

Lecture Programme

Plenary Lecture

- [PL1](#) *H. Z. Kister, Fluor, Aliso Viejo, California, USA*
What caused tower malfunctions in the last 50 years?
- [PL2](#) *R. Krishna, J. M. van Baten, University of Amsterdam, The Netherlands*
Modelling sieve tray hydraulics using computational fluid dynamics
- [PL3](#) *W. Arlt, O. Spuhl, Technical University of Berlin, Germany; A. Klamt, COSMOlogic GmbH, Leverkusen, Germany*
Challenges in thermodynamics
- [PL4](#) *K. Althaus, H. G. Schoenmakers, BASF AG, Germany*
Experience in reactive distillation

1 Basic Data

Chair: R. Darton/J. Gmehling

- [1-1](#) *B. van Dyk, I. Nieuwoudt, University of Stellenbosch, South Africa*
Computer aided molecular design of solvents for distillation processes
- [1-2](#) *R. K. Agarwal, Y.-K. Li, O. J. Santollani, M. Satyro, Virtual Materials Group, Canada*
Large scale data regression for process calculations
- [1-3](#) *M. Seiler, C. Jork, T. Schneider, W. Arlt, Technical University of Berlin, Germany*
Ionic liquids and hyperbranched polymers – Promising new classes of selective entrainers for extractive distillation
- [1-4](#) *D. Bosse, H.-J. Bart, University of Kaiserslautern, Germany*
Prediction of diffusivities in liquid associating systems on the basis of a multicomponent approach
- [1-5](#) *W. Moniuk, R. Pohorecki, Warsaw University of Technology, Poland*
Kinetics of carbon dioxide absorption into N-Methyldiethanolamine solutions

2.1 Equipment/Internals

(Session in memoriam of Werner Meier)

Chair: K. Krishnamurthy/R. Goedecke

- [2.1-1](#) *L. Spiegel, W. Meier, Sulzer Chemtech Ltd, Switzerland*
Distillation columns with structured packings in the next decade
- [2.1-2](#) *L. Fischer, U. Bühlmann, R. Melcher, Kühni AG, Switzerland*
Characterisation of high performance structured packing
- [2.1-3](#) *P. Bender, A. Moll, LINDE AG, Germany*
Modifications to structured packings to increase their capacity
- [2.1-4](#) *D. Großerichter, J. Stichlmair, Technical University of München, Germany*
Crystallization fouling in packed columns
- [2.1-5](#) *O. Schneider, J. Stichlmair, Technical University of München, Germany*
Functionality of a novel double-effective packing element
- [2.1-6](#) *M. Schultes, Raschig GmbH, Germany*
Raschig super-ring a new fourth generation packing offers new advantages
- [2.1-7](#) *K. Hallenberger, M. Vetter, Bayer AG, Germany*
Plate damage as a result of delayed boiling

2.2 Equipment/Flow

Chair: Z. Kister/J. Stichlmair

- [2.2-1](#) T. J. Cai, G. X. Chen, C. W. Fitz, J. G. Kunesh, Fractionation Research Inc., USA
Effect of bed length and vapor maldistribution on structured packing performance
- [2.2-2](#) M. J. Lockett, J. F. Billingham, Praxair, Inc., USA
The effect of maldistribution on separation in packed distillation columns
- [2.2-3](#) M. Wehrli, Sulzer Chemtech AG, Switzerland; S. Hirschberg, R. Schweizer, Sulzer Markets and Technology AG, Switzerland
Influence of vapor feed design on the flow distribution
- [2.2-4](#) A. H. van Sinderen, Rijks Universiteit Groningen, NL (current affiliation: Sulzer Chemtech Ltd, Switzerland); E. F. Wijn, Purmerend, NL; R. W. J. Zanting, Rijks Universiteit Groningen, NL (current affiliation: N.V. Nederlandse Gasunie, Groningen, NL)
Entrainment and maximum vapour flow rate of trays
- [2.2-5](#) A. M. Ali, P. Jansens, Z. Olujic, Delft University of Technology, The Netherlands
Experimental characterisation and CFD simulation of gas distribution performance of liquid (re)distributors and collectors in packed columns
- [2.2-6](#) T. A. G. Langrish, S. V. Makarytchev, D. F. Fletcher, R. G. H. Prince, Department of Chemical Engineering, University of Sydney, Australia
Progress in understanding the physical processes inside spinning cone columns
- [2.2-7](#) W. J. Stupin, H. Z. Kister, Fluor Daniel, California, USA
System limit: The ultimate capacity of fractionators

