

Programme

Annual Meeting of DECHEMA/VDI Group Extraction

February 19-20, 2025

NGP² - Center for Next Generation Processes and Products,
Forckenbeckstraße 51, 52074 Aachen, Germany



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Scientific Committee

Prof. Dr. Andreas Jupke	RWTH Aachen University / D
Dipl.-Ing. Karsten Becker	Bayer AG, Leverkusen / D

Organization

Prof. Dr. Andreas Jupke
RWTH Aachen University / D
Faculty of Mechanical Engineering
Chair of Fluid Process Engineering
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<https://events.avt.rwth-aachen.de/jt-extraktion/>

Wednesday, February 19, 2025

Time	
9:00	Opening
9:05	New Solvents & Reactive Extraction - Part 1 <i>Chair: W. Riedl, FHNW Northwestern Switzerland, Muttenz / CH</i>
9:05	Switching between extraction and back extraction of lactic acid with a new ionic liquid compared with commercial amine solvents <i>K.W.J. Zijderveld; N.J.D. Loman; M. Slump; B. Schuur; University of Twente, Twente / NL</i>
9:30	Recovering acetic acid from gas fermentation processes via reactive-extraction: investigating selectivity and the potential of novel solvents <i>J. Hense; W. Graf von Westarp; A. Jupke; RWTH Aachen University, Aachen / D</i>
09:55	Implementing extraction for an improved separation train for furfural and its derivatives <i>I. Joos; E. d'Harmant François; M.K. Sabbe; J. De Clercq; J. Lauwaert; Ghent University, Ghent / B</i>
10:20	Poster Short Introduction <i>Chair: K. Becker, Bayer AG, Leverkusen / D and M. Weber, INEOS Phenol GmbH, Gladbeck / D</i>
10:50	Coffee Break & Poster Session
11:20	New Solvents & Reactive Extraction - Part 2 <i>Chair: B. Schuur, University of Twente, Enschede / NL</i>
11:20	Separation of 2,3-BDO via extraction-distillation processes: pitfalls in process evaluation with novel solvents <i>W. Graf von Westarp; J. Hense; A. Jupke; RWTH Aachen University, Aachen / D</i>
11:45	Reactive extraction of lactic acid from sweet sorghum silage press juice in an agitated extraction column using a hydrophobic natural deep eutectic solvent as modifier <i>C. Weinzettl; P. Demmelmayer; M. Kienberger; Graz University of Technology, Graz / A</i>
12:10	Reactive extraction of primary amines with octanone as molecular separation agent <i>J. von Campenhausen; A. Jupke; RWTH Aachen University, Aachen / D</i>
12:35	Evaluating the potential of hydrophobic eutectic solvents for inter-lanthanide separation <i>Nicolas Schaeffer¹; Ines Vaz²; Sandrine Dourdain²; Maria C. Hespanhol³; João A.P. Coutinho¹; ¹University of Aveiro, Aveiro / P; ²University of Montpellier, Bagnols-sur.Cèze / F; ³University of Viçosa, Viçosa / BR</i>
13:00	Lunch Break & Poster Session
14:15	Metal Recovery <i>Chair: M.W. Hlawitschka; Johannes Kepler University, Linz / A</i>
14:15	Optimized solvent extraction process for nickel and lithium separation from spent batteries <i>L.N. Mettke; B. Yagmurulu; TU Clausthal, Clausthal-Zellerfeld / D</i>
14:40	Extraction of phosphoric acid for a closed process for recycling and re-synthesis of spent LiFePO ₄ cathode material <i>Q.-T. Bui¹; M. Wenzel¹; H. Du²; J.J. Weigand^{1 3}; ¹TU Dresden, Dresden / D; ²Chinese Academy of Sciences, Beijing / CN; ³Stellenbosch University, Stellenbosch / ZA</i>
15:05	SisClever process: simultaneous recovery of metals from ore or waste to high purity and high concentration via solvent extraction <i>M. Philippart de Foy; E. Uslu; A. Pfennig; University of Liège, Liège / B</i>
15:30	Accessing neodymium in end-of-life magnet materials using innovative leaching and selective solvent extraction <i>L. Kelottijärvi^{1 2}; N. Kelly¹; D. Ebert¹; A.O. Väisänen²; A.B. Patil^{1 2}; ¹Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Freiberg / D; ²The University of Jyväskylä, Jyväskylä / FIN</i>
15:55	Coffee Break & Poster Session
16:30	Advisory Board Meeting (nominated members only)
17:30	End of Day 1
19:00	Conference Dinner (Restaurant "Forckenbeck", Forckenbeckstraße 61 / self-payment)

