

Brief Biography

- 9 August 1956 Born in Mittweida, Germany
- 1977 - 1982 Study of Process Engineering at Technische Hochschule Leuna-Merseburg
- 1987 Ph.D. degree at Institute of Physical Chemistry of AdW of GDR in Berlin
- 1987 - 1991 Scientific coworker in the Central Institute for Physical Chemistry in Berlin (Fields of Activity: Adsorption, heterogeneous catalysis, chromatography)
- 1991 - 1992 Research associate in the group of Prof. G. Guiochon (University of Tennessee, Department of Chemistry, Knoxville, USA)
- 1994 Habilitation at the Institute for Technical Chemistry at Technische Universität Berlin
- January - March 1995 Schering AG, Berlin
- since 1995 Professor of Chemical Process Engineering at University of Magdeburg
- 1998 Appointment to External Scientific Member of the Max Planck Society
- since 1998 Head of the research group "Physical and Chemical Foundations of Process Engineering" at the Max Planck Institute for Dynamics of Complex Technical Systems
- 2002 Appointment to Scientific Member of the Max Planck Society
- since July 2002 Director of Department of "Physical and Chemical Foundation of Process Engineering" at MPI in Magdeburg
- 2005 - 2006 Dean of the Faculty of Process and Systems Engineering of the Otto von Guericke University Magdeburg
- 2007 - 2008 Managing Director of the Max Planck Institute for Dynamics of Complex Technical Systems

Grants / Scientific Awards / Memberships

1991 - 1992 Grant of the Scientific Council of NATO to support a Post-Doc stay in the USA

1992 - 1994 Grant of Deutsche Forschungsgemeinschaft to support Habilitation

1998 - 2000 Award of Fakultät für Verfahrens- und Systemtechnik (Otto-von-Guericke-Universität Magdeburg) for supervising the best doctoral thesis of the year
2003, 2004, 2008

1998 - 2002 External Scientific Member of the Max Planck Society

since 1998 Member of Board of “Technical Reactions” of Dechema

since 1999 Member of Otto von Guericke Society, Magdeburg

since 2000 Member of Board of the Society of Process Engineering and Chemical Engineering (GVC) of the Association of German Engineers (VDI), Düsseldorf

2000 - 2005 Member of Scientific Board of Nordzucker AG, Braunschweig

2000 Max Buchner Award of Dechema e.V.

since 2001 Member of Board of Trustees of Ernest Solvay Foundation, Hanover

since 2001 Member of the International Editorial Board of the “Journal of Chromatography A” (Elsevier, Amsterdam)

2002 Otto von Guericke Research Award of Otto von Guericke University Magdeburg

since 2005 Member of the Board of Trustees of the Journal “Chemie Ingenieur Technik” (Wiley-VCH, Weinheim)

since 2005 Member of the Board of Trustees of the Journal „Chemical Engineering & Technology” (Wiley-VCH, Weinheim)

since 2007 Member of the Editorial Board of the “Chemical Engineering Journal” (Elsevier, Amsterdam)

2008 Honorary Doctorate at the Lappeenranta University of Technology, Finland

Research Priorities

- New Reactor Concepts
- Chromatographic Reactors
- Membrane Reactors
- Heterogeneous catalysis
- Adsorption and Preparative Chromatography
- Crystallization
- Separation of Enantiomers

Journal and Book Contributions since 2007

Ilić M., Petkovska M., Seidel-Morgenstern A.

„Nonlinear frequency response functions of a chromatographic column – A critical evaluation of their potential for estimation of single solute adsorption isotherms”
Chemical Engineering Science, 62, 2007, 1269-1281

Hlushkou D., Khirevich S., Apanasovich V., Seidel-Morgenstern A., Tallarek U.

„Pore-Scale Dispersion in Electrokinetic Flow through a Random Sphere Packing”
Analytical Chemistry, 79, 2007, 113-121

Lübke R., Seidel-Morgenstern A., Tobiska L.

„Numerical method for accelerated calculation of cyclic steady state of ModiCon-SMB-processes“
Computer & Chemical Engineering, 31, 2007, 258-267

Czapla F., Lorenz H., Elsner M. P., Seidel-Morgenstern A.

