagsværd/DK*	*T. Kolb[1]; [1] Karlsruhe Institute of Technology, Karlsruhe/D*	Chair:
15:05 – 15:30	**Digital Twin for HIV-Gag VLP Production in HEK293 Cells** J. Rosengarten[1]; J. Stitz[2]; A. Hengelbrock[3]; H. Helgers[3]; A. Schmidt[3]; F. Vetter[3]; A. Juckers[3]; J. Strube[3]; [1] Technische Hochschule Köln; Leibniz Universität Hannover/D; [2] Technische Hochschule Köln/D; [3] TU Clausthal, Clausthal-Zellerfeld/D	**State of the art and future challenges of polymer recycling in the context of circular economy** M. Fischlschweiger[1]; [1] Technische Universität Clausthal, Clausthal-Zellerfeld/D	15:05 – 15:30
15:35 – 16:00	**Digital Twins for scFv Production in *Escherichia coli*** H. Helgers[1]; A. Hengelbrock[1]; A. Schmidt[1]; F. Vetter[1]; A. Juckers[1]; J. Strube[1]; [1] TU Clausthal, Clausthal-Zellerfeld/D		15:35 – 16:00
16:05 – 16:30	**Digital Twins for Continuous mRNA Production** A. Schmidt[1]; H. Helgers[1]; A. Hengelbrock[1]; F. Vetter[1]; A. Juckers[1]; J. Strube[1]; [1] TU Clausthal, Clausthal-Zellerfeld/D	**Chemical Recycling of Plastic Waste – A Key to a Climate Neutral Circualr Carbon Economy** D. Stapf[1]; [1] Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D	16:05 – 16:30
16:30 – 17:00	Coffee Break		16:30 – 17:00
Chairs:	*J. Glassey[1]; A. Jungbauer[2]; [1]Newcastle University, Newcastle upon Tyne/UK; [2]University of Natural Resources and Life Sciences (BOKU), Wien/A*	*M. Grünewald[1]; [1]Ruhr-Universität Bochum/D*	Chair:
17:00 – 18:00	**Poster Pitches** P 3.01 - 3.06 / P 4.01 - 4.19	**Poster Pitches** P 7.01 – P 7.32	17:00 – 18:00
18:00 – 20:00	**POSTER PARTY in the poster exhibition**		18:00 – 20:00

	Brüssel	
Chair:	*S. Angster[1]; J. Dahlhaus[2]; L. Woppowa[3]; [1] DECHEMA e.V., Frankfurt am Main/D; [2] BASF SE, Ludwigshafen/D; [3] VDI-GVC, Düsseldorf/D*	Chair:
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09:30 – 10:15	**DECHEMA Award Lecture** **Sustainable biomanufacturing in plants – a brief story of process and product development** J. Buyel[1]; [1] Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D	09:30 – 10:15
Chair:	*N. Kockmann[1]; [1]TU Dortmund/D*	Chair:
10:15 – 11:00	**PLENARY LECTURE** **Green methanol, part of Uhde's green technologies** A. Schulz[1]; [1] thyssenkrupp Industrial Solutions AG, Bad Soden/Taunus/D	10:15 – 11:00
11:00 – 11:30	Coffee Break	11:00 – 11:30

	Konferenzraum 1	Konferenzraum 2	
	Plant and process concepts Novel process concepts	**Digital transformation** AI methods and applications I	
Chair:		*F. Jirasek[1]; [1] TU Kaiserslautern, Kaiserslautern/D*	Chair:
11:30 – 11:55	**Bernoulli offers a solid basis for crystallization** H. Meldau[1]; [1] , Hannover/D	**Model-based and Data-driven Performance Monitorinof Pulsed Sieve-Plate Extraction Columns** A. Palmtag[1]; H. Gröschl[1]; L. Polte[1]; A. Jupke[1]; [1] RWTH Aachen University, Aachen/D	11:30 – 11:55
12:00 – 12:25	**With a little help from my friends - Homogeneous Catalysis and Reaction Engineering in the Sustainable Production of Amines** D. Vogt[1]; J. Bianga[1]; C. Heider[1]; A. Kampwerth[1]; K. Künnemann[1]; T. Riemer[1]; T. Seidensticker[1]; [1] TU Dortmund, Dortmund/D	**Solvent Extraction Column Control with Reinforcement Learning (RL)** L. Neuendorf[1]; [1] Technische Universität Dortmund, Dortmund/D	12:00 – 12:25
12:30 – 12:55	**Process Intensification of Biocatalysts with a Fine Bubble Aerator** Z. Perçin[1]; P. Bubenheim[1]; M. Schlüter[2]; A. Liese[1]; [1] Hamburg University of Technology, Institute of Technical Biocatalysis, Hamburg/D; [2] Hamburg University of Technology, Institute of Multiphase Flows, Hamburg/D	**Application of machine learning techniques to model CO_2 capture in spray columns** U. Di Caprio[1]; E. Kayahan[1]; M. Wu[1]; T. Van Gerven[2]; P. Hellinckx[3]; S. Waldherr[2]; M. Leblebici[1]; [1] KU Leuven, Diepenbeek/B; [2] KU Leuven, Leuven/B; [3] University of Antwerp, Antwerp/B	12:30 – 12:55
12:55 – 14:15	Lunch Break		12:55 – 14:15

	Brüssel	
Chairs:	*A. Liese[1]; B. Böck[2]; [1] Technische Universität Hamburg (TUHH), Hamburg/D; [2] Chemie Ingenieur Technik, Weinheim/D*	Chairs:
14:15 – 15:00	**CIT Lecture** **Life and production on surfaces** R. Ulber[1]; [1] TU Kaiserlautern, Kaiserslautern/D	

	Konferenzraum 1	Konferenzraum 2	
	Plant and process concepts Processes for Power-to-X	**Digital transformation** AI methods and applications II	
Chair:	*D. Vogt[1]; [1]TU Dortmund, Dortmund/D*	*L. Neuendorf[1]; [1]TU Dortmund/D*	Chair:
15:05 – 15:30	**Development of robust Indium-based CO_2-hydrogenation catalysts for Power-to-Liquid concepts** J. Albert[1]; P. Schühle[2]; M. Schmidt[2]; L. Schill[3]; A. Riisager[3]; P. Wasserscheid[2]; [1] Universität Hamburg (UHH), Hamburg/D; [2] FAU Erlangen-Nürnberg, Erlangen/D; [3] DTU Lyngby, Lyngby/DK	**Reusable surrogate models for flowsheet simulation** M. Bubel[1]; T. Seidel[1]; P. Ludl[1]; N. Asprion[2]; M. Bortz[1]; [1] Fraunhofer-Institut für Techno- und Wirtschaftsmathematik ITWM, Kaiserslautern/D; [2] BASF SE, Ludwigshafen/D	15:05 – 15:30
15:35 – 16:00	**Burner Development for High Pressure Entrained Flow Gasification** T. Jakobs[1]; S. Wachter[1]; M. Haas[1]; S. Fleck[1]; T. Kolb[1]; [1] Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D	**Recipe optimization of batch distillation trajectories based on a data-driven model** G. Brand Rihm[1]; E. Esche[1]; J. Repke[1]; [1] Technische Universität Berlin, Berlin/D	15:35 – 16:00
16:05 – 16:30	**Effect of nickel loading on fuel production via heterogeneously catalyzed oligomerization of methanol-based olefins** C. Fuchs[1]; U. Arnold[1]; J. Sauer[1]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D	**Don't Let Your Constraints Constrain You – Towards Design Space Exploration with Flexible Constraints for Flowsheet Simulations** F. Diewald[1]; J. Höller[1]; P. Ludl[1]; P. Schwartz[1]; R. Heese[1]; N. Asprion[2]; M. Bortz[1]; [1] Fraunhofer ITWM, Kaiserslautern/D; [2] BASF SE, Ludwigshafen/D	16:05 – 16:30
16:30 – 17:00	Coffee Break		16:30 – 17:00
Chair:	*U. Fritsching[1]; [1]Leibniz-Institut für Werkstofforientierte Technologien - IWT / Universität Bremen/D*		Chair:
17:00 – 18:00	**Poster Pitches** *P 1.01 - P 1.18 / P 5.01 - P 5.08*		17:00 – 18:00
18:00 – 20:00	**POSTER PARTY in the poster exhibition**		18:00 – 20:00

	Brüssel	
Chair:	*S. Angster[1]; J. Dahlhaus[2]; L. Woppowa[3]; [1] DECHEMA e.V., Frankfurt am Main/D; [2] BASF SE, Ludwigshafen/D; [3] VDI-GVC, Düsseldorf/D*	Chair:
09:00 – 09:30	**OPENING / HONOURS / AWARDS** **VDI Medal of Honor** **ProcessNet Medals Ceremony**	09:00 – 09:30
09:30 – 10:15	**DECHEMA Award Lecture** **Sustainable biomanufacturing in plants – a brief story of process and product development** J. Buyel[1]; [1] Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D	09:30 – 10:15
Chair:	*N. Kockmann[1]; [1]TU Dortmund/D*	Chair:
10:15 – 11:00	**PLENARY LECTURE** **Green methanol, part of Uhde's green technologies** A. Schulz[1]; [1] thyssenkrupp Industrial Solutions AG, Bad Soden/Taunus/D	10:15 – 11:00
11:00 – 11:30	Coffee Break	11:00 – 11:30

	Konferenzraum 4/5	Konferenzraum 7/8/9	
	Fluids and solids process engineering Fluid dynamics in disperse sytems	**Fluids and solids process engineering** Crystallization	
Chair:	*A. Jupke[1]; [1]RWTH Aachen University, Aachen/D*	*K. Wohlgemuth[1]; [1]TU Dortmund , Dortmund/D*	Chair:
11:30 – 11:55	**Fluid dynamics and mass transfer in disperse multiphase systems: A single drop study concerning the role of surfactant transfer** J. Schulz[1]; D. Merker[1]; L. Böhm[1]; M. Kraume[1]; [1] Technische Universität Berlin/D	**Conceptual Design of a Counter-Current Crystallization Process** V. Tenberg[1]; M. Sadeghi[1]; A. Seidel-Morgenstern[1]; H. Lorenz[1]; [1] Max-Planck-Institut für Dynamik komplexer technischer Systeme, Magdeburg/D	11:30 – 11:55
12:00 – 12:25	**Experimental investigations on the fluid-dynamic design of high-performance separating trays based on a miniaturized measuring cell** W. Leushacke[1]; A. Merkel[1]; M. Grünewald[1]; [1] Ruhr-Universität Bochum/D	**Shifting a nucleation dominant antisolvent crystallization process for rare earth Scandium-Ammoniumfluoride towards crystal growth** J. Tonn[1]; A. Jupke[1]; [1] RWTH Aachen University - Fluid Process Engineering (AVT.FVT), Aachen/D	12:00 – 12:25
12:30 – 12:55	**Convolutional neural networks based droplet detection method** S. Sibirtsev[1]; S. Zhai[1]; A. Jupke[1]; [1] RWTH Aachen University, Aachen/D	**Modeling of Gas Solubility in Semi-Crystalline, Branched Polymers** S. Leube[1]; M. Fischlschweiger[2]; S. Enders[1]; [1] KIT - Karlsruher Institut für Technologie, Karlsruhe/D; [2] TU Clausthal/D	12:30 – 12:55
12:55 – 14:15	Lunch Break		12:55 – 14:15

