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### Supervised Ph.D. Theses

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## Talks

- [CT429] Sundmacher, K. (2020). *MaxSynBio: Bottom-up Synthesis of Live-like Systems from Functional Modules*. Presented at International MaxSynBio Symposium: Avenues towards Artificial Life-like Systems. Virtual. November 30 – December 02, 2020.
- [CT428] Linke, S., Jokiel, M., McBride, K., & Sundmacher, K. *Green solvents for the hydroformylation of long chain alkenes*. Presented at 2020 Virtual AIChE Annual Meeting. Virtual. November 16-20, 2020.
- [CT427] Zimmermann, R. T., Bremer, J., & Sundmacher, K. *Optimal Catalyst-Reactor Design for Flexible CO<sub>2</sub> Methanation*. Presented at: 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020: Processes for Future. Virtual, September 21-24, 2020.
- [CT426] Sundmacher, K. *Kohlenstoff-Kreislaufwirtschaft und Bio-Elektro-Ökonomie: Neue Technologien für eine nachhaltigere Gesellschaft*. Invited Talk presented at: Öffentlicher Vortrag im Rahmen der Reihe “Forschung verstehen.” Museum für Naturkunde Magdeburg, Germany, September 17, 2020.
- [CT425] Zhou, Y., Zhou, T., & Sundmacher, K. *In silico discovery of metal-organic frameworks for ethylene/acetylene separation*. Presented at: ESCAPE 30, 30th European Symposium on Computer Aided Process Engineering. Virtual, August 30-September 2, 2020.

- [CT424] Maggi, A., Wenzel, M., & Sundmacher, K. *Power-to-Syngas Processes by Reactor-Separator Optimization*. Presented at: ESCAPE 30, 30th European Symposium on Computer Aided Process Engineering. Virtual, August 30-September 2, 2020.
- [CT423] Matschek, J., Himmel, A., Sundmacher, K., & Findeisen, R. *Constrained Gaussian Process Learning for Model Predictive Control*. Presented at: IFAC World Congress - 21st WC 2020. Virtual, July 12-17, 2020.
- [CT422] Otrin, L., Witkowska, A., Zhao, Z., Lira, R. de, Dimova, R., Lipowsky, R., Jahn, R., Sundmacher, K., & Vidaković-Koch, T. *SNARE-mediated Fusion of Polymer and Hybrid Compartments*. Presented at: Biomembrane Days 2019. Berlin, Germany, December 11, 2019.
- [CT421] Otrin, L., Diehl, C., Erb, T., Sundmacher, K., & Vidaković-Koch, T. *Mitochondrion Reimagined: Fueling Synthetic Life*. Presented at: BioSynSys 2019. Bordeaux, France, November 20, 2019.
- [CT420] Marusic, N., Otrin, L., Zhao, Z., Lira, R. de, Vidaković-Koch, T., Ivanov, I., Dimova, R., & Sundmacher, K. *Integration of respiratory enzymes in PDMS-g-PEO polymer and polymer/lipid hybrid vesicles*. Presented at: Biomembrane Days 2019. Berlin, Germany, December 11, 2019.
- [CT419] Marusic, N., Otrin, L., Zhao, Z., Lira, R. de, Vidaković-Koch, T., Ivanov, I., Dimova, R., & Sundmacher, K. *Reconstitution of respiratory enzymes in PDMS-g-PEO polymer and polymer/lipid hybrid vesicles*. Presented at: BioSynSys/MaxSynBio/SynBioSymposium. Bordeaux, France, November 20, 2019.
- [CT418] Schack, D., Liesche, G., & Sundmacher, K. *Optimal Process Design for a Sustainable Methanol Production Using Renewable Energies by Applying the FluxMax Approach*. Presented at: Optimal Process Design for a Sustainable Methanol Production Using Renewable Energies by Applying the FluxMax Approach. Orlando, USA, November 10, 2019.
- [CT417] Liesche, G., Schack, D., & Sundmacher, K. *The FluxMax Approach: Integrated Process Synthesis and Heat Integration Exemplified for the Production of Hydrogen Cyanide*. Presented at: AIChE Annual Meeting. Orlando, USA, November 10, 2019.
- [CT416] Himmel, A. & Sundmacher, K. *Conceptual Framework for Integrated Control and Design of Coupled Processes*. Presented at: AIChE Annual Meeting. Orlando, USA, November 10, 2019.
- [CT415] Schack, D., Jastram, A., & Sundmacher, K. *Simultaneous Heat and Mass Flow Optimization of a Distillation Column Applying the FluxMax Approach*. Presented at:

22nd Conference on Process Integration for Energy Saving and Pollution Reduction.  
Agios Nikolaos, Crete, Greece, October 20, 2019.

- [CT414] Rätze, K., McBride, K., & Sundmacher, K. *A Bayesian approach for continuous improvement of kinetic parameter estimates*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CT413] Schack, D. & Sundmacher, K. *Optimal Process Design for a Sustainable Methanol Production Using Renewable Energies by Applying the FluxMax Approach*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CT412] Linke, S., McBride, K., Rätze, K., & Sundmacher, K. *Green Solvent Selection and Early Stage Process Design for the Homogeneously Catalyzed Reductive Amination of Long-chain Aldehydes*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CT411] Bremer, J., Zimmermann, R. T., & Sundmacher, K. *Enhanced Fixed-Bed Reactor Flexibility through Optimal Control and Design for CO<sub>2</sub> Methanation*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CT410] Kunde, C., Keßler, T., Linke, S., McBride, K., Sundmacher, K., & Kienle, A. *Global optimization of catalyst recovery in a thermomorphic multiphase system using surrogate models*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CT409] Song, Z., Zhou, T., Qi, Z., & Sundmacher, K. *Computer-aided screening of deep eutectic solvents for separation processes*. Presented at: ILSEPT - 4th International Conference on Ionic Liquids in Separation and Purification Technology. Melia Sitges, Sitges, Spain, September 8, 2019.
- [CT408] Bechtel, S., Vidaković-Koch, T., & Sundmacher, K. *Electrochemical Gas Phase Oxidation of Hydrogen Chloride to Chlorine: Model-based Analysis of Transport and Reaction Mechanisms*. Presented at: 70th Annual Meeting of the International Society of Electrochemistry. Durban, South Africa, August 4, 2019.
- [CT407] Papakonstantinou, G. & Sundmacher, K. *Influence of H<sub>2</sub> permeation on polymer electrolyte electrolysis: safety, anode catalysis and durability*. Presented at: European Fuel Cell Forum 2019 (EFCF 2019). Lucerne, Switzerland, July 2, 2019.
- [CT406] Zhou, T., Song, Z., Gani, R., & Sundmacher, K. *Optimal solvent design for extractive distillation processes: A multiobjective optimization-based hierarchical framework*.