„Einfluss der Prozessführungsstrategie auf Produktivität und Produkteigenschaften einer “Bevorzugten Kristallisation”
Chemie Ingenieur Technik, 79, 2007, 281-286

Klose F., Wolff T., Lorenz, H., Seidel-Morgenstern A., Suchorski Y., Piorkowska M., Weiß H.

„Active Species on γ -Alumina Supported Vanadia Catalysts: Nature and Reducibility“
Journal of Catalysis, 247, 2007, 176-193

Uchytíl P., Petrickovic R., Seidel-Morgenstern A.

„Transport of butane in a porous Vycor glass membrane in the region of condensation pressure“
Journal of Membrane Science, 293, 2007, 15-21

Caro J., Caspary K. J., Hamel C., Hoting B., Kölsch P., Langanke B., Nassauer K., Schiestel T., Schmidt A., Schomäcker R., Seidel-Morgenstern A., Tsotsas E., Voigt I., Wang H., Warsitz R., Werth S., Wolf A.

„Catalytic membrane reactors for partial oxidation using perovskite hollow fiber membranes and for partial hydrogenation using a catalytic membrane contactor“
Industrial & Engineering Chemistry Research, 46, 2007, 2286-2294

Lorenz H., Czapla F., Polenske D., Elsner M. P., Seidel-Morgenstern A.

„Crystallization based separation of enantiomers”
Journal of the University of Chemical Technology and Metallurgy (Sofia, Bulgaria), 42, 2007, 5-16

Caro J., Caspary K. J., Hamel C., Hoting B., Kölsch P., Langanke B., Nassauer K., Noack M., Schiestel T., Schroeder M., Byun Y. C., Seidel-Morgenstern A., Tsotsas E., Wang H., Werth S.

„Perowskit-Hohlfasermembranen für die katalytische Partialoxidation von Methan zu Synthesegas“
Chemie Ingenieur Technik, 79, 2007, 831-842

- Gedicke K., Kaspereit M., Beckmann W., Budde U., Lorenz H., Seidel-Morgenstern A.
„Conceptual design and feasibility study of combining continuous chromatography and crystallization for stereoisomer separations”
Chemical Engineering Research and Design, 85, 2007, 928-936
- Qamar S., Ashfaq A., Warnecke G., Angelov I., Elsner M. P., Seidel-Morgenstern A.
„Adaptive high-resolution schemes for multidimensional population balances in crystallization processes”
Computers and Chemical Engineering, 31, 2007, 1296-1311
- Seebach A., Seidel-Morgenstern A.
„Enantioseparation on molecularly imprinted monoliths – Preparation and adsorption isotherms”
Analytica Chimica Acta, 591, 2007, 57-62
- Ilić M., Petkovska M., Seidel-Morgenstern A.
„Nonlinear frequency response method for estimation of single solute adsorption isotherms. Part I. Theoretical basis and simulations”
Chemical Engineering Science, 62, 2007, 4379-4393
- Ilić M., Petkovska M., Seidel-Morgenstern A.
„Nonlinear frequency response method for estimation of single solute adsorption isotherms. Part II. Experimental study”
Chemical Engineering Science, 62, 2007, 4394-4408
- Kaspereit M., Seidel-Morgenstern A., Kienle A.
„Design of simulated moving bed processes under reduced purity requirements”
Journal of Chromatography A, 1162, 2007, 2-13
- Gedicke K., Antos D., Seidel-Morgenstern A.
„Effect on separation of injecting samples in a solvent different from the mobile phase”
Journal of Chromatography A, 1162, 2007, 62-73
- Zhang L., Gedicke K., Kuznetsov M. A., Staroverov S. M., Seidel-Morgenstern A.
„Application of an eremomycin-chiral stationary phase for the separation of DL-methionine using simulated moving bed technology”
Journal of Chromatography A, 1162, 2007, 90-96
- Lorenz H., Elsner M. P., Polenske D., Czapla F., Seidel-Morgenstern A.
„Gut kombiniert: Online-Monitoring kristallisationsbasierter chiraler Trennungen”
Process, 7/8, 2007, 40-41
- Elsner M. P., Ziomek G., Seidel-Morgenstern A.
„Simultaneous preferential crystallization in a coupled, batch operation mode – Part I: Theoretical analysis and optimization”
Chemical Engineering Science, 62, 2007, 4760-4769