	Brüssel	
Chair:	*A. Liese[1]; B. Böck[2]; [1]Technische Universität Hamburg (TUHH), Hamburg/D; [2]Chemie Ingenieur Technik, Weinheim/D*	Chair:
14:15 – 15:00	**CIT Lecture** **Life and production on surfaces** R. Ulber[1]; [1] TU Kaiserlautern, Kaiserslautern/D	

	Konferenzraum 4/5	Konferenzraum 7/8/9	
	Fluids and solids process engineering Multiphase fluid flow	**Fluids and solids process engineering** Phase equilibria	
Chair:	*J. Ritter[1]; [1]Bayer AG, Leverkusen/D*	*H. Hasse[1]; [1]Technische Universität Kaiserslautern, Kaiserslautern/D*	Chair:
15:05 – 15:30	**Application of a combined PIV/PTV-method to analyze suspensions in (non-)Newtonian media in stirred tanks** M. Kolano[1]; M. Kraume[1]; [1] Technische Universität Berlinn/D	**Learning pure-component descriptors from mixture data** D. Gond[1]; J. Sohns[1]; H. Leitte[1]; F. Jirasek[1]; H. Hasse[1]; [1] TU Kaiserslautern/D	15:05 – 15:30
15:35 – 16:00	**Characterising particulate systems towards the analysis of hydrodynamic stress in stirred tank (bio-)reactors** P. Waldherr[1]; C. Bliatsiou[1]; R. Panckow[2]; L. Böhm[1]; M. Kraume[1]; [1] Technische Universität Berlin/D; [2] Sopat GmbH, Berlin/D	**Surface properties modelling of water containing mixtures using ARPC-SAFT equation of state** F. Brettschneider-Lazaro[1]; S. Enders[1]; [1] KIT - Karlsruher Institut für Technologie, Karlsruhe/D	15:35 – 16:00
16:05 – 16:30	**A generalized framework for modeling the gas-phase in aerated stirred tanks using the Lattice-Boltzmann Method** P. Eibl[1]; C. Witz[2]; J. Khinast[1]; [1] Graz University of Technology, Graz/A; [2] Simvantage GmbH, Graz/A	**Phase Equilibria in Mixtures of Differently Polar Fluids: Molecular Simulation and Perturbation Theory** J. Marx[1]; K. Maximilian[2]; K. Langenbach[1]; [1] Universität Innsbruck/A; [2] Technische Universität Kaiserslautern/D	16:05 – 16:30
16:30 – 17:00	Coffee Break		16:30 – 17:00
18:00 – 20:00	**POSTER PARTY in the poster exhibition**		18:00 – 20:00

	Brüssel	
Chair:	*S. Angster[1]; J. Dahlhaus[2]; L. Woppowa[3]; [1] DECHEMA e.V., Frankfurt am Main/D; [2] BASF SE, Ludwigshafen/D; [3] VDI-GVC, Düsseldorf/D*	Chair:
09:00 – 09:30	**OPENING / HONOURS / AWARDS** **VDI Medal of Honor** **ProcessNet Medals Ceremony**	09:00 – 09:30
09:30 – 10:15	**DECHEMA Award Lecture** **Sustainable biomanufacturing in plants – a brief story of process and product development** J. Buyel[1]; [1] Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen/D	09:30 – 10:15
Chair:	*N. Kockmann[1]; [1]TU Dortmund/D*	
10:15 – 11:00	**PLENARY LECTURE** **Green methanol, part of Uhde's green technologies** A. Schulz[1]; [1] thyssenkrupp Industrial Solutions AG, Bad Soden/Taunus/D	10:15 – 11:00
11:00 – 11:30	Coffee Break	11:00 – 11:30

	Konferenzraum 6	Konferenzraum 3	
	Youth Programme	**Energy transition** Energy transition I	
Chair:		*K. Görsch[1]; [1]DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Leipzig/D*	Chair:
11:30 – 11:55	**see https://dechema.de/en/JT2022_YP**	**Carbon2Chem®: Producing Methanol using cleaned Steel Mill Gases in a Miniplant** M. Hadrich[1]; F. Nestler[1]; J. Full[1]; A. Schaadt[1]; [1] Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/D	11:30 – 11:55
12:00 – 12:25		**Operation analysis of a flexible solid oxide cell module for power to hydrogen and polygeneration** S. Salas Ventura[1]; M. Metten[1]; M. Tomberg[1]; D. Ullmer[1]; M. Heddrich[1]; S. Ansar[1]; [1] German Aerospace Center (DLR) - Institute of Engineering Thermodynamics, Stuttgart/D	12:00 – 12:25
12:30 – 12:55		**Highly selective synthesis of Methanol from Glucose in a two-step process** V. Haagen[1]; M. Schörner[1]; J. Albert[2]; P. Schühle[3]; T. Franken[3]; [1] Helmholtz Institute Erlangen Nürnberg for Renewable Energy, Erlangen/D; [2] University of Hamburg/D; [3] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D	12:30 – 12:55
12:55 – 14:15	Lunch Break		12:55 – 14:15

	Brüssel	
Chairs:	*A. Liese[1]; B. Böck[2]; [1]Technische Universität Hamburg (TUHH), Hamburg/D; [2]Chemie Ingenieur Technik, Weinheim/D*	Chair:
14:15 – 15:00	**CIT Lecture** **Life and production on surfaces** R. Ulber[1]; [1] TU Kaiserlautern, Kaiserslautern/D	

	Konferenzraum 6	Konferenzraum 3	
	Youth Programme	**Energy transition** Energy transition II	
Chair:		*K. Görsch[1]; [1]DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH, Leipzig/D*	Chair:
15:05 – 15:30	**see https://dechema.de/en/JT2022_YP**	**Critical operating conditions for co-SOEC reactors for syngas production with Fischer-Tropsch recirculation** D. Amaya-Dueñas[1]; D. Ullmer[1]; M. Riedel[1]; M. Tomberg[1]; M. Heddrich[1]; S. Ansar[1]; [1] German Aerospace Center / Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Stuttgart/D	15:05 – 15:30
15:35 – 16:00		**Power-to-Methane –Design and optimization of two new bubble column reactors** K. Hoffstadt[1], [1] FH Aachen Campus Jülich, Jülich/D	15:35 – 16:00
16:05 – 16:30		**Scale-up and design of fermenters for power-to-x processes** K. Gezork[1]; [1] EKATO Rühr- und Mischtechnik GmbH, Schopfheim/D	16:05 – 16:30
16:30 – 17:00	Coffee Break		16:30 – 17:00
		S. Enders[1]; L. Woppowa[2]; [1]KIT - Karlsruher Institut für Technologie, Karlsruhe/D; [2]VDI Verein Deutscher Ingenieure e.V., Düsseldorf/D	Chairs:
17:00 – 18:00		**Poster Pitches** *P 6.01 - P 6.11 / P 8.01 - 8.07 / P 9.01 - P 9.03*	17:00 – 18:00
18:00 – 20:00	**POSTER PARTY in the poster exhibition**		18:00 – 20:00

Brüssel

Chair: *T. Hirth[1]; [1]Karlsruher Institut für Technologie (KIT), Karlsruhe/D*

09:00 – 09:45 **PLENARY LECTURE**
Digital Transformation of Chemical Engineering Science
H. Hasse[1]; [1] Technische Universität Kaiserslautern, Kaiserslautern/D

	Berlin 1	Berlin 2
	Biotechnology Analysing heterogeneity	**Biotechnology** Co-cultivation
Chair:	*R. Takors[1]; [1]Universität Stuttgart, Stuttgart/D*	*P. Jacques[1]; [1]University of Liege, Gembloux/B*
09:50 – 10:15	**Analysing bioprocess heterogeneity from the microbial viewpoint: recent computation developments** C. Haringa[1]; W. Tang[2]; H. Noorman[2]; [1] Delft University of Technology, Delft/NL; [2] Royal DSM; Delft University of Technology, Delft/NL	**Autotrophic alcohol production with a synthetic co-culture of *Clostridium carboxidivorans* and *Clostridium kluyveri*** M. Bäumler[1]; V. Burgmaier[1]; F. Herrmann[1]; J. Mentges[1]; M. Schneider[2]; A. Ehrenreich[2]; W. Liebl[2]; D. Weuster-Botz[1]; [1] Technical University of Munich, Garching/D; [2] Technical University of Munich, Freising/D
10:20 – 10:45	**Application of a L-phenylalanine producing multiple *Escherichia coli* reporter strain to study population heterogeneity in a novel two-compartment bioreactor** M. Hoang[1]; D. Doan[1]; A. Kremling[1]; A. Heins[1]; [1] Technical University of Munich, Garching/D	**Co-cultivation of immobilized plant growth promoting bacteria for robust microalgal production processes** J. Joshi[1]; S. Homburg[1]; O. Kruse[2]; A. Patel[1]; [1] Bielefeld University of Applied Sciences, Bielefeld/D; [2] Bielefeld University , Bielefeld/D
10:45 – 11:20	Coffee Break	
	Biotechnology Monitoring and prediction	**Biotechnology** Optimised production
Chair:	*H. Müller[1]; [1]BlueSens gas sensor GmbH, Herten/D*	*B. Bühler[1]; [1]Helmholtz-Zentrum für Umweltforschung GmbH - UFZ, Leipzig/D*
11:20 – 11:45	**Small scale anaerobic process development: Carbon dioxide and trace oxygen concentrations impact growth and product formation of Bacteroidetes strains** L. Keitel[1]; M. Finger[1]; J. Büchs[1]; [1] RWTH Aachen University, Aachen/D	**Methods of reaction and reactor engineering to adjust product ratios and increase efficiency of syngas fermentation with *Clostridium ljungdahlii*** L. Perret[1]; N. Boukis[1]; J. Sauer[1]; [1] Karlsruhe Institut für Technologie (KIT), Eggenstein Leopoldshafen /D
11:50 – 12:15	**Development of a Digital Twin for Biomass Prediction of *Lentilactobacillus rhamnosus*** H. Sørensen[1]; D. Brabazon[1]; C. Loscher[1]; B. Freeland[1]; [1] Dublin City University/IRL	**Glycolic acid as an alternative carbon and energy source for redox biocatalysis** S. Höhmann[1]; N. Ihle[1]; A. Schmid[1]; B. Bühler[1]; [1] Helmholtz-Zentrum für Umweltforschung GmbH - UFZ, Leipzig/D
12:20 – 12:45	**Towards Autonomous Process Control – Digital Twin for Antibody and VLP Manufacturing Using a Dynamic Metabolic Model** H. Helgers[1]; A. Schmidt[1]; A. Hengelbrock[1]; J. Strube[1]; [1] TU Clausthal, Clausthal-Zellerfeld/D	**Endospore Production in a Regulated Bioprocess Using an Optimized Chemically Defined Medium** R. Biermann[1]; L. Rösner[1]; I. Bice[2]; S. Beutel[1]; [1] Leibniz Universität Hannover / Institut für Technische Chemie, Hannover/D; [2] Biochem Zusatzstoffe Handels- und Produktionsges. mbH, Lohne/D
12:45 – 14:15	**Europa**	**ChemCar Competition** / Lunch Break
	Biotechnology ESBES Award Session	**kjVI Youth Programme**
Chair:	*J. Glassey[1]; [1]Newcastle University, Newcastle upon Tyne/UK*	
14:15 – 14:40	**Understanding the behavior of alcohol dehydrogenase in deep eutectic solvents: a molecular dynamics study** J. Bittner[1]; N. Zhang[2]; P. Domínguez de María[3]; S. Kara[2]; S. Jakobtorweihen[1]; [1] Hamburg University of Technology, Hamburg/D; [2] Leibniz University Hannover/D; [3] Sustainable Momentum S.L., Las Palmas de Gran Canaria/E	see https://dechema.de/en/JT2022_YP
14:45 – 15:10	**Insights into hexose sugar and PPi metabolism of *Clostridium thermocellum* for improved cellulosic ethanol production** T. Kuil[1]; J. Yayo[1]; A. van Maris[1]; [1] KTH Royal Institute of Technology, Stockholm/S	
15:15 – 15:40	**Accelerating process development for protein crystallization with advanced analytics** C. Wegner[1]; I. Zimmermann[2]; J. Hubbuch[1]; [1] Karlsruhe Institute of Technology, Karlsruhe/D; [2] Technical University of Munich/D	
15:40 – 16:15	Coffee Break	
	Biotechnology Process intensification: aeration	**Biotechnology** Downstream processing I
Chair:	*J. Büchs[1]; [1]RWTH Aachen University , Aachen/D*	*A. Staby[1]; [1]Novo Nordisk, Bagsværd/DK*
16:15 – 16:40	**"One ring to rule them all": The melt-down of oxygen transfer limitations in shaken bioreactors** H. Hennemann[1]; [1] Evonik, Marl/D	**One Multifunctional Affinity Peptide Tag for Different Non-Functionalized Materials and Applications** S. Berensmeier[1]; S. Rauwolf[1]; A. Zanker[1]; T. Steegmüller[1]; S. Schwaminger[1]; [1] Technical University of Munich , Garching/D
16:45 – 17:10	**Intensification of syngas fermentation in industrial-scale bioreactors by implementation of perforated plates: a CFD study** L. Puiman[1]; H. Maldonado de León[1]; H. Noorman[2]; C. Picioreanu[3]; C. Haringa[1]; [1] Delft University of Technology, Delft/NL; [2] Royal DSM; Delft University of Technology, Delft/NL; [3] King Abdullah University of Science and Technology, Thuwal/SAR	**Crystallization of Rationally Engineered Lactobacillus kefir Alcoholdehydrogenases Monitored by Machine-Learning Based Protein Crystal Detection** B. Walla[1]; D. Bischoff[1]; S. Franz[1]; R. Janowski[2]; D. Weuster-Botz[1]; [1] Technical University of Munich, Garching near Munich/D; [2] Helmholtz Zentrum Munich/D
17:15 – 17:40	**The Membrane-stirrer: Solution for bubble-less aeration of bioprocesses** P. Bongartz[1]; T. Karmainski[1]; M. Meyer[1]; J. Linkhorst[1]; T. Tiso[1]; L. Blank[1]; M. Wessling[1]; [1] RWTH Aachen University, Aachen/D	**Down Stream Process Development for Multiproduct Recovery of High-Value Lead Compounds from Marine Microalgae** K. Makay[1]; [1] Hochschule Anhalt, Köthen/D
17:45 – 18:45	**Networking @DECHEMA booth**	
20:00 – 23:00	**Europa**	**MEAT AND EAT** (separate registration necessary) **Award Ceremony ChemCar Competition**