Presented at: 5th International Conference on Sustainable Chemical Product and Process Engineering (SCPPE). Nanjing, China, June 30, 2019.

- [CT405] Sundmacher, K. & McBride, K. *Separation Units 4.0: Modellgestützter Entwurf und Betrieb von Trennapparaten*. Presented at: 58. Tutzing-Symposion. Tutzing, October 21, 2019.
- [CT404] Sundmacher, K. *Structure Optimization of Renewables-to-Chemicals Production Systems*. Invited talk presented at: EPFL. Sion, Switzerland, May 23, 2019.
- [CT403] Sundmacher, K. *Closing Remarks*. Invited talk presented at: YCOPE 2019. Magdeburg, Germany, March 20, 2019.
- [CT402] Schack, D. & Sundmacher, K. *Converting Electricity, Water and CO<sub>2</sub> into Transportation Fuels*. Invited talk presented at: 1. Workshop zur Nachhaltigkeit In der MPG. Magdeburg, Germany, May 16, 2019.
- [CT401] Liesche, G., Schack, D., & Sundmacher, K. *Process Intensification by Network Flow Optimization in the Thermodynamic State Space*. Invited talk presented at: Process Intensification Colloquium Dortmund. Dortmund, Germany, May 7, 2019.
- [CT400] Rihko-Struckmann, L., Sahni, A., McBride, K., Linke, S., & Sundmacher, K. *Algal remnant transformation to 5-HMF under biphasic conditions using a computationally predicted solvent selection approach*. Presented at: International Symposium on Green Chemistry 2019. La Rochelle, France, May 13, 2019.
- [CT399] Rätze, K. & Sundmacher, K. *Analysis of a cyclically operated semi-batch reactor for the hydroformylation of long-chain olefins in a continuous production process under uncertain feed composition*. Presented at: Jahrestreffen Reaktionstechnik 2019 DECHEMA. Würzburg, Germany, May 27, 2019.
- [CT398] Song, Z., Bechtel, S., Zhou, T., Qi, Z., & Sundmacher, K. *Computer-aided methods for screening and design of ionic liquids for separation processes*. Presented at: 8th International Congress on Ionic Liquids (COIL-8). Beijing, China, May 13, 2019.
- [CT397] Rätze, K., Jokiel, M., McBride, K., & Sundmacher, K. *Alternative Process Configuration and Solvent Selection for Enhanced Performance of the Hydroformylation of 1-Dodecene*. Presented at: YCOPE 2019. Magdeburg, Germany, March 18, 2019.
- [CT396] Linke, S., McBride, K., & Sundmacher, K. *Green solvent selection for the homogeneously catalyzed hydroformylation of long-chain olefins in a thermomorphic solvent system*. Presented at: YCOPE 2019. Magdeburg, Germany, March 18, 2019.

- [CT395] Liesche, G., Schack, D., & Sundmacher, K. *Integrated Process Synthesis and Heat Integration Exemplified for Production of Hydrogen Cyanide*. Presented at: YCOPE 2019. Magdeburg, Germany, March 18, 2019.
- [CT394] Liesche, G., Schack, D., & Sundmacher, K. *Integriertes Prozessdesign und Wärmeintegration gezeigt am Beispiel der Synthese von Blausäure*. Presented at: ProcessNet Energieverfahrenstechnik 2019. Frankfurt am Main, Germany, March 6, 2019.
- [CT393] Schack, D., Liesche, G., & Sundmacher, K. *Optimaler Prozessentwurf für eine nachhaltige Methanolproduktion unter Einsatz von CO<sub>2</sub> und erneuerbaren Energien*. Presented at: ProcessNet Energieverfahrenstechnik 2019. Frankfurt am Main, Germany, March 6, 2019.
- [CT392] Uebbing, J., Sager, S., & Sundmacher, K. *Rigorous MINLP Optimization of Power-to-Methane Processes*. Presented at: SIAM Conference on Computational Science and Engineering (CSE19). Spokane, Washington, USA, February 25, 2019.
- [CT391] Rätze, K., Jokiel, M., Kaiser, N. M., & Sundmacher, K. *Cyclic Operation of a Semi-Batch Reactor for the Hydroformylation of Long-Chain Olefins and Integration in a Continuous Production Process*. Presented at: ISCRE25 (International Symposium of Chemical Reaction Engineering). Florence, Italy, May 20, 2018.
- [CT390] Liesche, G. & Sundmacher, K. *Design of a High Temperature Catalytic Wall Reactor: Steam Methane Reforming*. Presented at: ISCRE25 (International Symposium of Chemical Reaction Engineering). Florence, Italy, May 20, 2018.
- [CT389] Jokiel, M. & Sundmacher, K. *Novel Reactor Design for the Hydroformylation of Long-Chain Olefins: Flexibility and Automation Aspects*. Presented at: CHEMREACTOR-23. Ghent, Belgium, November 5, 2018.
- [CT388] Bremer, J. & Sundmacher, K. *Flexible Production of Synthetic Methane: Dynamic Operation and Control of Fixed-Bed Methanation Reactors*. Presented at: CHEMREACTOR-23. Ghent, Belgium, November 5, 2018.
- [CT387] Uebbing, J., Rihko-Struckmann, L., & Sundmacher, K. *Exergy Efficiency of Methane as a Chemical Energy Carrier for Renewable Energies*. Presented at: Jahrestreffen der ProcessNet-Fachgruppe Energieverfahrenstechnik. Frankfurt am Main, March 7, 2018.
- [CT386] Uebbing, J., Rihko-Struckmann, L., & Sundmacher, K. *Exergy efficiency of power-to-methane processes using CO<sub>2</sub> from anaerobic digestion*. Presented at: 23rd International Congress of Chemical and Process Engineering (CHISA 2018). Prague, Czech Republic, August 25, 2018.