Thursday, February 20, 2025

Time	
8:30	Start of Day 2
8:30	Mixer Settler <i>Chair: K. Becker, Bayer AG, Leverkusen / D</i>
8:30	Challenges of extraction processes in multi-unit miniplants <i>J. Krause; Covestro Deutschland AG, Leverkusen / D</i>
8:55	Dense packed zone analysis for the design methodology of gravity settler operated with a dispersion band <i>L. Thiel¹; J. Villwock²; M. Kraume²; A. Jupke¹; ¹RWTH Aachen University, Aachen / D; ²Technical University of Berlin, Berlin / D</i>
9:20	Soft sensing the dense-packed zone in a pilot-scale liquid-liquid separator with machine learning-assisted image processing <i>S. Zhai; N. Bartkowiak; A. Jupke; RWTH Aachen University, Aachen / D</i>
9:45	Electrostatics in I/I-extraction – does it really matter? <i>M. Weber; S. Reißler; INEOS Phenol GmbH, Gladbeck / D</i>
10:10	Coffee Break & Poster Session
10:40	Extraction Columns <i>Chair: J. Krause, Covestro Deutschland AG, Leverkusen / D</i>
10:40	Online monitoring and advanced analysis of fluid dynamics in pulsed sieve tray extraction columns <i>A. Palmtag; L. Lehmann; A. Jupke; RWTH Aachen University, Aachen / D</i>
11:05	Dynamic modeling of a liquid-liquid extraction column - an industrial approach - <i>J. Brockkötter¹; L. Hammacher¹; K. Becker¹; T. Runowski¹; L. Polte²; A. Jupke²; ¹Bayer AG, Leverkusen / D; ²RWTH Aachen University, Aachen / D</i>
11:30	Sedimentation dynamics of drops on structured packing material in counter-current flow <i>K. Mielke; A. Jupke; RWTH Aachen University, Aachen / D</i>
11:55	Control and monitoring of liquid/liquid extraction in the phenol process – examples <i>S. Reißler; INEOS Phenol GmbH, Gladbeck / D</i>
12:20	Lunch Break & Poster Session
13:20	Mass Transfer & Special Extraction Techniques <i>Chair: M. Faulde, Evonik Operations GmbH, Hanau-Wolfgang / D</i>
13:20	Visualization of mass transfer during droplet formation using a novel 2d-raman measuring setup <i>F. Bertram; J. Hofmann; J. Gottschalk; F. Weissenberg; C. Holly; H.-J. Koß; A. Jupke; RWTH Aachen University, Aachen / D</i>
13:45	Development of a procedure for defining the operation window of annular centrifugal contactors <i>Z.A. Hamamah; T. Grützner; Ulm University, Ulm / D</i>
14:10	Membrane extraction of additives, pollutants and wear metals from used lubricant oil <i>A. Pérez¹; A. Buekenhoudt²; W. Riedl¹; ¹University of Applied Sciences and Arts Northwestern Switzerland FHNW, Muttentz / CH; ²Flemish Institute of Technological Research, Mol / B</i>
14:35	Separation of Ce ³⁺ from La ³⁺ by electrochemical oxidation and extraction in a capillary slug flow extractor <i>J. Wang; M. Wenzel; J.J. Weigand; TU Dresden, Dresden / D</i>
15:00	Poster Price & Closing
15:10	Laboratory Tour
15:40	End of Conference

Poster List

P1	Application of the SisClever process in a pilot-scale mixer-settler battery to separation and purification in valuable-metals recycling <i>E. Uslu; M. Philippart de Foy; A. Pfennig; University of Liège, Liège / B</i>
P2	Direct injection of a pH control agent in metal extraction columns <i>L. Budeus; A. Jupke; RWTH Aachen University, Aachen / D</i>
P3	Elucidation of vanadium recovery from Linz-Donawitz converter slag through acid leaching and solvent extraction <i>L.K. Viswamsetty¹; N. Kelly¹; U. Fischer¹; D. Ebert¹; A.O. Väisänen²; A.B. Patil¹; ¹Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Freiberg / D; ²The University of Jyväskylä, Jyväskylä / FIN</i>
P4	Lactic acid purification using an electrified ISPR downstream process <i>N. Fridley; C. Schröder; A. Jupke; RWTH Aachen University, Aachen / D</i>
P5	Monomer separation of fossil- and bio-based polymer blends after depolymerization of end-of-life products <i>F. Latz; F. Roweda; A. Jupke; RWTH Aachen University, Aachen / D</i>
P6	Efficient incorporation of sharp active interfaces in CFD-simulations of liquid-liquid phase separation apparatuses <i>S. Stark; A. Jupke; RWTH Aachen University, Aachen / D</i>
P7	Modular lab scale karr-type extraction column <i>M. Schmitz; J. de Wall; N. Kockmann; TU Dortmund University, Dortmund / D</i>
P8	Integrated phase separation inside a multiphase loop bioreactor <i>D. Wall; A. Jupke; RWTH Aachen University, Aachen / D</i>
P9	Critical evaluation of MARS: integration of reaction and downstream processing <i>H. Peters; A. Jupke; RWTH Aachen University, Aachen / D</i>
P10	Extractive separation of acetoin from water for subsequent hydrogenation to 2,3-butanediol <i>P. Förster; W. Graf von Westarp; A. Jupke; RWTH Aachen University, Aachen / D</i>
P11	Progress in recovery of excess sulfuric acid in the lithium-ion battery recycling process <i>A. Keller; M.W. Hlawitschka; Johannes Kepler University, Linz / A</i>
P12	Terpenoids as solvents: phase equilibria and applicability <i>W. Graf von Westarp; J. Hense; A. Jupke; RWTH Aachen University, Aachen / D</i>
P13	Innovative mini-batch settling cell: enhancing liquid-liquid phase separation with resource efficiency and experimental flexibility <i>J. Eberz; A. Jupke; RWTH Aachen University, Aachen / D</i>
P14	Acoustic levitation a new method to investigate interface effects in liquid/liquid-systems <i>K. Wilhelm; L. Böhm; Technical University of Berlin, Berlin / D</i>

Conference Dinner (self-payment)

Wednesday, February 19, 19:00

Restaurant "Forckenbeck"

Forckenbeckstraße 61

52074 Aachen

<https://forckenbeck.de/>