	Brüssel	
Chair:	*T. Hirth[1]; [1]Karlsruher Institut für Technologie (KIT), Karlsruhe/D*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Digital Transformation of Chemical Engineering Science** H. Hasse[1]; [1] Technische Universität Kaiserslautern, Kaiserslautern/D	09:00 – 09:45

	Berlin 3	Brüssel	
	(Bio)pharmaceutical processing Hybrid modelling	**Plant and process concepts** Arnold Eucken Award Lecture	
	G. Ferreira[1]; [1]Technical University of Lisbon, Lisbon/P	*J. Dahlhaus[1]; [1]BASF SE, Ludwigshafen/D*	
09:50 – 10:15	**Application of Hybrid Models in Biopharmaceutical Manufacturing** R. Agharafeie[1]; J. Ramos[1]; R. Oliveira[1]; J. Mendes[1]; [1] Nova University of Lisbon/P	**Insights into reactors through CFD simulations** G. Wehinger[1]; [1] Technische Universität Clausthal, Clausthal-Zellerfeld/D	09:50 – 10:15
10:20 – 10:45	**Hybrid modeling of chromatographic columns enables fast process development** F. Feidl[1]; M. Sokolov[1]; M. von Stosch[1]; A. Butté[1]; N. Cruz[1]; [1] DataHow AG, Zürich/CH		10:20 – 10:45
10:45 – 11:20	Coffee Break		10:45 – 11:20
	(Bio)pharmaceutical processing Chromatography optimization	**Plant and process concepts** Process modelling and simulation	
Chair:	*R. Aires Barros[1]; [1]Instituto Superior Tecnico, University of Lisbon, Lisboa/P*	*H. Freund[1]; [1]TU Dortmund, Dortmund/D*	Chair:
11:20 – 11:45	**Model predictive online control of protein chromatography: optimization of process economics** T. Eslami[1]; A. Jungbauer[2]; N. Lingg[2]; [1] evon gmbh, St. Ruprecht an der Raab/A; [2] University of Natural Resources and Life Sciences (BOKU), vienna/A	**Semi-Empirical and Data-Driven Modelling of Two-Phase Flow in Capillary Tube** J. Deichl[1]; J. Weigert[1]; C. Hoffmann[1]; J. Repke[1]; T. Grunert[2]; [1] TU Berlin/D; [2] BSH Hausgeräte GmbH, Berlin/D	11:20 – 11:45
11:50 – 12:15	**Digital Twin under regulatory demanded Quality-by-Design approach of Chromatography for future pharmaceutical systems** F. Vetter[1]; [1] TU Clausthal, Clausthal-Zellerfeld/D	**Decontamination of polluted soils: a gas fermentation model for SynFuel production and techno-economic estimation** M. Dossow[1]; P. Leuter[1]; H. Spliethoff[1]; S. Fendt[1]; [1] TU München, Garching /D;	11:50 – 12:15
12:20 – 12:45	**Impact of Salt Selection on Ion-Exchange Chromatography of Model Proteins** T. Fuchs[1]; A. Jupke[1]; [1] RWTH Aachen University, Aachen/D	**MAiNGO – A Global Optimizer for Process Engineering: Algorithm and Applications in Process Design and Machine Learning** D. Bongartz[1]; S. Fahr[1]; J. Najman[1]; C. Kappatou[1]; S. Sass[1]; A. Schweidtmann[1]; A. Mitsos[1]; [1] RWTH Aachen University, Aachen/D	12:20 – 12:45
12:45 – 14:15	Europa	**ChemCar Competition** / Lunch Break	12:45 – 14:15
	New materials for processes Advanced catalyst materials	**Plant and process concepts** Modular plant concepts	
Chair:	*M. Nagel[1]; [1]Evonik Operations GmbH, Marl/D*	*N. Kockmann[1]; [1]Technische Universität Dortmund, Dortmund/D*	Chair:
14:15 – 14:40	**Performance of tailored sulfonated poly(ether ether ketone) in dimethyl ether synthesis** A. Greve[1]; T. Osterland[1]; I. Bogatykh[2]; H. Stein[2]; T. Wilharm[2]; [1] Hochschule für Angewandte Wissenschaften Augsburg/D; [2] ASG Analytik-Service AG, Neusäss/D	**MoProLog – Modular Production Logistics in the Process Industry – Standardisation of automation interfaces for logistic modules using the MTP-Concept** O. Judel[1]; A. Fay[2]; M. Blumenstein[2]; K. Gryczycha[3]; S. Lier[3]; [1] BASF SE, Ludwigshafen/D; [2] Helmut-Schmitt-Universität, Hamburg/D; [3] Fachhochschule Südwestfalen, Meschede/D	14:15 – 14:40
14:45 – 15:10	**Carbon Supported Heteropolyacids for the Valorization of Hemicellulose** L. Hombach[1]; N. Hausen[2]; A. Beine[1]; [1] Max Planck Institute for Chemical Energy Conversion, Mülheim a. d. Ruhr/D; [2] RWTH Aachen University, Aachen/D	**Paradigm shift in plant engineering: Interaction of process technology and automation technology – Insights into the VDI recommendation for action** C. Bramsiepe[1]; F. Stenger[2]; [1] Evonik Operations GmbH, Marl/D; [2] Evonik Operations GmbH, Hanau/D	14:45 – 15:10
15:15 – 15:40	**Application of biogenic silica for particulate matter precipitation processes** S. Formann[1]; [1] Deutsches Biomasseforschungszentrum gemeinnützige GmbH (DBFZ), Leipzig/D	**Evaluation of modular plants in decentralized production networks: Concepts for bio-based products with reduced CO_2 footprint** J. Riese[1]; H. Fasel[1]; M. Pannok[2]; M. Finkbeiner[2]; S. Lier[2]; [1] Ruhr-Universität Bochum/D; [2] Fachhochschule Südwestfalen, Meschede/D	15:15 – 15:40
15:40 – 16:15	Coffee Break		15:40 – 16:15
	New materials for processes New materials for processes II	**Plant and process concepts** Reactor and reaction engineering	
Chair:	*W. Peukert[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D*	*S. Schubert[1]; [1]Covestro Deutschland AG, Leverkusen/D*	Chair:
16:15 – 16:40	**Additive Manufacture of Porous Electrodes for Electrochemical Flow Reactors** A. Limper[1]; N. Weber[1]; A. Brodersen[1]; R. Keller[1]; M. Wessling[2]; J. Linkhorst[1]; [1] RWTH Aachen University, Aachen/D; [2] DWI - Leibniz Institute for Interactive Materials, Aachen/D	**Optimal operation policies for load changes of fixed bed methanation reactors** M. Langer[1]; H. Freund[1]; [1] TU Dortmund University, Dortmund/D	16:15 – 16:40
16:45 – 17:10	**Thin anti-fouling films for continuously operated polymerization reactors** D. Kleschew[1]; S. Welzel[1]; V. Neßlinger[2]; [1] University of Stuttgart/D; [2] Paderborn University, Paderborn/D	**The advantages of Taylor-Couette Flow for multiphase operations in the Taylor-Couette Disc Contactor** G. Rudelstorfer[1]; R. Greil[1]; M. Neubauer[1]; A. Grafschafter[1]; M. Siebenhofer[1]; S. Lux[1]; [1] Graz University of Technology, Graz/A	16:45 – 17:10
17:15 – 17:40	**Arduino-based photo- and fluorimeter for application in wine analysis and bioprocess industry** S. Di Nonno[1]; R. Ulber[1]; [1] TU Kaiserslautern/D	**Fouling in continuously operated tubular reactors ort he radical polymerization of N-Vinylpyrrolidone** S. Welzel[1]; U. Nieken[1]; [1] Universität Stuttgart, Institut für Chemische Verfahrenstechnik, Stuttgart/D	17:15 – 17:40
17:45 – 18:45	**Networking @DECHEMA booth**		17:45 – 18:45
20:00 – 23:00	Europa	**MEAT AND EAT** (separate registration necessary) **Award Ceremony ChemCar Competition**	20:00 – 23:00