- [CT385] Jokiel, M., Kaiser, N. M., Zähringer, K., Nigam, K. D., & Sundmacher, K. *Helically Coiled Segmented Flow Tubular Reactor for the Hydroformylation of Long-Chain Olefins in a Thermomorphic Multicomponent Solvent System*. Presented at: ISCRE25 (International Symposium of Chemical Reaction Engineering). Florence, Italy, May 20, 2018.
- [CT384] Linke, S., McBride, K., Xu, S., & Sundmacher, K. “Green” solvent screening for thermomorphic solvent systems exemplified for hydroformylation. Presented at: COSMO-RS-Symposium. Cologne, Germany, March 6, 2018.
- [CT383] Bremer, J. & Sundmacher, K. *Flexible Production of Synthetic Methane: Dynamic Operation and Control of Fixed-Bed Methanation Reactors*. Presented at: ProcessNet-Jahrestagung und 33. DECHEMA-Jahrestagung der Biotechnologen 2018. Aachen, Germany, September 10, 2018.
- [CT382] Wenzel, M., Rihko-Struckmann, L., & Sundmacher, K. *Modelling Coupled Conduction-Convection-Radiation for Reactive Flows in High Temperature Applications: Synthesis of Hydrogen Cyanide*. Presented at: FFHMT'18 (International Conference on Fluid Flow, Heat & Mass Transfer). Niagara Falls, Canada, June 7, 2018.
- [CT381] Wiedmeyer, V., Voigt, A., Anker, F., John, V., Ahrens, R., Le Borne, & Sundmacher, K. *Kontinuierliche formselektive Kristallisation: Neue Strategien*. Presented at: ProcessNet-Jahrestagung und 33. DECHEMA-Jahrestagung der Biotechnologen 2018. Aachen, Germany, September 10, 2018.
- [CT380] Bremer, J. & Sundmacher, K. *Stabilizing Unstable Operation Regimes of Cooled Exothermic Fixed-Bed Reactors*. Presented at: ISCRE25 (International Symposium of Chemical Reaction Engineering). Florence, Italy, May 20, 2018.
- [CT379] Schack, D., Liesche, G., & Sundmacher, K. *Renewables-to-Chemicals: Optimaler Prozessentwurf für eine nachhaltige Methanolproduktion unter Einsatz von CO<sub>2</sub>*. Presented at: ProcessNet-Jahrestagung und 33. DECHEMA-Jahrestagung der Biotechnologen 2018. Aachen, Germany, September 10, 2018.
- [CT378] Voigt, A., Wiedmeyer, V., & Sundmacher, K. *Agglomeration-Driven Product Selection in a Continuously Operated Fluidized-Bed Crystallizer*. Presented at: AIChE Annual Meeting 2018. Pittsburgh, USA, October 28, 2018.
- [CT377] Sundmacher, K. *Bottom-up Synthetic Biology – From Biomolecules to Functional Systems*. Invited talk presented at: Frühjahrstagung der Biotechnologien DECHEMA. Frankfurt am Main, Germany, March 5, 2018.

- [CT376] Kozłowski, A., Pischel, D., Facht, M., Pirwitz, K., Flassig, R., & Sundmacher, K. *From Lab to Outdoor: Modeling Light Fluctuations in Algal Photobioreactors to Identify Economically Feasible Solutions*. Presented at: Young Algaeneers Symposium. Oban, UK, May 16, 2018.
- [CT375] Himmel, A., Sager, S., & Sundmacher, K. *Flexibler Betrieb von Biogasanlagen mittels inversionsbasierter zeitoptimaler Steuerung*. Presented at: ProcessNet-Jahrestagung und 33. DECHEMA-Jahrestagung der Biotechnologen 2018. Aachen, Germany, September 10, 2018.
- [CT374] Zinser, A., Papakonstantinou, G., & Sundmacher, K. *PEM Water Electrolysis: Analysis of Transport Processes in the Anodic Porous Transport Layer*. Presented at: ESEE 2017. Prague, Czech Republic, June 4, 2017.
- [CT373] Bremer, J., Goyal, P. K., Feng, L., Benner, P., & Sundmacher, K. *Towards Fast Optimal Control of CO<sub>2</sub> Methanation Reactors via POD-DEIM*. Presented at: MODRED 2017. Odense, Denmark, January 11, 2017.
- [CT372] Liesche, G. & Sundmacher, K. *Analysis of key heat transport phenomena in a high temperature catalytic reactor*. Presented at: Société Française de Génie de Procédés (SFGP) meeting 2017. Nancy, France, July 11, 2017.
- [CT371] Kleineberg, C., Caire da Silva, L., Vidaković-Koch, T., Bannwarth, M., Sundmacher, K., & Landfester, K. *Light-induced ATP synthesis for synthetic biology applications*. Presented at: DECHEMA Workshop Systems Biology meets Synthetic Biology. Frankfurt am Main, Germany, May 2, 2017.
- [CT370] Vidaković-Koch, T., Otrin, L., Kleineberg, C., Krafft, D., Wang, M., Bednarz, C., Marušič, N., Ivanov, I., & Sundmacher, K. *Bottom-up design and reconstitution of energy regeneration infrastructure of an artificial cell*. Presented at: Jahreskongress 2017 Biotechnologie 2020+ "Nächste Generation biotechnologischer Verfahren." Jülich, Germany, October 4, 2017.
- [CT369] Rihko-Struckmann, L., Olyinka, O. B., McBride, K., Facht, M., & Sundmacher, K. *Mild Liquefaction of Dunaliella remnant to 5-HMF and levulinic acid under biphasic reaction*. Presented at: ECAB/WCCE 2017. Barcelona, Spain, October 1, 2017.
- [CT368] Kaiser, N. M., Flassig, R., & Sundmacher, K. *From the Reaction Network to Optimal Process Design via Flux Analysis – Exemplified by the Hydroformylation of 1-Dodecene*. Presented at: Jahrestreffen Reaktionstechnik 2017. Würzburg, Germany, 2017, May 22, 2017.