- Sainio T., Kaspereit M., Kienle A., Seidel-Morgenstern A.
„Thermal effects in reactive liquid chromatography”
Chemical Engineering Science, 62, 2007, 5674-5681
- Haus U.-U., Michaels D., Seidel-Morgenstern A., Weismantel R.
„A method to evaluate the feasibility of TMB chromatography for reduced efficiency and purity requirements based on discrete optimization”
Computers & Chemical Engineering, 31, 2007, 1525-1534
- Nowak J., Gedicke K., Antos D., Piatkowski W., Seidel-Morgenstern A.
„Synergistic effects in competitive adsorption of carbohydrates on an ion-exchange resin”
Journal of Chromatography A, 1164, 2007, 224-234
- Nischang I., Reichl U., Seidel-Morgenstern A., Tallarek U.
„Concentration Polarization and Nonequilibrium Electroosmotic Slip in Dense Multiparticle Systems
Langmuir, 23, 2007, 9271-9281
- Polenske D., Lorenz H., Seidel-Morgenstern A.
„Separation of Propranolol Hydrochloride Enantiomers by Preferential Crystallization: Thermodynamic Basis and Experimental Verification”
Crystal Growth & Design, 7, 2007, 1628-1634
- Bandaru Krishna S. V. S. R., Keßler L. C., Wolff M. W., Reichl U., Seidel-Morgenstern A., Pushpavanam S.
„Hydrodynamic Characteristics and Expansion Behavior of Beds Containing Single and Binary Mixtures of Particles”
Industrial & Engineering Chemistry Research, 46, 2007, 4686-4696
- Poplewska I., Kramarz R., Piatkowski W., Seidel-Morgenstern A., Antos D.
„Influence of preferential adsorption of mobile phase on retention behaviour of amino acids on the teicoplanin chiral selector”
Journal of Chromatography A, 1173, 2007, 58-70
- Keßler L. C., Gueorguieva L., Rinas U., Seidel-Morgenstern A.
„Step gradients in 3-zone simulated moving bed chromatography – Application to the purification of antibodies and bone morphogenetic protein-2”
Journal of Chromatography A, 1176, 2007, 69-78
- Ilić M., Petkovska M., Seidel-Morgenstern A.
„Theoretical investigation of the adsorption of a binary mixture in a chromatographic column using the nonlinear frequency response technique”
Adsorption, 13, 2007, 541-567
- Seidel-Morgenstern A.
„Chromatographic reactor”
in: „Catalysis from A to Z” Edited by Cornils B., Herrmann W. A., Schlögl R., Wong C.-H., Wiley-VCH, Weinheim, 3. Edition, 2007, 311-312

Seidel-Morgenstern A.

„Chemische Verfahrenstechnik“

in: „Dubbel-Taschenbuch für den Maschinenbau“, Editors: Beitz W., Grote K.-H., 22. Edition, Springer Verlag, 2007, N 18-N 26

Tóta Á., Hlushkou D., Tsotsas E., Seidel-Morgenstern A.

„Packed-bed Membrane Reactors“

In: “Modeling of Process Intensification” Edited by Keil, F. J., Wiley-VCH Verlag, Weinheim, 2007, 99-148

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Special Issue “Chemical Engineering Science: 19th International Symposium on Chemical Reaction Engineering – From Science to Innovate Engineering”
Chemical Engineering Science, 62, Elsevier, 2007

Weyd M., Richter H., Puhlfürß P., Voigt I., Hamel C., Seidel-Morgenstern A.

„Transport of binary water-ethanol mixtures through a multilayer hydrophobic zeolite membrane”

Journal of Membrane Science, 307, 2008, 239-248

Angelov I., Raisch J., Elsner M. P., Seidel-Morgenstern A.

„Optimal operation of enantioseparation by batch-wise preferential crystallization”
Chemical Engineering Science, 63, 2008, 1282-1292

Qamar S., Ashfaq A., Angelov I., Elsner M. P., Warnecke G., Seidel-Morgenstern A.

„Numerical solutions of population balance models in preferential crystallization”
Chemical Engineering Science, 63, 2008, 1342-1352

Čermáková J. R., Marković A., Uchytíl P., Seidel-Morgenstern A.