	Brüssel	
Chair:	*T. Hirth[1]; [1]Karlsruher Institut für Technologie (KIT), Karlsruhe/D*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Digital Transformation of Chemical Engineering Science** H. Hasse[1]; [1] Technische Universität Kaiserslautern, Kaiserslautern/D	09:00 – 09:45
	Konferenzraum 1	**Konferenzraum 2**
	Circular (Bio)Economy Materials cycles and recycling II	**Digital transformation** Enabling technologies and strategies for industry 4.0 I
Chair:	*D. Stapf[1]; [1]Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D*	*M. Bortz[1]; [1]Fraunhofer-Institut für Techno- und Wirtschaftsmathematik ITWM, Kaiserslautern/D*
09:50 – 10:15	**ARCUS Process Demonstration Unit – Introduction of the first commercial plant for chemical recycling of plastic waste in Germany** M. Tomasi Morgano[1]; D. Odenthal[1]; M. Klatte,[1]; [1] ARCUS Greencycling Technologies GmbH, Ludwigsburg/D	**Exploration of the chemical reaction space through selectively accelerated reactive molecular dynamics without prior knowledge** M. Papusha[1]; C. Huang[1]; J. Kiecherer[2]; K. Leonhard[1]; [1] RWTH Aachen University, Aachen/D; [2] Covestro Deutschland AG, Leverkusen/D
10:20 – 10:45	**Closing Loops – Chemical Recycling of Polymers** A. Blesgen[1]; [1] Evonik Operations GmbH, Hanau/D	**Functionalized ceramic components that enable data acquisition and process control** H. Willemsen[1]; U. Scheithauer[2]; L. Rebenklau[2]; [1] 3D-cat B.V., Bergen N-H/NL; [2] Fraunhofer Institut für Keramische Technologien und Systeme - IKTS, Dresden/D
10:45 – 11:20	Coffee Break	
	Circular (Bio)Economy High temperature technology for the Green Deal goals I	**Digital transformation** From simple models to digital twins I
Chair:	*H. Seifert[1]; [1]Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D*	*J. Strube[1]; [1]TU Claustahl, Clausthal-Zellerfeld/D*
11:20 – 11:45	**Contribution of High Temperature Technology to the goals of the European Green Deal - Discussion paper of the ProcessNet Fachgruppe Hochtemperaturtechnik in the ProcessNet Fachgemeinschaft SuPER** T. Kolb[1]; [1] Karlsruher Institut für Technologie (KIT), Karlsruhe/D	**Digital Integration of Laboratory Devices using SiLA 2: Continuous Protein Purification using Periodic Counter-Current Chromatography** T. Habich[1]; F. Lange[1]; J. Rehfeld[1]; S. Beutel[1]; [1] Leibniz Universität Hannover, Institut für Technische Chemie, Hannover/D
11:50 – 12:15		**Digital Twins, Process Analytical Technologies and Neuronal Networks for Chromatography** S. Zobel-Roos[1]; M. Mouellef[1]; F. Vetter[1]; J. Strube[1]; [1] Clausthal University of Technology, Clausthal-Zellerfeld/D
12:20 – 12:45	**Options for action by the steel and thermoprocessing industries for defossilization** H. Pfeifer[1]; [1] RWTH Aachen - IOB, Venwegen/D	**Automated process synthesis as an approach for structured process development** H. Weinhold[1]; T. Müller[1]; K. Wekenborg[1]; A. Bamberg[1]; [1] Merck KGaA, Darmstadt/D
12:45 – 14:15	**Europa**	**ChemCar Competition** / Lunch Break
	Circular (Bio)Economy High temperature technology for the Green Deal goals II	**Digital transformation** From simple models to digital twins II
Chair:	*T. Kolb[1]; [1]Karlsruhe Institute of Technology, Karlsruhe/D*	*J. Strube[1]; [1]TU Claustahl, Clausthal-Zellerfeld/D*
14:15 – 14:40	**A Pilot Scale Demo Line for Continuous Energy Efficient Coil Coating** P. Weinbrecht[1]; M. Schneider[1]; C. Wieland[2]; C. Weis[1]; D. Trimis[1]; [1] Karlsruher Institut für Technologie (KIT), Karlsruhe/D; [2] DVGW-Forschungsstelle am Engler-Bunte-Institut des KIT, Karlsruhe/D	**Simulation and Data Analytics on Multiple Scales for Sustainable Production and Supply** J. Appel[1]; S. Avhad[2]; A. Böttger[1]; A. Chakraborty[2]; D. Golenbock[1]; I. Gräf[1]; D. Heitmann[1]; S. Kujawski[1]; B. Müller-Wildenauer[1]; N. Sterneberg[1]; M. Otromke[1]; X. Mingquan[1]; [1] Clariant Produkte (Deutschland) GmbH, Burgkirchen/D; [2] Clariant India Limited, Mumbai/IND
14:45 – 15:10	**Challenges of the energy transition to sustainable plant and process technology of reheating and heat treatment furnaces for metals** W. Lenz[1]; H. Pfeifer[1]; [1] RWTH Aachen University, Aachen/D	**The digital normling as enabler of process and cost benchmarks** L. Drochtert[1]; [1] Evonik Operations GmbH, Essen/D
15:15 – 15:40	**Methane pyrolysis: CO_2 free production of hydrogen from natural gas** J. Bode[1]; L. Pasin[2]; D. Rieck[2]; D. Flick[2]; K. Ehrhardt[2]; [1] BASF SE, Darmstadt/D; [2] BASF SE, Ludwigshafen/D	**Challenges and Opportunities for Online Simulations for Process Performance Monitoring at Covestro** M. Palagonia[1]; C. Bratfisch[1]; K. Voelskow[1]; [1] Covestro Deutschland AG, Leverkusen/D
15:40 – 16:15	Coffee Break	
	Circular (Bio)Economy High temperature technology for the Green Deal goals III	**Digital transformation** Enabling technologies and strategies for industry 4.0 II
Chair:	*H. Seifert[1]; [1]Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D*	*J. Appel[1]; [1]Clariant Produkte (Deutschland) GmbH, Burgkirchen/D*
16:15 – 16:40	**Fuels of the future for the cement industry** V. Hoenig[1]; S. Schäfer[1]; [1] VDZ Technology gGmbH, Düsseldorf/D	**Covestro Monitoring Platform - Monitoring of Sensor, Asset and Unit Health at Scale** B. Bamps[1]; D. Dürig[1]; P. Frenzel[1]; B. Marwaha[2]; [1] Covestro Deutschland AG, Leverkusen/D; [2] Covestro LLC, Baytown/USA
16:45 – 17:10	**Oxyfuel combustion experiments to reduce CO_2 emissions in the cement production process** C. Kroumian[1]; J. Maier[1]; G. Scheffknecht[1]; [1] Universität Stuttgart/D	
17:15 – 17:40	**Entrained flow gasification of pyrolysis oil - influence of flame structure on fuel conversion** M. Haas[1]; D. Böning[1]; U. Santo[1]; T. Kolb[2]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D; [2] Karlsruhe Institute of Technology (KIT), Karlsruhe/D	**Modular production involving Benchtop NMR: Current application examples driven by digitalization** M. Bornemann-Pfeiffer[1]; S. Kern[2]; L. Wander[1]; K. Meyer[1]; M. Maiwald[1]; [1] Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin/D; [2] S-PACT GmbH, Aachen/D
17:45 – 18:45	**Networking @DECHEMA booth**	
20:00 – 23:00	**Europa** **MEAT AND EAT** (separate registration necessary) **Award Ceremony ChemCar Competition**	

	Brüssel	
Chair:	*T. Hirth[1]; [1]Karlsruher Institut für Technologie (KIT), Karlsruhe/D*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Digital Transformation of Chemical Engineering Science** H. Hasse[1]; [1] Technische Universität Kaiserslautern, Kaiserslautern/D	09:00 – 09:45
	Konferenzraum 4/5	**Konferenzraum 7/8/9**
	Fluids and solids process engineering Adorption I	**Industrial water and wastewater** Industrial wastewater management
Chair:	*F. Dreisbach[1]; [1]Waters GmbH - Unternehmensbereich TA Instruments, Hüllhorst/D*	*T. Track[1]; [1]DECHEMA e.V., Frankfurt am Main/D*
09:50 – 10:15	**Adsorption and phase behaviour of pure fluids (CO_2, CH_4, C_2H_4) in nanoporous materials with hierarchical pore structure** P. Leicht[1]; S. Eder[2]; M. Thommes[2]; [1] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen /D; [2] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D	**Water reuse in the production chain of PV modules** E. Musa[1]; E. Billenkamp[2]; [1] EnviroChemie GmbH, Rossdorf /D; [2] EnviroChemie GmbH, Rossdorf/D
10:20 – 10:45	**Binary adsorption of light hydrocarbons on zeolites at low temperatures** M. Roehnert[1]; C. Pasel[1]; C. Bläker[1]; D. Bathen[2]; [1] University of Duisburg-Essen, Duisburg/D; [2] University of Duisburg-Essen; Institute of Energy and Environmental Technology IUTA e.V., Duisburg/D	**Digital Transformation in industrial wastewater management** S. Spielhoff[1]; [1] Envirochemie GmbH, Rossdorf/D
10:45 – 11:20	Coffee Break	
	Fluids and solids process engineering Adorption II	**Industrial water and wastewater** Water management for Power-to-X
Chair:	*M. Thommes[1]; [1]Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D*	*T. Track[1]; [1]DECHEMA e.V., Frankfurt am Main/D*
11:20 – 11:45	**Clarification of predominant interaction for adsorption of hydrocarbons on modified zeolites** V. Mauer[1]; C. Bläker[1]; C. Pasel[1]; D. Bathen[1]; [1] Universität Duisburg-Essen, Duisburg/D	**Water management for Power-to-X** H. Horn[1]; Y. Morales[2]; S. Prantik[2]; F. Saravia[2]; [1] Karlsruhe Insitute of Technology (KIT), Karlsruhe/D; [2] DVGW Research Center at the Engler-Bunte Institute, Karlsruhe Institute of Technology (KIT), Karlsruhe/D
11:50 – 12:15	**Adsorption and nanoporous materials characterization in the liquid phase: Novel methodologies based on NMR relaxometry** C. Schlumberger[1]; M. Thommes[1]; [1] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D	
12:20 – 12:45	**Adsorption of heterocycles on silica alumina gels** L. Gehrke[1]; C. Bläker[1]; C. Pasel[1]; D. Bathen[2]; [1] University of Duisburg-Essen, Duisburg/D; [2] University of Duisburg-Essen; Institute of Energy and Environmental Technology e.V. (IUTA), Duisburg/D	**Water and Power-to-X - An Overview** M. Bippes[1]; H. Deeg[2]; T. Garbe[1]; A. Siemens[3]; [1] Volkswagen AG, Wolfsburg/D; [2] Dr. Ing. h.c. F. Porsche AG, Weissach/D; [3] AUDI AG, Ingolstadt/D
12:45 – 14:15	**Europa**	**ChemCar Competition** / Lunch Break
	Fluids and solids process engineering Adsorption and absorption	**Industrial water and wastewater** Sustainable wastewater treatment
Chair:	*D. Bathen[1]; [1]Universität Duisburg-Essen, Duisburg/D*	*T. Track[1]; [1]DECHEMA e.V., Frankfurt am Main/D*
14:15 – 14:40	**Adsorption of mercury on activated carbon** J. Steinhaus[1]; C. Pasel[1]; C. Bläker[1]; D. Bathen[2]; [1] University Duisburg-Essen, Duisburg/D; [2] University Duisburg-Essen; IUTA Institute of Energy & Environmental Engineering, Duisburg/D	**Emission control system for wastewater treatments plants.** M. Stier[1]; [1] Variolytics GmbH, Stuttgart/D
14:45 – 15:10	**Mass transfer performance and mechanism of carbon capture with pure monoethanolamine in an aerosol reactor** E. Kayahan[1]; U. Di Caprio[1]; A. Van den Bogaert[1]; M. Khan[2]; M. Bulut[2]; L. Braeken[1]; T. Van Gerven[3]; M. Leblebici[1]; [1] KU Leuven, Diepenbeek/B; [2] Flemish Institute for Technological Research (VITO), Mol/B; [3] KU Leuven, Leuven/B	**Separation of Nanoplastics from wastewater** A. Abdeljaoued[1]; [1] Evonik Operations GmbH, Hanau/D
15:15 – 15:40	**Resolving dispersion coefficients in reduced order chromatography models** J. Rao[1]; M. Behr[2]; E. von Lieres[1]; [1] Forschungszentrum Jülich GmbH, Jülich/D; [2] RWTH Aachen/D	**Electrochemical H_2O_2 Generation for Sustainable Water Treatment** R. Wünsch[1]; S. Rüting[2]; R. Frydendal[3]; Z. Gottesfeld[3]; S. Neumayer[1]; A. Blesgen[1]; [1] Evonik Operations GmbH, Hanau/D; [2] Xylem Services, Herford/D; [3] HPNow, Copenhagen/DK
15:40 – 16:15	Coffee Break	
	Fluids and solids process engineering Liquid-liquid phase separation	
Chair:	*A. Jupke[1]; [1]RWTH Aachen University, Aachen/D*	
16:15 – 16:40	**Influence of feeding conditions on separation of liquid-liquid dispersions in continuous gravity settler** S. Ye[1]; L. Hohl[1]; M. Kraume[1]; [1] Technical University of Berlin/D	
16:45 – 17:10	**Drop-Based Settler-Design Tool Developed Based on Iso-Optical Systems** D. Leleu[1]; A. Pfennig[1]; [1] University of Liège/B	
17:15 – 17:40	**Design and Separation of w/o Pickering Emulsions for L/L Catalysis** A. Drews[1]; M. Kempin[1]; S. Stock[2]; R. von Klitzing[2]; M. Petzold[3]; M. Kraume[3]; [1] Hochschule für Technik und Wirtschaft Berlin, University of Applied Sciences, Berlin/D; [2] TU Darmstadt/D; [3] Technische Universität Berlin/D	
17:45 – 18:45	**Networking @DECHEMA booth**	
20:00 – 23:00	**Europa**	**MEAT AND EAT** (separate registration necessary) **Award Ceremony ChemCar Competition**