3.1 Process Synthesis

Chair: T. Reith/H. Schoenmakers

- [3.1-1](#) D. Y.-C. Thong, Degussa AG, Germany; G. Liu, M. Jobson, R. Smith, Department of Process Integration, UMIST, UK
Synthesis of distillation sequences for separating multicomponent azeotropic mixtures
- [3.1-2](#) D. Diamond, T. Hahn, Sasol Technology (Pty) Ltd; H. Becker, Linde AG; Greg Patterson, Chemdes
Using quaternary diagrams and steady state simulations to understand an azeotropic distillation process which uses a binary entrainer for the separation of olefins from acids and other oxygenates
- [3.1-3](#) E. Bek-Pedersen, R. Gani, Technical University of Denmark
Design and synthesis of distillation systems using a driving force based approach
- [3.1-4](#) V. A. Malinovskiy, T. N. Gartman, Mendeleev University of Chemical Technology of Russia;
A V. Timoshenko, Lomonosov Academy of Fine Chemical Technology of Moscow, Russia
The new approach to isopropylbenzene distillation flowsheet syntheses in phenolacetone production
- [3.1-5](#) M. R. Eden, S. B. Jørgensen, R. Gani, Technical University of Denmark; M. M. El-Halwagi, Auburn University, USA
A novel framework for simultaneous separation process and product design
- [3.1-6](#) T. Seuranen, M. Hurme, Helsinki University of Technology; E. Pajula, KCL Science and Consulting, Finland
Case-based reasoning for separation process synthesis

3.2 Process Simulation

Chair: R. Taylor/R. Janowsky

- [3.2-1](#) P. A. M. Springer, S. van der Molen, R. Krishna, Department of Chemical Engineering, University of Amsterdam, The Netherlands
Influence of unequal component efficiencies on trajectories during distillation of a quaternary azeotropic mixture
- [3.2-2](#) S. Brüggemann, W. Marquardt, Lehrstuhl für Prozesstechnik, RWTH Aachen, Germany
Shortcut design of extractive distillation columns
- [3.2-3](#) H. Kosuge, H. R. Mortaheb, Tokyo Institute of Technology, Japan
Simulation of heterogeneous azeotropic distillation process with a non-equilibrium stage model
- [3.2-4](#) K. Jakobsson, J. Aittamaa, K. I. Keskinen (Neste Engineering Oy), Helsinki University of Technology; Jarno Ilme, Conox, Finland
Plate efficiencies of industrial scale dehexaniser
- [3.2-5](#) M. Caraucán, A. Pfennig, RWTH Aachen, Germany
Efficiency in the distillation of aqueous systems

3.3 Heat Integration

Chair: NN/A. de Haan

- [3.3-1](#) M. Gadalla, M. Jobson, R. Smith, Department of Process Integration, UMIST, UK
Optimisation of existing heat-integrated refinery distillation systems
- [3.3-2](#) H. Li, R. Gani, S. Bay Jørgensen, Technical University of Denmark
Integration of design and control for energy integrated distillation
- [3.3-3](#) H. K. Engelién, T. Larsson, S. Skogestad, Norwegian University of Science and Technology (NTNU), Norway
Simulation and optimisation of heat integrated distillation columns
- [3.3-4](#) M. Wendt, R. Königseder, P. Li, G. Wozny, Technical University of Berlin, Germany
Theoretical and experimental studies on startup strategies for a heat-integrated distillation column system
- [3.3-5](#) M. Nakaiwa, K. Huang, T. Endo, T. Ohmori, T. Akiya, National Institute of Advanced Industrial Science and Technology, Tsukuba; T. Takamatsu, Kansai University, Suita, Japan
Researches on heat-integrated distillation columns