- [CT367] Pischel, D., Sundmacher, K., & Flassig, R. *Efficient simulation of intrinsic, extrinsic and external noise in biochemical systems*. Presented at: ISMB/ECCB. Prague, Czech Republic, July 21, 2017.
- [CT366] Krafft, D., Wang, W., Otrin, L., Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *Functionalized Membranes for Bottom-up Synthetic Biology*. Presented at: DECHEMA Workshop Systems Biology meets Synthetic Biology. Frankfurt am Main, Germany, May 2, 2017.
- [CT365] Wenzel, M., Rihko-Struckmann, L., & Sundmacher, K. *Continuous Production of Syngas from CO<sub>2</sub> by Reverse Water-Gas Shift Chemical Looping Processes*. Presented at: WCCE 2017. Barcelona, Spain, October 1, 2017.
- [CT364] Pischel, D., Buchbinder, J. H., Flassig, R., Lavrik, I. N., & Sundmacher, K. *Process Monitoring with Imaging Flow Cytometry - a Machine Learning Approach*. Presented at: ECAB/WCCE 2017. Barcelona, Spain, October 1, 2017.
- [CT363] Otrin, L., Bednarz, C., Marušič, N., Vidaković-Koch, T., Landfester, K., & Sundmacher, K. *Bottom-up Reconstitution of Artificial Respiratory Chain into Natural and Synthetic Containers*. Presented at: Designer Biology Symposium. Vienna, Austria, June 7, 2017.
- [CT362] Bremer, J. & Sundmacher, K. *Dynamisch geregelte Methanisierung von CO<sub>2</sub>: Neue Betriebsstrategien für flexible PtG Anlagen*. Presented at: JT ProcessNet: EVT 2018. Frankfurt am Main, March 7, 2018.
- [CT361] Liesche, G. & Sundmacher, K. *Optimization of a High Temperature Catalytic Wall Reactor: Synthesis of Hydrogen Cyanide*. Presented at: WCCE10. Barcelona, Spain, October 1, 2017.
- [CT360] Wiedmeyer, V., Voigt, A., Le Borne, S., & Sundmacher, K. *Experimentelle Aggregation im Wirbelschichtkristaller zur Modellierung von Aggregationskernen*. Presented at: ProcessNet Jahrestreffen MPH & WSUE & CFD, HTT & AuW, KRI, PMT. Bremen, Germany, March 6, 2018.
- [CT359] Aydin, E., Bonvin, D., & Sundmacher, K. *NMPC of Semi-Batch Processes under Uncertainty using Pontryagin's Minimum Principle*. Presented at: AIChE Annual Meeting. Minneapolis, USA, October 29, 2017.
- [CT358] Peña Arias, I., Hanke-Rauschenbach, R., & Sundmacher, K. *Experimental Characterization of an Electrochemical Preferential Oxidation Reactor*. Presented at: WCCE10. Barcelona, Spain, October 1, 2017.



- [CT357] Bremer, J., Benner, P., & Sundmacher, K. *Fast Optimal Control of Exothermic Packed-Bed Reactors via Reduced Order Models*. Presented at: AIChE 2017. Minneapolis, USA, October 29, 2017.
- [CT356] Bremer, J., Rätze, K., & Sundmacher, K. *Dynamische CO<sub>2</sub> Methanisierung – Optimale Betriebsführung eines Festbettreaktors für Power to Gas Anwendungen*. Presented at: Jahrestreffen Frankfurt II: Jahrestreffen der ProcessNet-Fachgruppen Abfallbehandlung und Wertstoffrückgewinnung, Energieverfahrenstechnik, Gasreinigung, Hochtemperaturtechnik, Rohstoffe. Frankfurt am Main, Germany, March 21, 2017.
- [CT355] Sundmacher, K. *Mimicking Essential Life Processes in Synthetic Biosystems*. Invited talk presented at: BrisSynBio MaxSynBio Joint Workshop. Bristol, UK, April 6, 2017.
- [CT354] Sundmacher, K. *Innovative Elektrochemie in der Energiewende: Herausforderungen und Chancen*. Invited talk presented at: BMBF-Statusseminar zur Fördermaßnahme „InnoEMat“. Leipzig, Germany, November 24, 2017.
- [CT353] Sundmacher, K. *Integrated Solvent Selection and Process Design for the Efficient Recovery of Homogeneous Catalysts in Hydroformylation Processes*. Presented at: Tunable Solvents For Green Processing, International Symposium InPROMPT 2016. Berlin, June 2, 2016.
- [CT352] Wenzel, M., Rihko-Struckmann, L., & Sundmacher, K. *Optimization of Reverse Water-Gas Shift Chemical Looping for Continuous Production of Syngas from CO<sub>2</sub>*. Presented at: AIChE Annual Meeting 2016. San Francisco, USA, November 13, 2016.
- [CT351] Bremer, J., Goyal, P. K., Feng, L., Benner, P., & Sundmacher, K. *Reduced Order Modeling and Optimization of CO<sub>2</sub> Methanation Reactors*. Presented at: Workshop on Optimal and Feedback Control of Differential Equations. Konstanz, Germany, November 22, 2016.
- [CT350] Bremer, J., Goyal, P. K., Feng, L., Benner, P., & Sundmacher, K. *Reduced Order Modeling and Optimization of CO<sub>2</sub> Methanation Reactors*. Presented at: ALOP Workshop: Reduced Order Models in Optimization. Trier, Germany, September 26, 2016.
- [CT349] Schack, D., Rihko-Struckmann, L., & Sundmacher, K. *Strukturoptimierung von Renewables-to-Chemicals (R2Chem) Netzwerken zur wirtschaftlichen Nutzung erneuerbarer Energien*. Presented at: Processnet-Jahrestagung. Aachen, Germany, September 12, 2016.
- [CT348] Flassig, R., Facht, M., Höffner, K., & Sundmacher, K. *Dynamic flux balance modeling to increase the production of high-value compounds in green microalgae*. Presented at: ENCAPP 2016. Malta, April 26, 2016.