	Brüssel	
Chair:	*T. Hirth[1]; [1]Karlsruher Institut für Technologie (KIT), Karlsruhe/D*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Digital Transformation of Chemical Engineering Science** H. Hasse[1]; [1] Technische Universität Kaiserslautern, Kaiserslautern/D	09:00 – 09:45
	Konferenzraum 6 / **Youth Programme**	**Konferenzraum 3** / **Energy transition** Energy transition III
Chair:		*T. Willner[1]; [1]HAW Hamburg, Hamburg/D*	Chair:
09:50 – 10:15	see **https://dechema.de/en/JT2022_YP**	**Sustainability in the chemical industry** A. Nymand-Andersen[1]; [1] Evonik Industries AG, Marl/D	09:50 – 10:15
10:20 – 10:45		**Techno-economic and environmental assessment of multiple energy transition options – methodology and results** S. Adelung[1]; R. Dietrich[1]; F. Habermeyer[1]; S. Maier[1]; F. Moser[1]; M. Raab[1]; Y. Rahmat[1]; J. Weyand[1]; [1] German Aerospace Center (DLR e.V.), Stuttgart/D	10:20 – 10:45
10:45 – 11:20	Coffee Break		10:45 – 11:20
	Youth Programme	**Energy transition** Energy transition IV	
Chair:		*T. Willner[1]; [1]HAW Hamburg, Hamburg/D*	Chair:
11:20 – 11:45	see **https://dechema.de/en/JT2022_YP**	**Closed CO_2 cycles in the glass production – A techno-economic evaluation** F. Moser[1]; S. Maier[1]; R. Dietrich[1]; F. Drünert[2]; B. Fleischmann[2]; [1] German Aerospace Center / Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Stuttgart /D; [2] Hüttentechnische Vereinigung der Deutschen Glasindustrie (HVG) e.V., Offenbach am Main/D	11:20 – 11:45
11:50 – 12:15		**Power and Biomass to Liquid – An option for Europe's sustainable and independent aviation fuel production** F. Habermeyer[1]; V. Papantoni[2]; S. Maier[1]; R. Dietrich[1]; [1] Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Stuttgart/D; [2] Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Oldenburg/D	11:50 – 12:15
12:20 – 12:45		**Simultaneous Design of Renewable Fuels and their Production Processes** P. Ackermann[1]; A. König[1]; M. Dahmen[2]; A. Mitsos[1]; J. Viell[1]; [1] RWTH Aachen University, Aachen/D; [2] Forschungszentrum Jülich GmbH, Jülich/D	12:20 – 12:45
12:45 – 14:15	**Europa**	**ChemCar Competition** / Lunch Break	12:45 – 14:15
	Youth Programme	**Energy transition** Energy transition V	
Chair:		*A. Vandersickel[1]; [1]TU München, Garching/D*	Chair:
14:15 – 14:40	see **https://dechema.de/en/JT2022_YP**	**Changing color of hydrogen production via carbon dioxide usage** A. Jariwala[1]; H. Bouse[2]; [1] Director of Advanced Technologies, USA/USA; [2] Evonik Corporation , Mobile/USA	14:15 – 14:40
14:45 – 15:10		**Renewable, synthetic natural gas as seasonal energy storage in industrial application at Stadtwerke Trier** P. Schmit[1]; L. Winkler[2]; M. Brunner[3]; [1] Hochschule für Technik und Wirtschaft des Saarlandes, Saarbrücken/D; [2] Universität des Saarlandes, Saarbrücken/D; [3] FITT gGmbH, Saarbrücken/D	14:45 – 15:10
15:15 – 15:40			15:15 – 15:40
15:40 – 16:15	Coffee Break		15:40 – 16:15
	Youth Programme		
16:15 – 16:40	see **https://dechema.de/en/JT2022_YP**		16:15 – 16:40
16:45 – 17:10			16:45 – 17:10
17:15 – 17:40			17:15 – 17:40
17:45 – 18:45	**Networking @DECHEMA booth**		17:45 – 18:45
20:00 – 23:00	**Europa**	**MEAT AND EAT** (separate registration necessary) **Award Ceremony ChemCar Competition**	20:00- – 3:00

	Brüssel	
Chair:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Towards Carbon-neutral Plastic Bioupcycling** S. Lim[1]; [1] NTU Singapore, Singapore/SGP	09:00 – 09:45
Chairs:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A; J. Schueller[1]; [1] BASF SE, Ludwigshafen/D*	Chairs:
09:45 – 09:50	**ESBES Award Ceremony**	09:45 – 09:50
09:50 – 09:55	**BASF Poster Award**	09:50 – 09:55

	Berlin 1	Berlin 2	
	Biotechnology Synthetic and systems biology	**Biotechnology** Separation	
Chair:	*P. Jacques[1]; [1]University of Liege, Gembloux/B*	*L. van der Wielen[1]; [1]University of Limerick, Delft/IRL*	Chair:
10:00 – 10:25	**Comparing different modelling approaches for metabolic network dynamic simulation** O. Pennington[1]; D. Zhang[2]; [1] University of Manchester, Cirencester/UK; [2] University of Manchester/UK	**Separation of organic acids using nanomembranes with tunable permeation characteristics** M. Silva dos Santos[1]; A. Jungbauer[2]; C. Schuster[3]; [1] Austrian Centre of Industrial Biotechnology, Vienna/A; [2] University of Natural Resources and Life Sciences (BOKU), Vienna /A; [3] Paris Lodron University Salzburg/A	10:00 – 10:25
10:30 – 10:55	**Construction of a synthetic metabolic pathway for direct production of 2,4-dihydroxybutyric acid from one- and two-carbon alcohols** C. Remedios Frazao[1]; N. Wagner[1]; K. Rabe[1]; T. Walther[1]; [1] TU Dresden, ZINT, Dresden/D	**Biomass retention is an alternative to fed-batch processes for amorpha-4,11 -diene production via the methylerythritol phosphate pathway (MEP) in complex media** C. Castillo[1]; R. Takors[1]; [1] University of Stuttgart/D	10:30 – 10:55
10:55 – 11:30	Coffee Break		10:55 – 11:30
	Biotechnology Advanced production systems	**Biotechnology** Downstream processing II	
Chair:	*P. Jacques[1]; [1]University of Liege, Gembloux/B*	*A. Jungbauer[1]; [1]University of Natural Resources and Life Science, Vienna/A*	Chair:
11:30 – 11:55	**From gene to process: Biosurfactant production by Pseudomonas putida** T. Tiso[1]; M. Filbig[1]; K. Willing[2]; G. Welsing[1]; C. Michel[1]; G. Peschel[2]; S. Weiser[2]; L. Blank[1]; L. Regestein[2]; [1] RWTH Aachen University, Aachen/D; [2] Leibniz Institut für Naturstoff-Forschung und Infektionsbiologie e.V. - Hans-Knöll-Institut, Jena/D	**CASPON technology – a platform process for non-platform proteins using Escherichia coli** M. Cserjan-Puschmann[1]; C. Köppl[2]; N. Lingg[2]; A. Fischer[2]; C. Krö ß[3]; R. Schneider[3]; A. Jungbauer[1]; G. Striedner[1]; [1] University of Natural Resources and Life Sciences (BOKU), Vienna/A; [2] Austrian Centre of Industrial Biotechnology, Vienna/A; [3] University Innsbruck/A	11:30 – 11:55
12:00 – 12:25	**Cell-free biocatalytic synthesis of nucleotide sugars** T. Rexer[1]; T. Hoang Son[1]; A. Alcala[1]; R. Mahour[1]; U. Reichl[2]; [1] Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [2] Max Planck Institute for Dynamics of Complex Technical Systems & Otto-von-Guericke University Magdeburg/D	**Modeling of an Enzymatic Reactive Extraction Centrifuge as part of a multi-enzyme reaction cascade** F. Meyer[1]; A. Liese[1]; M. Skiborowski[1]; P. Bubenheim[1]; T. Waluga[1]; [1] Hamburg University of Technology, Hamburg/D	12:00 – 12:25
12:30 – 12:55	**Increasing Hydrolysis and Methane Production from Sugar Beet Pulp through Biomagnetism** M. Pessoa[1]; M. Motta Alves Sobrinho[2]; M. Kraume[1]; [1] Teschnische Universität Berlin/D; [2] Federal University of Pernambuco, Recife/BR	**Model based product temperature and endpoint determination in primary drying of lyophilization processes** A. Juckers[1]; P. Knerr[2]; F. Harms[2]; J. Strube[1]; [1] Technische Universität Clausthal, Clausthal-Zellerfeld/D; [2] Martin Christ Gefriertrocknungsanlagen GmbH, Osterode am Harz/D	12:30 – 12:55
12:55 – 14:00	**Brüssel**	**ChemPLANT Competition** *(organized by VDI-GVC)* / Lunch Break	12:55 – 14:00
	Biotechnology Electrobiotechnology	**Biotechnology** Cultivation of microalgae and cyanobacteria	
Chair:	*S. Lütz[1]; [1]TU Dortmund, Dortmund/D*	*R. Ulber[1]; [1]TU Kaiserlautern, Kaiserslautern/D*	Chair:
14:00 – 14:25	**Establishing an All-in-One bioelectrochemical reaction cascade with unspecific peroxygenase from Agrocybe aegerita immobilized on Globugraphite electrode** V. Bueschler[1]; G. Sayoga[1]; A. Liese[1]; H. Beisch[2]; B. Fiedler[2]; [1] Hamburg University of Technology - Institute of Technical Biocatalysis, Hamburg/D; [2] Hamburg University of Technology - Institute of Polymers and Composites, Hamburg/D	**Microalgae cultivation in closed photobioreactors, integrated into a circular economy** H. Väth[1]; [1] Algoliner GmbH & Co. KG, Messel/D	14:00 – 14:25
14:30 – 14:55	**Bio-electrochemical hydroxylation of 4-ethylbenzoic acid by unspecific peroxygenase in an All-in-one electrode system** G. Sayoga[1]; H. Beisch[1]; V. Bueschler[1]; B. Fiedler[1]; A. Liese[1]; [1] Hamburg University of Technology (TUHH), Hamburg/D	**Development of novel silica hydrogels with improved structure properties to support growth of entrapped microalgae** L. Fladung[1]; S. Homburg[1]; O. Kruse[2]; A. Patel[1]; [1] Bielefeld University of Applied Sciences, Bielefeld/D; [2] Bielefeld University , Bielefeld/D	14:30 – 14:55
15:00 – 15:25	**Electro-assisted fermentation of Clostridium acetobutylicum in a new designed single chamber bioreactor** J. Hengsbach[1]; R. Ulber[1]; D. Holtmann[2]; [1] Technical University of Kaiserslautern, Kaiserslautern/D; [2] Technische Hochschule Mittelhessen (THM), Gießen/D	**Luffa – the optimal biodegradable carrier for the adherent cultivation of terrestrial cyanobacteria?** J. Kollmen[1]; R. Mofrad[1]; D. Strieth[1]; [1] TU Kaiserslautern/D	15:00 – 15:25
15:30 – 15:55	**Magnetically enhanced fluidized bed electrodes - A promising reactor concept for bio-electrochemical syntheses** M. Abt[1]; A. Tschöpe[2]; M. Franzreb[3]; [1] KIT Karlsruhe, /D; [2] Karlsruher Institut für Technologie (KIT), Institut für Funktionelle Grenzflächen (IFG), Eggenstein-Leopoldshafen/D; [3] KIT - Karlsruhe Institute of Technology, Karlsruhe/D		15:30 – 15:55
16:00	End of Conference		16:00