3.4 Control / Dynamics

Chair: Skogestad/G. Wozny

- [3.4-1](#) T. Adrian, Mannheim University of Applied Science, Department of Process Engineering; H. Schoenmakers, M. Boll, BASF AG, Germany
Model predictive control of integrated unit operations control of a divided wall column
- [3.4-2](#) M. Jimoh, G. Wozny, Institute of Process and Plant Technology, Technical University of Berlin, Germany
Simulation and experimental analysis of operational failures in a methanol-water distillation column
- [3.4-3](#) C. Noeres, K. Dadhe, R. Gesthuisen, S. Engell, A. Górak, University of Dortmund, Germany
Model-based design, control and optimisation of catalytic distillation processes

4 Integrated Processes

Chair: R. Krishna/A. Górak

- [4-1](#) D. Müller, G. Ronge, J.-P. Schäfer, H.-J. Leimkühler, Bayer AG, Germany
Development and economic evaluation of a reactive distillation process for silane production
- [4-2](#) A. E. Wentink, A. Cochran, N. J. M. Kuipers, A. B. de Haan, University of Twente, The Netherlands; J. Scholtz, H. Mulder, Sastech, Sasolburg, South-Africa
Separation of olefin isomers with reactive extractive distillation
- [4-3](#) S. Steinigeweg, J. Gmehling, Carl-von-Ossietzky-University of Oldenburg, Germany
Transesterification processes by combination of reactive distillation and pervaporation
- [4-4](#) M. Klöcker, E. Kenig, A. Górak, University of Dortmund, Germany; P. Markusse, G. Kwant, DSM Research, Geleen, The Netherlands; L. Götze, P. Moritz, Sulzer Chemtech Ltd, Switzerland
Investigation of different column configurations for the ethyl acetate synthesis via reactive distillation
- [4-5](#) M. Schmitt, H. Hasse, University of Stuttgart, Germany; K. Althaus, H. Schoenmakers, BASF AG, Germany; L. Götze, P. Moritz, Sulzer Chemtech Ltd., Switzerland
Synthesis of N-Hexyl acetate by reactive distillation
- [4-6](#) R. Aguilar-Escalante, P. Huitzil-Melendez, J. L. Cano-Domínguez, E. S. Pérez-Cisneros (Universidad Autónoma Metropolitana - Iztapalapa, México), Instituto Mexicano del Petróleo
Thermodynamic analysis of the deep hydrodesulfurization of diesel through reactive distillation
- [4-7](#) R. Baur, R Krishna, Department of Chemical Engineering, University of Amsterdam, The Netherlands
Distillation column with reactive pump arounds: An alternative to reactive distillation
- [4-8](#) A. Fahmy, D. Mewes, Institute of Process Engineering, University of Hannover; Germany; K. Ohlrogge, Institut für Chemie, GKSS Forschungszentrum, Germany
Hybrid pervaporation-absorption for the dehydration of organics
- [4-9](#) P. Mizsey, A. Szanyi, J. Manczinger, Z. Fonyo, Budapest University, Hungary
Novel hybrid processes for solvent recovery