- [CT347] Sundmacher, K., Ivanov, I., Mangold, M., Otrin, L., & Vidaković-Koch, T. *Nachahmung essenzieller Lebensprozesse in minimalen synthetischen Systemen*. Presented at: 18. Heiligenstädter Kolloquium. Heiligenstadt, September 19, 2016.
- [CT346] Voigt, A., Wiedmeyer, V., & Sundmacher, K. *Agglomeration in a Fluidized Bed Crystallizer - from Experiments to Modeling*. Presented at: AIChE Annual Meeting 2016. San Francisco, USA, November 13, 2016.
- [CT345] Liesche, G. & Sundmacher, K. *Multiscale Modeling for High Temperature Heterogeneous Gas Phase Synthesis Reactions: HCN Synthesis*. Presented at: AIChE Annual Meeting 2016. San Francisco, USA, November 13, 2016.
- [CT344] Krafft, D., Kleineberg, C., Bednarz, C., Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *A cell-free, self-sustaining metabolic platform*. Presented at: EUSynBioS Symposium 2016. London, United Kingdom, April 9, 2016.
- [CT343] Wiedmeyer, V., Voigt, A., & Sundmacher, K. *Analysis of Growth Kinetics of a Multivariate Crystal Population in a Continuous Crystallizer*. Presented at: PARTEC 2016. Nuremberg, Germany, April 19, 2016.
- [CT342] Eisenschmidt, H. & Sundmacher, K. *Kristallformsteuerung durch einen zyklischen Wachstums- Auflösungs-prozess*. Presented at: Jahrestreffen der ProcessNet-Fachgruppe Kristallisation. Frankfurt am Main, March 10, 2016.
- [CT341] Bremer, J., Rätze, K., & Sundmacher, K. *CO<sub>2</sub> Methanation: Optimal Start-Up Control of a Fixed-Bed Reactor for Power-To-Gas Applications*. Presented at: ISCRE 24. Minneapolis, USA, June 12, 2016.
- [CT340] Sundmacher, K. *MaxSynBio - Status and Future Directions*. Invited talk presented at: MaxSynBio Workshop. Göttingen, Germany, June 6, 2016.
- [CT339] Facht, M., Gladebeck, S., Flassig, R., Höffner, K., Rihko-Struckmann, L., & Sundmacher, K. *Model-based Optimization of Microalgal Biorefineries by Dynamic Flux Balance Analysis (DFBA)*. Presented at: CAPE Forum 2016. EPFL Valais-Wallis, Sion, March 30, 2016.
- [CT338] Sorrentino, A., Vidaković-Koch, T., & Sundmacher, K. *Concentration frequency response analysis: a new method for the study of the PEM fuel cell dynamics*. Presented at: 10th International Symposium on Electrochemical Impedance Spectroscopy. A Toxa, Galicia, Spain, June 19, 2016.
- [CT337] Zhou, T. & Sundmacher, K. *Computer Aided Molecular Design (CAMD): Integration of molecular decisions into process systems design*. Presented at: 4th international

conference on sustainable chemical product and process engineering (SCPPE 2016). Nanjing, China, May 31, 2016.

- [CT336] Wang, W., Voigt, A., Wolff, M. W., Reichl, U., & Sundmacher, K. *Optimization of affinity membrane adsorption by evaluating multivalent interaction*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CT335] Pirwitz, K., Rihko-Struckmann, L., & Sundmacher, K. *Investigation of different flocculation methods for Dunaliella sp.* Presented at: Algal Biomass, Biofuels and Bioproducts. San Diego, USA, June 7, 2015.
- [CT334] Vidaković-Koch, T., Do Thi, Q. N., Varničić, M., & Sundmacher, K. *Towards Rational Design of Bioelectrochemical Systems*. Presented at: ECHEMS 2015. Bad Zwischenahn, Germany, June 14, 2015.
- [CT333] Peña Arias, I., Trinke, P., Hanke-Rauschenbach, R., & Sundmacher, K. *Experimental investigation on fuel cell dynamics and local current density inhomogenities*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CT332] Nogueira, J. A., Peña Arias, I., Vidaković-Koch, T., Sundmacher, K., & Varela, H. *Autonomous voltage oscillations in a Direct Methanol Fuel Cell (DMFC)*. Presented at: SIBEE (XX Simpósio Brasileiro de Eletroquímica e Eletroanalítica). Uberlândia, Estado de Minas Gerais, Brasil, August 17, 2015.
- [CT331] Sundmacher, K. *Mathematical Optimization of Chemical Energy Conversion Systems*. Invited talk presented at: 7th COSMO Workshop. Heidelberg, Germany, October 8, 2015.
- [CT330] Do Thi, Q. N., Varničić, M., Flassig, R., Vidaković-Koch, T., & Sundmacher, K. *Dynamic and Steady State 1-D Model of Mediated Electron Transfer in a Porous Enzymatic Electrode*. Presented at: XXIII International Symposium on Bioelectrochemistry and Bioenergetics. Malmo, Sweden, June 14, 2015.
- [CT329] Pischel, D., Flassig, R., & Sundmacher, K. *Coping with heterogeneity and stochasticity in microbial processes*. Presented at: MACKIE 2015. Ghent, Belgium, July 2, 2015.
- [CT328] Höffner, K., Flassig, R., Facht, M., & Sundmacher, K. *Modeling metabolite accumulation and biomass composition in microalgae using dynamic flux balance analysis*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CT327] Mangal, M., Vidaković-Koch, T., & Sundmacher, K. *Plant wide evaluation analysis of hydrogen chloride electrolysis for chlorine recycling within an isocyanate production process*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.