	Brüssel	
Chair:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Towards Carbon-neutral Plastic Bioupcycling** S. Lim[1]; [1] NTU Singapore, Singapore/SGP	09:00 – 09:45
Chairs:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A; J. Schueller[1]; [1] BASF SE, Ludwigshafen/D*	Chairs:
09:45 – 09:50	**ESBES Award Ceremony**	09:45 – 09:50
09:50 – 09:55	**BASF Poster Award**	09:50 – 09:55

	Berlin 3	Brüssel	
	(Bio)pharmaceutical processing Production and recovery	**Circular (Bio)Economy** Bioeconomy I	
Chair:	*A. Liese[1]; [1]Technische Universität Hamburg (TUHH), Hamburg/D*	*J. Viell[1]; [1]RWTH Aachen, Aachen/D*	Chair:
10:00 – 10:25	**Towards continuous and efficient production of Artemisinin from Artemisia annua leaves** T. Vu[1]; [1] Max Planck Institut für Dynamik komplexer techn. Systeme, Magdeburg/D	**Bio-based Aniline: scale-up of a sustainable innovative route to a strategic raw material** T. Voessing[1]; G. Jaeger[1]; W. Kloeckner[1]; D. Kreyenschulte[1]; M. Machat[2]; R. Takors[3]; G. Sprenger[3]; [1] Covestro Deutschland AG, Leverkusen/D; [2] Covestro Deutschland AG / CAT Catalytic Center, RWTH Aachen, Leverkusen/D; [3] Universität Stuttgart/D	10:00 – 10:25
10:30 – 10:55	**Recovery and characterization of secretory immunoglobulin A from CHO cell culture supernatant** D. Ferreira-Faria[1]; N. Lali[2]; N. Lingg[2]; A. Männik[3]; E. Tombak[3]; K. Virumäe[3]; A. Jungbauer[4]; [1] Instituto Superior Técnico, University of Lisbon, Lisbon/P; [2] Austrian Centre of Industrial Biotechnology, Wien/A; [3] Icosagen Cell Factory, Tartu/EST; [4] University of Natural Resources and Life Sciences (BOKU), Wien/A	**Novel gradient-based monitoring for enhanced hydrolysis in plug-flow based dark fermentation** M. Longis[1]; T. Menzel[1]; P. Neubauer[1]; S. Junne[1]; [1] Technische Universität Berlin/D	10:30 – 10:55
10:55 – 11:30	Coffee Break		10:55 – 11:30
	(Bio)pharmaceutical processing Advanced Technologies	**Circular (Bio)Economy** Bioeconomy II	
Chair:	*J. Büchs[1]; [1]RWTH Aachen, Aachen/D*	*J. Viell[1]; [1]RWTH Aachen, Aachen/D*	Chair:
11:30 – 11:55	**Intensification of Unit Operations in Biopharmaceutical Industry by Implementation of new PAT Technology** H. Höck[1]; [1] Pall GmbH, Dreiech/D	**Polyhydroxyalkanoates from oleaginous waste streams: Production and control strategies** B. Gutschmann[1]; S. Waldburger[1]; T. Schiewe[1]; L. Aulich[1]; M. Münzberg[2]; P. Neubauer[1]; S. Riedel[1]; [1] Technische Universität Berlin, Berlin/D; [2] innoFSPEC, University of Potsdam, Potsdam/D	11:30 – 11:55
12:00 – 12:25	**Combination of Raman spectroscopy and in-line microscopy monitoring for yeast fermentation** M. Klaverdijk[1]; M. Klijn[1]; M. Ottens[1]; [1] TU Delft, Delft/NL	**Tailoring the HHx monomer content of P(HB-co-HHx) by flexible substrate mixtures** I. Thiele[1]; L. Santolin[1]; [1] Technische Universität Berlin, Berlin/D	12:00 – 12:25
12:30 – 12:55	**Low-Energy-Electron Irradiation as a potential game changer for pathogen inactivation in the pharmaceutical industry** D. Becker[1]; S. Ulbert[2]; J. Fertey[2]; M. Thoma[3]; U. König[4]; A. Traube[1]; [1] KyooBe Tech GmbH, Leinfelden/D; [2] Fraunhofer IZI, Leipzig/D; [3] Fraunhofer IPA, Stuttgart/D; [4] Fraunhofer FEP, Dresden/D	**Caproate production from CO_2 and H_2 in synthetic co-culture with lactate-dependent process control** J. Herzog[1]; A. Mook[2]; A. Zeng[1]; F. Bengelsdorf[2]; [1] Hamburg University of Technology (TUHH), Hamburg/D; [2] Ulm University, Ulm/D	12:30 – 12:55
12:55 – 14:00	Brüssel — **ChemPLANT Competition** *(organized by VDI-GVC)* / Lunch Break		12:55 – 14:00
		Circular (Bio)Economy Bioeconomy III	
Chair:		*J. Michels[1]; [1]DECHEMA e.V., Frankfurt am Main/D*	Chair:
14:00 – 14:25		**Mycelium-based construction materials ort he post-oil era** D. Saez[1]; D. Grizmann[1]; M. Trautz[1]; A. Werner[2]; [1] RWTH Aachen – Architektur, Aachen/D; [2] TU Dresden, Dresden/D	14:00 – 14:25
14:30 – 14:55		**Alternative feedstocks for microbial fermentations based on municipal green waste** M. Volkmar[1]; R. Ulber[1]; M. Weisbrodt[1]; S. Bauschatz[1]; [1] Technische Universität Kaiserslautern/D	14:30 – 14:55
15:00 – 15:25		**Versatile Green Technology for Waste Valorisation – Products from Cocoa Bean Shell and Essential Oil Plants** L. Knierim[1]; C. Jensch[1]; J. Strube[1]; [1] TU Clausthal, Clausthal-Zellerfeld/D	15:00 – 15:25
15:30 – 15:55		**Media optimization for sustainable fuel production: How to produce biohydrogen from renewable resources with Thermotoga neapolitana** B. Rothkranz[1]; S. Krafft[1]; N. Tippkötter[1]; [1] Bioprocess Engineering, FH Aachen – University of Applied Science, Jülich/D	15:30 – 15:55
16:00	End of Conference		16:00

	Brüssel	
Chair:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Towards Carbon-neutral Plastic Bioupcycling** S. Lim[1]; [1] NTU Singapore, Singapore/SGP	09:00 – 09:45
Chairs:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A; J. Schueller[1]; [1] BASF SE, Ludwigshafen/D*	Chairs:
09:45 – 09:50	**ESBES Award Ceremony**	09:45 – 09:50
09:50 – 09:55	**BASF Poster Award**	09:50 – 09:55