5 Novel Processes

Chair: M. J. Lockett/NN

- [5-1](#) R. C. Darton, S. Supino, K. J. Sweeting, University of Oxford, UK
Development of a multistaged foam fractionation column
- [5-2](#) M. Warter, Linde AG; D. Demicoli, J. Stichlmair, Lehrstuhl für Fluidverfahrenstechnik, Technical University of München, Germany
Operation of a batch distillation column with a middle vessel: Experimental results for the separation of zeotropic and azeotropic mixtures
- [5-3](#) K. H. Low, E. Sorensen, University College London, UK
Simultaneous optimal design and operation of multipurpose batch distillation columns
- [5-4](#) S. Skouras, S. Skogestad, Norwegian University of Science and Technology, NTNU, Trondheim, Norway
Separation of ternary heteroazeotropic mixtures in the closed multivessel batch distillation column

- [5-5](#) A. C. Dimian, F. Omota A. Bliet, Department of Chemical Engineering, University of Amsterdam, The Netherlands
Entrainer-enhanced reactive distillation
- [5-6](#) B. Kolbe, S. Wenzel, Krupp Uhde GmbH, Dortmund, Germany
Novel distillation concepts using one-shell columns
- [5-7](#) P. C. Riley, FT Industrial Pty Ltd, Reading, UK; S. J. Sykes, Flavourtech Research, Griffith, Australia
Industrial applications of spinning cone column technology: A review

Poster Programme

- [6-1](#) L. Negadi (Université Abou-Bakr Belkaid de Tlemcen, Algeria), J. Jose, LICAS, Université Claude Bernard - Lyon, France; A. A. Kaci, Université des Sciences et Technologies Houari Boumediène, Algeria
Thermodynamic properties of dimethyl sulfoxide + benzene or + isopropylbenzene mixtures
- [6-2](#) K. Iwakabe, H. Kosuge, Tokyo Institute of Technology, Japan
Determination and prediction of the isobaric vapor-liquid-liquid equilibrium data
- [6-3](#) E. Alvarez, M. A. Cancela, R. Taboas, University of Vigo; J. M. Navaza, University of Santiago de Compostela, Spain
Mass transfer coefficients in batch and continuous regime in a bubble column
- [6-4](#) E. Alvarez, M. A. Cancela, R. Maceiras, University of Vigo; J. M. Navaza, University of Santiago de Compostela, Spain
A comparative study of interfacial area obtained by physical and chemical methods in a bubble column
- [6-5](#) M. Tischmeyer, W. Arlt, Technical University of Berlin, Germany
Determination of binary vapor liquid equilibria (VLE) of reactive systems
- [6-6](#) K. Hartmann, GESIP - Information and Process Technologies, Technical University of Berlin, Germany
New highspeed mass-transfer trays
- [6-7](#) A. Kolodziej, M. Jaroszynski, I. Bylica, Institute of Chemical Engineering, Polish Academy of Sciences, Gliwice, Poland
Diffusional and hydraulic characteristics of Katapak-S
- [6-8](#) M. Wehrli, M. Fischer, Sulzer Chemtech AG, Switzerland; M. Pilling, Sulzer Chemtech USA Inc.
The MVG tray with truncated downcomers: Recent progress
- [6-9](#) F. Rukovena Jr., H. Niknafs, G. Hausch, Saint-Gobain NorPro Corporation, USA
Mass transfer and hydraulic details on Intalox® PhD™ Packing
- [6-10](#) C. Soares, D. Noriler, M. R. Wolf Maciel, State University of Campinas; A. A. Chivanga Barros, H. F. Meier, Regional University of Blumenau, Brazil
Computational fluid dynamics for simulation of a gas-liquid flow on a sieve plate: Model comparisons
- [6-11](#) D. Wiemann, University of Hannover, Germany; F. Lehr, D. Mewes, Bayer AG, Germany
Numerical calculation of the flow field in a bubble column considering the absorption of the gas phase
- [6-12](#) A. B. Erasmus, I. Nieuwoudt, Institute for Thermal Separation Technology, University of Stellenbosch, South Africa.
Mass transfer in structured packing
- [6-13](#) A. Ataki, H.-J. Bart, University of Kaiserslautern, Germany
Experimental study of rivulet liquid flow on an inclined plate