„Single component and competitive adsorption of propane, carbon dioxide and butane on Vycor glass”

Chemical Engineering Science, 63, 2008, 1586-1601

Nischang I., Höltzel A., Seidel-Morgenstern A., Tallarek U.

„Concentration polarization and nonequilibrium electroosmotic slip in hierarchical monolithic structures”

Electrophoresis, 29, 2008, 1140-1151

Sewekow E., Keßler L. C., Seidel-Morgenstern A., Rothkoetter H.-J.

„Isolation of soy bean protein P34 from oil bodies using hydrophobic interaction chromatography”

BMC Biotechnology, 8:27, 2008, 1-34

Qamar S., Warnecke G., Elsner M. P., Seidel-Morgenstern A.

„A Laplace transformation based technique for reconstructing crystal size distributions regarding size independent growth”

Chemical Engineering Science, 63, 2008, 2233-2240

- Poplewska I., Kramarz R., Piatkowski W., Seidel-Morgenstern A., Antos D.
„Behavior of adsorbed and fluid phase versus retention properties of amino acids on the teicoplanin chiral selector”
Journal of Chromatography A, 1192, 2008, 130-138
- Seidel-Morgenstern A., Keßler L. C., Kaspereit M.
„Neue Entwicklungen auf dem Gebiet der simulierten Gegenstromchromatographie”
Chemie Ingenieur Technik, 80, 2008, 725-740
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„New Developments in Simulated Moving Bed Chromatography”
Chemical Engineering & Technology, 81, 2008, 826-837
- Ilić M., Petkovska M., Seidel-Morgenstern A.
„Estimation of single solute adsorption isotherms applying the nonlinear frequency response method using non-optimal frequencies”
Journal of Chromatography A, 1200, 2008, 183-192
- Marković A., Seidel-Morgenstern A., Petkovska M.
„Evaluation of the potential periodically operated reactors based on the second order frequency response function”
Chemical Engineering Research and Design, 86, 2008, 682-691
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„Analysis of single and multi-stage membrane reactors for the oxidation of short-chain alkanes – Simulation study and pilot scale experiments”
Chemical Engineering Research and Design, 86, 2008, 753-764
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„Size-exclusion chromatography as a linear transfer system: Purification of human influenza virus as an example”
Journal of Chromatography B, 873, 2008, 102-112
- Keßler L. C., Seidel-Morgenstern A.
„Improving performance of simulated moving bed chromatography by fractionation and feed-back of outlet streams”
Journal of Chromatography A, 1207, 2008, 55-71
- Khirevich S., Höltzel A., Hlushkou D., Seidel-Morgenstern A., Tallarek U.
„Structure-transport analysis for particulate packings in trapezoidal microchip separation channels”
Lab on a Chip, 8, 2008, 1801-1808
- Sreedhar B., Seidel-Morgenstern A.
„Preparative separation of multi-component mixtures using stationary phase gradients”
Journal of Chromatography A, 1215, 2008, 133-144

Forssén P., Arnell R., Kaspereit M., Seidel-Morgenstern A., Fornstedt T.

„Effects of a strongly adsorbed additive on process performance in chiral preparative chromatography”

Journal of Chromatography A, 1212, 2008, 89-97

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„Potential of Chiral Solvents for Enantioselective Crystallization – 1. Evaluation of Thermodynamic Effects”

Crystal Growth & Design, 8, 2008, 3408-3414

Rapp E., Charvat A., Beinsen A., Plessmann U., Reichl U., Seidel-Morgenstern A., Urlaub H., Abel B.

„Atmospheric Pressure Free Liquid Infrared MALDI Mass Spectrometry: Toward a combined ESI/MALDI-Liquid Chromatography Interface”

Analytical Chemistry, 81, 1215, 2009, 443-452

Qamar S., Angelov I., Elsner M. P., Ashfaq A., Seidel-Morgenstern A., Warnecke G.

„Numerical approximations of a population balance model for coupled batch preferential crystallizers“

Applied Numerical Mathematics, 59, 2009, 739-753

Czapla F., Haida H., Elsner M. P., Lorenz H., Seidel-Morgenstern A.

„Parameterization of population balance models for polythermal auto seeded preferential crystallization of enantiomers”

Chemical Engineering Science, 64, 2009, 753-763