	Konferenzraum 1	Konferenzraum 2	
	Plant and process concepts Smart engineering and operations		
Chair:	*H. Freund[1]; [1]TU Dortmund, Dortmund/D*		Chair:
10:00 – 10:25	**Collaboration 4.0 – Collaboration of the Future: Vision of the Interface Asset Owner – Technology & Service Provider** N. Markloff[1]; [1] Evonik Operations GmbH, Essen/D		10:00 – 10:25
10:30 – 10:55	**Implementation of a plant shutdown in times of pandemic** D. Höbing[1]; [1] Evonik Operations GmbH, Marl/D		10:30 – 10:55
10:55 – 11:30	Coffee Break		10:55 – 11:30
	Plant and process concepts Measurement and control	**Circular (Bio)Economy** Biorefineries	
Chair:	*J. Sauer[1]; [1]Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D*	*J. Michels[1]; [1]DECHEMA e.V., Frankfurt am Main/D*	Chair:
11:30 – 11:55	**Determination of Reaction Kinetics with an Automated Flow Calorimetry System** T. Frede[1]; M. Greive[1]; T. Brockhoff[1]; N. Kockmann[1]; [1] TU Dortmund University - Department of Biochemical and Chemical Engineering, Equipment Design, Dortmund/D	**Use of a green biomass in a biorefinery platform** L. Varriale[1]; K. Kuka[2]; N. Tippkötter[3]; R. Ulber[1]; [1] Technical University of Kaiserslautern /D; [2] Julius-Kühn Institute, Braunschweigh/D; [3] University of Applied FH Aachen, Jülich/D	11:30 – 11:55
12:00 – 12:25	**Process Analytical Technology as a Key Enabling Technology in Quality by Design for Solid-Liquid Extraction Processes** L. Knierim[1]; C. Jensch[1]; J. Strube[1]; [1] TU Clausthal, Clausthal-Zellerfeld/D	**Heterotrophic cultivation of Galdieria sulphuraria under non-sterile conditions in digestate and hydrolyzed straw** D. Pleissner[1]; [1] Leuphana Universität Lüneburg, Lüneburg/D	12:00 – 12:25
12:30 – 12:55	**Visualizing Reactive Mixing Phenomena with the Novel Imaging UV/Vis Spectroscopy in Asymmetric and Transient Flows** T. Frey[1]; M. Hoffmann[1]; M. Schlüter[1]; [1] Hamburg University of Technology (TUHH), Hamburg/D	**Fractionation of Lignin: Refining Organosolv Lignin for Valuable Biobased Products** A. Ponnudurai[1]; P. Schulze[1]; A. Seidel-Morgenstern[1]; H. Lorenz[1]; [1] Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D	12:30 – 12:55
12:55 – 14:00	**Brüssel**	**ChemPLANT Competition** *(organized by VDI-GVC)* / Lunch Break	12:55 – 14:00
	Plant and process concepts Electrification of chemical processes	**Circular (Bio)Economy** Unconventional conversion technologies in circular economy	
Chair:	*F. Stenger[1]; [1]Evonik Operations GmbH, Hanau/D*	*L. van der Wielen[1]; [1]University of Limerick, Delft/IRL*	Chair:
14:00 – 14:25	**Vapor recompression and heat pump technology: An option for electrification of chemical processes** E. Kunze[1]; N. Paul[2]; A. Rix[2]; M. Schröder[3]; [1] Evonik Operations GmbH, Hanau/D; [2] Evonik Operations GmbH, Marl/D; [3] Evonik Operations GmbH , Marl/D	**Phosphate assimilation with co-cultures of Acinetobacter tjernbergiae and Pseudomonas stutzeri** S. Täuber[1]; S. Riedel[1]; P. Neubauer[1]; S. Junne[1]; [1] Technische Universität Berlin/D	14:00 – 14:25
14:30 – 14:55	**Techno-economic benchmarking of electrochemically induced succinic acid crystallization** M. Gausmann[1]; C. Kocks[1]; A. Jupke[1]; [1] RWTH Aachen University, Aachen/D	**Investigation of the rate of ureolytis during microbially induced calcium carbonate precipitation under high concentrations of urea and calcium salts** N. Erdmann[1]; M. Lorenz[1]; K. de Payrebrune[1]; D. Strieth[1]; [1] TU Kaiserslautern/D	14:30 – 14:55
15:00 – 15:25	**Carbon dioxide as feedstock for carbon monoxide production** J. Kintrup[1]; K. Perrey[1]; K. Weichert[1]; A. Bulan[1]; R. Weber[1]; T. Schmidt[1]; [1] Covestro Deutschland AG, Leverkusen/D	**Recovery of Phosphorus From Dried Sewage Sludge for Fertilizer Formulations** Z. Shariff[1]; D. Leleu[1]; A. Pfennig[1]; [1] University of Liège/B	15:00 – 15:25
15:30 – 15:55	**Electrifying Organic Synthesis** C. Hoppe[1]; S. Arndt[1]; P. Stenner[1]; [1] Evonik Operations GmbH, Hanau/D		15:30 – 15:55
16:00	End of Conference		16:00

	Brüssel	
Chair:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Towards Carbon-neutral Plastic Bioupcycling** S. Lim[1]; [1] NTU Singapore, Singapore/SGP	09:00 – 09:45
Chairs:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A; J. Schueller[1]; [1] BASF SE, Ludwigshafen/D*	Chairs:
09:45 – 09:50	**ESBES Award Ceremony**	09:45 – 09:50
09:50 – 09:55	**BASF Poster Award**	09:50 – 09:55

	Konferenzraum 4/5	Konferenzraum 7/8/9	
	Fluids and solids process engineering Reactor geometry optimization I	**Fluids and solids process engineering** Technical challenges	
Chair:	*U. Fritsching[1]; [1]Leibniz-Institut für Werkstofforientierte Technologien - IWT / Universität Bremen/D*	*J. Riese[1]; [1]Ruhr-Universität Bochum/D*	Chair:
10:00 – 10:25	**Multiphase stirred tank bioreactors - New geometrical concepts and scale-up approaches** L. Böhm[1]; C. Bliatsiou[1]; L. Hohl[1]; M. Kraume[1]; [1] Technische Universität Berlin/D	**Influence of pH-value and ionic concentration on the dynamic foamability index of flotation frothers** J. Görgen[1]; H. Le[1]; G. Krekel[1]; M. Ulbricht[2]; [1] Hochschule Niederrhein, Krefeld/D; [2] Universität Duisburg-Essen, Essen/D	10:00 – 10:25
10:30 – 10:55	**Flow fields in multi-stage stirred tank reactors using a combination of different impeller types** M. Matzke[1]; E. Ranft[1]; L. Dominkovic[1]; M. Ulbricht[2]; H. Schultz[1]; [1] University of Applied Sciences Niederrhein, Krefeld/D; [2] University of Duisburg-Essen, Essen/D	**Characteristics of Droplet Explosions Studied with Non-Equilibrium Molecular Dynamics Simulations** D. Schaefer[1]; B. Kunstmann[1]; M. Kohns[1]; H. Hasse[1]; [1] TU Kaiserslautern/D	10:30 – 10:55
10:55 – 11:30	Coffee Break		10:55 – 11:30
	Fluids and solids process engineering Reactor geometry optimization II	**Fluids and solids process engineering** Modelling	
Chair:	*M. Schlüter[1]; [1]Technische Universität Hamburg (TUHH), Hamburg/D*	*M. Grünewald[1]; [1]Ruhr-Universität Bochum, Bochum/D*	Chair:
11:30 – 11:55	**Influence of particle trap rings with different shapes and heights on the performance of spiral jet mills** L. Radeke[1]; A. Lindner[1]; N. Jongebloed[1]; M. Ulbricht[2]; H. Schultz[1]; [1] Hochschule Niederrhein, Krefeld/D; [2] Universität Duisburg-Essen, Essen/D	**Investigation of disperse Systems using the Navier-Stokes-Korteweg approach** C. Wachsmann[1]; K. Langenbach[1]; [1] Leopold-Franzens-Universität Innsbruck/A	11:30 – 11:55
12:00 – 12:25	**CFD-based compartment modeling approach for continuous polymer reactors by means of the Mean-Age theory** S. Schwarz[1]; M. Grünewald[1]; P. Biessey[1]; T. Frey[2]; M. Schlüter[2]; M. Hoffmann[2]; [1] Ruhr-Universität Bochum / Lehrstuhl für Fluidverfahrenstechnik, Bochum/D; [2] Technische Universität Hamburg (TUHH), Hamburg/D	**Transient diffusion investigated with irreversible thermodynamics and molecular simulations** J. Yip[1]; [1] Leopold-Franzens-Universität Innsbruck/A	12:00 – 12:25
12:30 – 12:55		**A chemical association model to describe mixtures of structural isomers with functional groups** G. Segner[1]; P. Zimmermann[1]; T. Zeiner[1]; [1] Technische Universität Graz/A	12:30 – 12:55
12:55 – 14:00	Brüssel: **ChemPLANT Competition** *(organized by VDI-GVC)* / Lunch Break		12:55 – 14:00
		Youth Programme	
14:00 – 14:25		**see** **https://dechema.de/en/JT2022_YP**	14:00 – 14:25
14:30 – 14:55			14:30 – 14:55
15:00 – 15:25			15:00 – 15:25
15:30 – 15:55			15:30 – 15:55
16:00	End of Conference		16:00

	Brüssel	
Chair:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A*	Chair:
09:00 – 09:45	**PLENARY LECTURE** **Towards Carbon-neutral Plastic Bioupcycling** S. Lim[1]; [1] NTU Singapore, Singapore/SGP	09:00 – 09:45
Chairs:	*A. Jungbauer[1]; [1] University of Natural Resources and Life Science (BOKU), Vienna/A; J. Schueller[1]; [1] BASF SE, Ludwigshafen/D*	Chairs:
09:45 – 09:50	**ESBES Award Ceremony**	09:45 – 09:50
09:50 – 09:55	**BASF Poster Award**	09:50 – 09:55

	Konferenzraum 6	Konferenzraum 3	
	Youth Programme	**Education 4.0** Virtual reality and hybrid learning	
Chair:		*J. Glassey[1]; [1]Newcastle University, Newcastle upon Tyne/UK*	Chair:
10:00 – 10:25	**see https://dechema.de/en/JT2022_YP**	**Opening up new University Learning Experiences with Virtual Reality** B. Schwartze[1]; A. Kühn[1]; S. Fuchs[2]; F. Höfer[2]; A. Keil[3]; G. Weiler[3]; T. Koppe[3]; A. Raddatz[3]; [1] Hochschule Biberach/D; [2] Northdocks GmbH, Monheim/D; [3] Merck KGaA, Darmstadt/D	10:00 – 10:25
10:30 – 10:55		**Procedure and emergency virtual reality training in the chemical industry: study of effectiveness and comparison among groups.** S. Garcia Fracaro[1]; Y. Tehreem[2]; R. Toyoda[3]; T. Gallagher[4]; J. Glassey[3]; K. Bernaerts[5]; M. Wilk[6]; [1] Merck KGaA / KU Leuven, Darmstadt/D; [2] HS Emden/Leer, Emden/D; [3] Newcastle University, Newcastle upon Tyne/UK; [4] Utrecht University, Utrecht/NL; [5] KU Leuven, Leuven/B; [6] Merck KGaA, Darmstadt/D	10:30 – 10:55
10:55 – 11:30	Coffee Break		10:55 – 11:30
	Youth Programme	**Education 4.0** New ways of education and collaboration	
Chair:		*M. Wilk[1]; [1]Merck KGaA, Darmstadt/D*	Chair:
11:30 – 11:55	**see https://dechema.de/en/JT2022_YP**	**Teaching Digitalisation in Chemical Engineering at a small sized UAS** I. Porschewski[1]; M. Körner[1]; [1] Technische Hochschule Bingen/D	11:30 – 11:55
12:00 – 12:25		**New teaching formats for an international, hybrid and practical process engineering education** P. Biessey[1]; [1] Ruhr-Universität Bochum/D	12:00 – 12:25
12:30 – 12:55		**New Ways of Collaboration for Current and Future Challenges** K. Dadhe[1]; [1] Evonik Operations GmbH Bereich Technology & Infrastructure, Marl/D	12:30 – 12:55
12:55 – 14:00	**Brüssel**	**ChemPLANT Competition** *(organized by VDI-GVC)* / Lunch Break	12:55 – 14:00
	Youth Programme	**Education 4.0** Devices for training and learning	
Chair:		*R. Aires Barros[1]; [1]Instituto Superior Tecnico, University of Lisbon, Lisboa/P*	Chair:
14:00 – 14:25	**see https://dechema.de/en/JT2022_YP**	**SmaEPho - Smart Photometry in STEM-Education 4.0** L. Geuer[1]; F. Lauer[1]; E. Könnel[1]; N. Wehn[1]; R. Ulber[1]; [1] TU Kaiserslautern/D	14:00 – 14:25
14:30 – 14:55		**Biotechnology data analysis training with Jupyter Notebooks** U. Liebal[1]; L. Blank[1]; J. Fensterle[2]; S. Moenickes[2]; F. Eiden[3]; J. Sturm[3]; A. Vogelgesang[4]; P. Weyers[4]; M. Persike[4]; [1] RWTH Aachen - Angewandte Mikrobiologie, Aachen/D; [2] Hochschule Rhein-Waal, Kleve/D; [3] Westfälische Hochschule, Recklinghausen/D; [4] RWTH Aachen - CLS, Aachen/D	14:30 – 14:55
15:00 – 15:25		**GewässerCampus - development of a Citizen Science toolset to assess water quality in STEM Education** E. Könnel[1]; A. Schlindwein[2]; J. Drotleff[2]; N. Wach[2]; S. Perret[2]; L. Geuer[1]; R. Ulber[1]; [1] Technische Universität Kaiserslautern (TUK), Kaiserslautern/D; [2] desklab gUG, Schriesheim/D	15:00 – 15:25
15:30 – 15:55		**Inspiring for Chemical- and Biochemical Engineering Digitally, Interactively and Hands-On** G. Liese[1]; F. Rohweder[1]; J. Husung[1]; B. Schröter[1]; I. Smirnova[1]; A. Liese[1]; [1] Technische Universität Hamburg (TUHH), Hamburg/D	15:30 – 15:55
16:00	**End of Conference**		16:00