- [6-14](#) Z. Olujic, A. Mohamed Ali, P. J. Jansens, Delft University of Technology, The Netherlands
Effect of the initial gas maldistribution on the pressure drop of structured packings
- [6-15](#) H. A. Kooijman, K. R. Krishnamurthy, The BOC Group, Inc., USA; M. W. Biddulph, University of Nottingham, UK
A new pressure drop model for structured packing
- [6-16](#) A. Vogelpohl, Technical University of Clausthal, Germany
The fundamental equation of distillation
- [6-17](#) E. Brunazzi, A. Paglianti, F. Tolaini, University of Pisa, Italy; L. Spiegel, Sulzer Chemtech Ltd, Switzerland
Hydrodynamics of a gas-liquid column equipped with mellapakplus packing
- [6-18](#) A. I. Boyarinov, Mendeleev Chemical Technological University, Moscow, Russia; S. I. Duev, Kazan State Technological University, Russia
Dynamic behaviour of recycle system: Reactor – Distillation column
- [6-19](#) L. J. Krolkowski, Institute of Chemical Engineering, Wroclaw University of Technology, Poland
Distillation regions for nonideal ternary mixtures
- [6-20](#) R. H. Weiland, Koch-Glitsch, Inc., USA; B. Oettler, Koch-Glitsch GmbH, Germany; C. Ender, Koch-Glitsch, Inc., USA; J. C. Dingman, Optimized Gas Treating, USA
Selective amine treating using trays, structured packing, and random packing
- [6-21](#) K. I. Keskinen (Helsinki University of Technology), A. Kinnunen, Neste Engineering Oy; L. Nyström, Lappeenranta University of Technology, Finland; J. Aittamaa, Helsinki University of Technology, Finland
Efficient approximate method for packed column separation performance simulation
- [6-22](#) E. Rój, M. Wilk, Instytut Nawozow Sztucznych (INS), Pulawy, Poland
Simulation of the sieve plate absorption column for nitric oxide absorption process using neural networks
- [6-23](#) R. Taylor, Clarkson University, USA and Universiteit Twente, The Netherlands; H. A. Kooijman, Shell Global Solutions International, The Netherlands; A. Klamt, F. Eckert, COSMOlogic GmbH & Co.KG, Germany
Distillation simulation with COSMO-RS
- [6-24](#) A. Bonsfills, Universitat Politècnica de Catalunya; L. Puigjaner, Universitat Politècnica de Catalunya, Spain
Batch distillation: Simulation and experimental validation
- [6-25](#) T. Recelj, J. Golob, University of Ljubljana, Slovenia
An engineering analysis of capacity improvement in flue gas desulfurization plant
- [6-26](#) L. Fele Zilnik, National Institute of Chemistry; J. Golob, University of Ljubljana, Slovenia
Analysis of separation of water-methanol-formaldehyde Mixture
- [6-27](#) I. J. Halvorsen, S. Skogestad, Norwegian University of Science and Technology, Norway
Minimum energy and entropy requirements in multicomponent distillation
- [6-28](#) C. J. G. Vasconcelos, M. R. Wolf-Maciel, State University of Campinas, Brazil
Optimisation, dynamics and control of a complete azeotropic distillation: New strategies and stability considerations
- [6-29](#) A. Hoffmann, C. Noeres, A. Górak, Department of Chemical Engineering, Dortmund University, Germany
Sale-up of reactive distillation columns with catalytic Packings
- [6-30](#) M. Groemping, Degussa AG, Germany; R.-M. Dragomir, M. Jobson, Department of Process Integration, UMIST, UK
Conceptual design of reactive distillation columns using stage composition lines
- [6-31](#) E. Rév, Z. Lelkes, V. Varga, C. Stéger, Z. Fonyó, Budapest University Technology & Economy; L. Horváth, Chemical Research Centre of HAS, Hungary
Feasibility of batch extractive distillation with middle boiling entrainer in rectifier