- [CT326] Flassig, R., Pischel, D., & Sundmacher, K. *An efficient approach to parameter identifiability analysis in nonlinear models*. Presented at: MACKIE 2015. Ghent, Belgium, July 2, 2015.
- [CT325] Wenzel, M., Rihko-Struckmann, L., & Sundmacher, K. *CO<sub>2</sub> Activation and Conversion into CO via Chemical Looping*. Presented at: Energy Science and Technology (EST) 2015. Karlsruhe, Germany, May 20, 2015.
- [CT324] Wiedmeyer, V., Voigt, A., & Sundmacher, K. *Formentwicklung bei der kontinuierlichen Kristallisation*. Presented at: ProcessNet Jahrestreffen der Fachgruppe "Kristallisation." Magdeburg, March 18, 2015.
- [CT323] El-Sibai, A., Rihko-Struckmann, L., & Sundmacher, K. *Synthetic Methane from CO<sub>2</sub>: Dynamic Optimization of the Sabatier Process for Power-to-Gas Applications*. Presented at: PSE2015 Conference. Copenhagen, Denmark, May 31, 2015.
- [CT322] Gerlach, M., Kaiser, N. M., Hentschel, B., Kiedorf, G., Jörke, A., Hamel, C., Seidel-Morgenstern, A., & Sundmacher, K. *Process control strategies and identification of kinetic parameters based on dynamic optimization*. Presented at: ACHEMA 2015. Frankfurt am Main, Germany, June 15, 2015.
- [CT321] Sorrentino, A., Vidaković-Koch, T., Hanke-Rauschenbach, R., & Sundmacher, K. *Concentration-induced Electrochemical Impedance Spectroscopy (cEIS) for the Analysis of PEM Fuel Cells*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CT320] Varničić, M., Do Thi, Q. N., Vidaković-Koch, T., Haak, E., & Sundmacher, K. *Enzymatic Electrochemical Reactor for the Batch Production of Gluconic Acid*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CT319] Rihko-Struckmann, L., Pirwitz, K., Karani, U., Molnar, M., Flassig, R., & Sundmacher, K. *Mild Hydrothermal Liquefaction of Dunaliella salina for the Recovery and Extraction of Valuable Microalgal Ingredients*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CT318] Varničić, M., Vidaković-Koch, T., Haak, E., & Sundmacher, K. *Enzymatic Fuel Cell for Chemical Production*. Presented at: XXIII International Symposium on Bioelectrochemistry and Bioenergetics. Malmo, Sweden, June 14, 2015.
- [CT317] Zhou, T. & Sundmacher, K. *Fast screening and molecular design of solvents for chemical reactions based on COSMO-RS-derived theoretical descriptor*. Presented at: 4th COSMO-RS symposium. Bonn, Germany, March 16, 2015.

- [CT316] Sundmacher, K. *Translating Desirable Molecular Transformations into an Integrated Chemical Process: A Multi-Scale Design Approach*. Invited talk presented at: Einstein Workshop. Berlin, Germany, November 2, 2015.
- [CT315] Facht, M., Rihko-Struckmann, L., & Sundmacher, K. *Analysis of Dunaliella salina cellular properties during carotenogenesis using spectro- and fluorometric techniques*. Presented at: Young Algaeneers + Alg'n'Chem conference. Montpellier, France, April 3, 2014.
- [CT314] Sundmacher, K. *Synthetic Biology – Challenges for Chemistry, Physics and Engineering*. Presented at: CPT Section Symposium Synthetic Biology. Berlin, Germany, October 23, 2014.
- [CT313] Bensmann, B., Hanke-Rauschenbach, R., & Sundmacher, K. *Aspekte der Hochdruck-Wasserelektrolyse im Kontext von Power-to-Gas-Anwendungen*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.
- [CT312] Eisenschmidt, H., Wiedmeyer, V., Borchert, C., Bajcinca, N., & Sundmacher, K. *Shape-Selective Crystallization: Modeling, Observation, Control*. Invited talk presented at: TU Graz, Institut für Prozess- und Partikeltechnik. Graz, Austria, April 24, 2014.
- [CT311] Sundmacher, K. *Power-to-Gas: Energetik, Dynamik, Systemdesign, Akzeptanz*. Presented at: Leopoldina-Symposium “Energiespeicher.” Halle (Saale), Germany, February 6, 2014.
- [CT310] Facht, M., Rihko-Struckmann, L., & Sundmacher, K. *Biomass composition analysis of Dunaliella salina under carotenogenic conditions*. Presented at: Algal Biomass, Biofuels & Bioproducts. Santa Fe, USA, June 15, 2014.
- [CT309] Vidaković-Koch, T., Varničić, M., Do Thi, Q. N., & Sundmacher, K. *Electroenzymatic Reactors for Partial Oxidation Processes*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.
- [CT308] Sundmacher, K. *Synthetic Biology: Challenges for Chemistry, Physics and Engineering*. Invited talk presented at: CPT Section Symposium Synthetic Biology. Berlin, Germany, October 23, 2014.
- [CT307] Bensmann, B., Hanke-Rauschenbach, R., Heyer, R., Kohrs, F., Benndorf, D., & Sundmacher, K. *Methanation of renewable hydrogen within biogas reactors? A process systems engineering approach*. Presented at: CHISA 2014. Prague, Czech Republic, August 23, 2014.