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01 Plant and process concepts

P 1.01	**Mechanistic modeling and optimization of complex buffer pH in packed bed chromatography** J. Schmölder[1]; E. von Lieres[1]; [1] Forschungszentrum Jülich GmbH, Jülich/D
P 1.02	**New challenges for chemical engineering – Flexibility and electrification as a key to efficient processes of the future** J. Riese[1]; [1] Ruhr-Universität Bochum, Bochum/D
P 1.03	**Fast-track process development at mini-plant scale for the production of long chained amines using homogeneous catalysis in microemulsions** K. Duch[1]; V. Kozachynskyi[1]; M. Illner[1]; J. Repke[1]; [1] Technische Universität Berlin, Berlin/D
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P 1.11	**Optimising Cathode Supply of AEMFCs with Recirculation** S. Rasche[1]; N. Schlüter[2]; H. Zindler[1]; U. Krewer[3]; [1] Ostfalia University of Applied Sciences, Wolfenbüttel/D; [2] TU Braunschweig, Braunschweig/D; [3] Karlsruhe Insitute of Technology (KIT), Karlsruhe/D
P 1.12	**Challenges and state of the art of glycerol conversion to acrylonitrile** M. Battisti[1]; R. Palkovits[1]; [1] RWTH Aachen University Institut für Technische und Makromolekulare Chemie (ITMC), Aachen/D
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P 2.03	**Gram-scale production of GDP-β-L-fucose with multi-enzyme cascades in a repetitive-batch mode** H. Frohnmeyer[1]; S. Rueben[1]; L. Elling[1]; [1] RWTH Aachen University, Aachen/D
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A. Norman[1]; [1] University of Manchester, Manchester/UK

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J. Sturm[1]; [1] WHS Recklinghausen, Recklinghausen/D

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A. Klemanska[1]; K. Dwyer[2]; G. Walsh[1]; [1] University of Limerick, Limerick/IRL; [2] Monaghan Mushrooms, Monaghan/IRL

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X. Steurer[1]; D. Jakobs-Schönwandt[1]; K. Forchhammer[2]; A. Patel[1]; [1] University of Applied Sciences Bielefeld, Bielefeld/D; [2] University of Tübingen, Tübingen/D

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M. Pilarek[1]; K. Wierzchowski[1]; B. Nowak[1]; P. Więckowicz[1]; M. Kawka[2]; K. Sykłowska-Baranek[2]; [1] Warsaw University of Technology, Warsaw/PL; [2] Medical University of Warsaw, Warsaw/PL

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M. Wildhagen[1]; T. Pudenz[1]; T. Nguyen[2]; A. Kirschning[2]; S. Beutel[1]; [1] Leibniz Universität Hannover, Institut für Technische Chemie, Hannover/D; [2] Leibniz Universität Hannover, Institut für Organische Chemie, Hannover/D

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C. Köppl[1]; M. Cserjan-Puschmann[2]; N. Lingg[2]; G. Striedner[2]; [1] Austrian Centre of Industrial Biotechnology, Wien/A; [2] University of Natural Resources and Life Sciences, Vienna (BOKU), Vienna/A

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A. Antecka[1]; R. Szeląg[1]; S. Ledakowicz[1]; [1] Lodz University of Technology, Faculty of Process and Environmental Engineering , Lodz/PL

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G. Schulze[1]; H. Müller[1]; U. Schmale[1]; [1] BlueSens gas sensor GmbH, Herten/D

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M. Epping[1]; [1] Bielefeld University , Bielefeld/D

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F. Lapierre[1]; R. Huber[1]; [1] Munich University of Applied Sciences HM, München/D

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A. Juckers[1]; P. Knerr[2]; F. Harms[2]; J. Strube[1]; [1] Technische Universität Clausthal, Clausthal-Zellerfeld/D; [2] Martin Christ Gefriertrocknungsanlagen GmbH, Osterode am Harz/D

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J. Richter[1]; F. Lange[1]; D. Solle[1]; S. Beutel[1]; [1] Leibniz Universität Hannover, Institut für Technische Chemie, Hannover/D

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P 3.05	**Soft sensors to control aging of chromatography columns** t. eslami[1]; N. lingg[2]; A. Jungbauer[3]; [1] evon gmbh, St. Ruprecht an der Raab/A; [2] University of Natural Resources and Life Sciences (BOKU), Vienna/A; [3] University of Natural Resources and Life Sciences (BOKU), vienna/A
P 3.06	**The Way to an Efficient Operation of a Continuous Taylor-Couette Cooling Crystallizer** M. Etmanski[1]; N. Rasche[1]; G. Schembecker[1]; K. Wohlgemuth[1]; [1] TU Dortmund University, Dortmund/D

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P 4.02	**Chemical Recycling of Polyhydroxy butyrate (PHB) and Polylactic acid (PLA) over supported catalysts** M. Lehnertz[1]; J. Mensah[1]; R. Palkovits[1]; [1] RWTH Aachen University - Institut für Technische und Makromolekulare Chemie (ITMC), Aachen/D
P 4.03	**MiRAGE - Microgel countercurrent flow reactor for automated glycan synthesis with immobilized enzymes** K. Hussnaetter[1]; A. Pich[2]; M. Franzreb[3]; E. Rapp[4]; L. Elling[1]; [1] RWTH Aachen University, Aachen/D; [2] DWI-Leibniz-Institute for Interactive Materials, Aachen/D; [3] Karlsruhe Institute of Technology (KIT), Karlsruhe /D; [4] glyXera GmbH, Magdeburg/D
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P 4.09	**Realization of in-situ product removal by reactive extraction for increased yields in itaconic acid fermentation** K. Saur[1]; A. Jupke[1]; [1] RWTH Aachen University - Fluid Process Engineering (AVT.FVT), Aachen/D
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P 4.15	**Sustainable production of a natural colorant by exploiting the fermentation of the Basidiomycota Laetiporus sulphureus** M. Zschätzsch[1]; [1] TU Dresden, Dresden/D
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P 4.17	**Engineering E. coli for the carbon-conserving conversion of ethylene glycol to acetyl-CoA and derived products** N. Wagner[1]; F. Bade[1]; K. Rabe[1]; T. Walther[1]; [1] Technische Universität Dresden, Dresden/D
P 4.18	**CIRCULAR FOAM - Combined experimental & model-based process design for the recycling of rigid PU foam** H. Gröschl[1]; L. Bosetti[2]; A. Bardow[2]; A. Jupke[1]; [1] RWTH Aachen University - Fluid Process Engineering (AVT.FVT), Aachen/D; [2] ETH Zurich, Zurich/CH
P 4.19	**Ethylene glycol is an interesting platform molecule for microbial CO_2-based product syntheses** N. Wagner[1]; C. Frazão[1]; T. Walther[1]; [1] Technische Universität Dresden, Dresden/D

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05 Digital transformation

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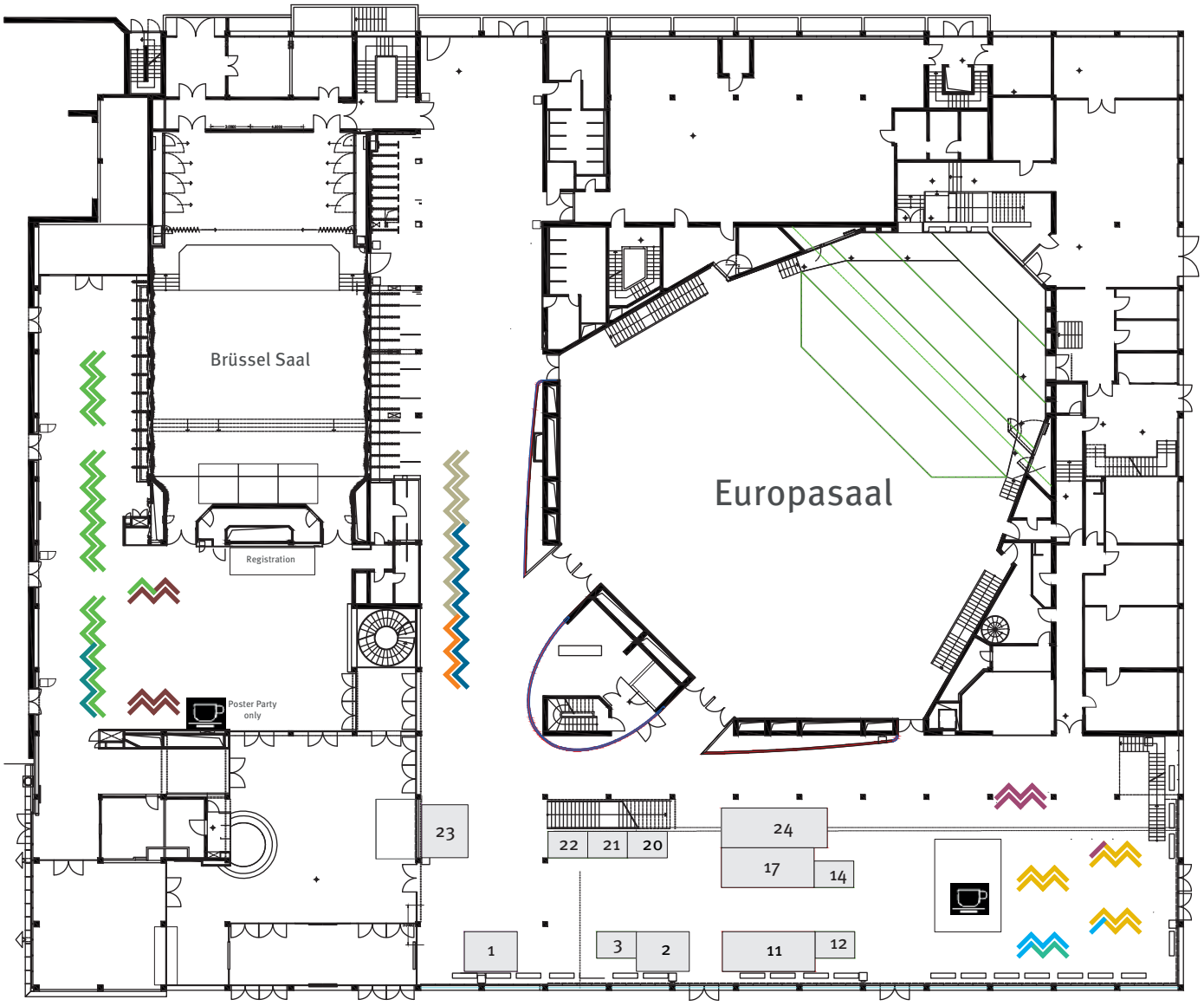

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