- [CT306] Voigt, A., Wang, W., & Sundmacher, K. *Key-Lock Systems for Bioseparations - Molecular Simulation for Kinetic Models*. Presented at: AIChE Annual Meeting. Atlanta, USA, November 16, 2014.
- [CT305] Bensmann, A., Hanke-Rauschenbach, R., & Sundmacher, K. *Reaktor-Konfigurationen für Biogas-Anlagen: Eine modellgestützte Analyse*. Presented at: Biogas-Workshop des ifak. Erfurt, Germany, May 20, 2014.
- [CT304] Hanke-Rauschenbach, R., Kirsch, S., & Sundmacher, K. *Understanding complex operating behavior of PEM fuel cells fed with H<sub>2</sub>/CO-mixtures by means of modeling and model reduction*. Presented at: 97th Canadian Chemistry Conference 2014. Vancouver, Canada, June 1, 2014.
- [CT303] Pirwitz, K., Rihko-Struckmann, L., & Sundmacher, K. *Establishment of a multi-stage production system with photosynthetic microorganisms*. Presented at: Young Algaeneers + Alg'n'Chem conference. Montpellier, France, April 3, 2014.
- [CT302] Bensmann, B., Hanke-Rauschenbach, R., & Sundmacher, K. *In-situ characterisation of hydrogen crossover in polymer electrolyte membrane water electrolysis*. Presented at: 65th Annual Meeting of the International Society of Electrochemistry. Lausanne, Switzerland, August 31, 2014.
- [CT301] Kirsch, S., Hanke-Rauschenbach, R., & Sundmacher, K. *The electro-oxidation of H<sub>2</sub>, CO in a model PEM fuel cell: Oscillations, chaos, pulses*. Presented at: 226th Meeting of the Electrochemical Society. Cancun, Mexico, October 5, 2014.
- [CT300] Eisenschmidt, H., Voigt, A., & Sundmacher, K. *Image Based Real Time Crystal Shape Observer*. Presented at: 6th International Congress on Pharmaceutical Engineering (ICPE 6). Graz, Switzerland, June 16, 2014.
- [CT299] Hanke-Rauschenbach, R., Bensmann, B., & Sundmacher, K. *High-Pressure PEM Water Electrolysis: in-Situ Measurement of Hydrogen Crossover*. Presented at: 225th ECS Meeting. Orlando, USA, May 11, 2014.
- [CT298] Sundmacher, K. *Design of Chemical Processes in a Multi-level Dynamic Optimization Framework*. Presented at: 4th KoMSO Challenge Workshop - BASF SE. Ludwigshafen, Germany, January 23, 2014.
- [CT297] Bensmann, B., Hanke-Rauschenbach, R., & Sundmacher, K. *Systems consideration for high-pressure water electrolysis: Energy-optimal configuration of electrolysis, compression and product drying*. Presented at: 14th Ulm Electrochemistry Talks. Ulm, Germany, June 23, 2014.

- [CT296] Hanke-Rauschenbach, R., Mangold, M., & Sundmacher, K. *Nonlinear dynamics of fuel cells: A survey*. Invited talk presented at: Institute of Technical Thermodynamics at the German Aerospace Center. Stuttgart, Germany, June 13, 2014.
- [CT295] Sundmacher, K. *Wohin entwickelt sich die Synthetische Biologie in Deutschland?* Invited talk presented at: Podiumsdiskussion im Rahmen der Jahrestagung der Forschungsorganisationen zum Strategieprozess „Biotechnologie 2020+ - neue Generation biotechnologischer Verfahren“. Berlin, Germany, September 22, 2015.
- [CT294] Flassig, R. & Sundmacher, K. *Estimating model response distributions of dynamic systems with distributed parameters for robust optimal design problems*. Presented at: MaCKiE 2013. Madras, India, February 4, 2013.
- [CT293] Hanke-Rauschenbach, R., Bensmann, B., & Sundmacher, K. *High-pressure water electrolysis for intermediate storage of renewable energy - Process options, energetic analysis and experimental characterization*. Presented at: Hydrogen+Fuel Cells 2013 (HFC2013). Vancouver, Canada, June 16, 2013.
- [CT292] Flassig, R., Heise, S., Pinna, A., de la Fuente, A., Klamt, S., & Sundmacher, K. *Novel Methods for the Reconstruction of Regulatory Networks Based on Perturbation Graphs and Transitive Reduction*. Presented at: ICSB Copenhagen. Copenhagen, August 30, 2013.
- [CT291] Varničić, M. & Sundmacher, K. *Fluorescence Spectroscopy for the Visualization of the Enzyme Distribution on Enzymatic Fuel Cell Electrodes*. Presented at: Bioelectrochemistry 2013. Bochum, Germany, March 17, 2013.
- [CT290] Hanke-Rauschenbach, R., Bensmann, B., Peña Arias, I., & Sundmacher, K. *High pressure hydrogen production by means of water electrolysis*. Presented at: ICEPE 2013: 3rd International Conference on Energy Process Engineering. Frankfurt am Main, Germany, June 3, 2013.
- [CT289] Hanke-Rauschenbach, R., Bensmann, B., Müller-Syring, M., Henel, M., & Sundmacher, K. *Aspects on high-pressure water electrolysis for intermediate storage of renewable energy*. Presented at: f-cell 2013. Stuttgart, Germany, September 30, 2013.
- [CT288] Sundmacher, K. *Multiscale Optimal Process Design: The Elementary Process Functions Methodology*. Invited talk presented at: 3rd Summer School of the IMPRS for Analysis, Design, and Optimization in Chemical and Biochemical Process Engineering. Magdeburg, Germany, September 2, 2013.
- [CT287] Facht, M., Rihko-Struckmann, L., & Sundmacher, K. *Fermentation of Dunaliella Salina for b-Carotene Production: Modeling and Optimization of Bioreactor Operatio*

*Conditions*. Presented at: ECCE-ECAB: 2nd European Congress of Applied Biotechnology 2013. The Hague, The Netherlands, April 21, 2013.

- [CT286] Hentschel, B., Peschel, A., Freund, H., & Sundmacher, K. *Optimale Reaktionsführung der Hydroformylierung langkettiger Olefine in innovativen Lösungsmittelsystemen*. Presented at: Jahrestreffen Reaktionstechnik 2013. Würzburg, Germany, May 6, 2013.
- [CT285] Hanke-Rauschenbach, R., Bensmann, B., & Sundmacher, K. *Hochdruck-Wasserelektrolyse zur Zwischenspeicherung regenerativer Energie — Prozessoptionen, energetische Analyse und experimentelle Charakterisierung*. Presented at: Jahrestreffen der ProcessNet-Fachgruppe "Energieverfahrenstechnik". Würzburg, Germany, March 18, 2013.
- [CT284] Sundmacher, K. *Rationales Reaktordesign für die Hydroformylierung langkettiger Olefine in thermomorphen Lösungsmittelsystemen*. Presented at: Symposium "Advanced Fluids meets Equipment" der Fachgruppe "Advanced Fluids", DECHEMA. Frankfurt am Main, Germany, November 13, 2013.
- [CT283] Eisenschmidt, H., Voigt, A., & Sundmacher, K. *Experimentelle Untersuchung zum Auflösungsverhalten von Kaliumdihydrogenphosphat Kristallen*. Presented at: Jahrestreffen der Fachgruppe Kristallisation. Magdeburg, Germany, March 13, 2013.
- [CT282] Sundmacher, K. *Die Komposition lebendiger Organismen aus funktionellen Bausteinen - aus der ingenieurwissenschaftlichen Perspektive*. Presented at: Synthetische Biologie Symposium anlässlich der Feierlichen Sitzung der Österreichischen Akademie der Wissenschaften. Vienna, Austria, May 14, 2013.
- [CT281] Sundmacher, K. *Multiscale Process Design for Chemicals and Fuel Production: Towards a Sustainable Energy Conversion System*. Invited talk presented at: Workshop "The Future of Energy Technology", MPS Headquarters. Munich, Germany, July 9, 2013.
- [CT280] Sundmacher, K. *Nonlinear Dynamics of Electrochemical CO Oxidation in PEM Fuel Cells*. Invited talk presented at: Max Planck Institut Dynamische Systeme. Göttingen, Germany, August 28, 2013.
- [CT279] Hentschel, B., Peschel, A., Freund, H., & Sundmacher, K. *Optimal Reactor Design for the Hydroformylation of Long Chain Olefins in Thermomorphic Solvent Systems*. Presented at: AIChE 2013. San Francisco, USA, November 3, 2013.
- [CT278] Hanke-Rauschenbach, R., Bensmann, B., & Sundmacher, K. *Aspekte der Hochdruck-Wasserelektrolyse im Kontext von Power-to-Gas-Anwendungen*. Presented at: DBI-Fachforum "Energiespeicher — Pilotprojekte." Berlin, Germany, September 17, 2013.



- [CT277] Ye, K., Freund, H., & Sundmacher, K. *New Process for Azeotropic Mixture Separation by Phase Behavior Tuning Using Pressurized CO<sub>2</sub>*. Presented at: ECCE9. The Hague, The Netherlands, April 21, 2013.
- [CT276] Sundmacher, K. *Assembling living systems from functional modules: The engineer's view*. Presented at: Synthetische Biologie. Wien, Austria, May 14, 2013.
- [CT275] Sundmacher, K. *Some Elements of Multiscale Chemical Process Design*. Presented at: Colloquium on Chemical Reaction Engineering 2013 "First Principles Methods in Chemical Reaction Engineering, CCRE Milano. Milano, Italy, October 17, 2013.
- [CT274] Sundmacher, K. *Hoogewerff, lecture "Molecular Structures, Matter Elements, Thermodynamic Routes, Process Networks: Some Elements of the Future Toolbox for Chemical Process Design*. Presented at: ECCE 9. The Hague, the Netherlands, April 25, 2013.
- [CT273] Sundmacher, K. *Strom und Wärme aus Sonne, Wind und Biomasse*. Invited talk presented at: Deutsches Museum. Munich, Germany, February 27, 2013.
- [CT272] Sundmacher, K. *Zur Frage der modellgestützten Optimierung biotechnologischer Produktionsprozesse*. Invited talk presented at: BASF SE. Ludwigshafen, Germany, July 8, 2013.
- [CT271] Hanke-Rauschenbach, R., Mangold, M., & Sundmacher, K. *Mass transport in PEM fuel cells — A potential source for nonlinear operating behavior*. Presented at: Hydrogen + Fuel Cells 2013 (HFC 2013). Vancouver, Canada, June 16, 2013.
- [CT270] Sundmacher, K. *Brennstoffzellen als elektrochemische Membranreaktoren: Von der reaktionstechnischen Analyse zum optimierten Reaktordesign*. Presented at: DECHEMA-Kolloquium "Elektrochemische Reaktionstechnik. Frankfurt am Main, Germany, April 18, 2013.
- [CT269] Hentschel, B., Peschel, A., Freund, H., & Sundmacher, K. *Optimal Reactor Design for the Hydroformylation of long chain Olefins*. Presented at: ISCRE 22., Maastricht, The Netherlands, September 2, 2012.
- [CT268] Sharma, D., Rihko-Struckmann, L., & Sundmacher, K. *Systems Biology Studies for Understanding and Controlling Metabolic Systems in Microalgae: Challenges in Biofuel Production*. Presented at: IFSL. New Delhi, India, March 5, 2012.
- [CT267] Vidaković-Koch, T., Ivanov, I., Do Thi, Q. N., Varničić, M., & Sundmacher, K. *Energy Conversion in Bioelectrochemical Systems*. Presented at: ISE 2012. Prague, Czech Republic, August 19, 2012.

- [CT266] Sundmacher, K. *Controlling the Morphology Evolution of Crystals: Modeling and First Experiments*. Invited talk presented at: CBI Kolloquium. Erlangen, Germany, July 19, 2012.
- [CT265] Zeng, A. P. & Sundmacher, K. *Biosystemtechnik: Design neuer biologischer Produktionssysteme*. Presented at: ProcessNet -Jahrestagung und 30. DECHEMA-Jahrestagung der Biotechnologen 2012. Karlsruhe, Germany, September 10, 2012.
- [CT264] Freund, H., Peschel, A., & Sundmacher, K. *Process Intensification in Ethylene Oxide Production: Optimal Reactor Design from a Process Point of View*. Presented at: 2012 AIChE Annual Meeting. Pittsburgh, USA, October 28, 2012.
- [CT263] Peschel, A., Jörke, A., Freund, H., & Sundmacher, K. *Optimal Reaction Concept and Plant Wide Optimization of the Ethylene Oxide Process*. Presented at: ISCRE 22. Maastricht, The Netherlands, September 2, 2012.
- [CT262] Kirsch, S., Hanke-Rauschenbach, R., & Sundmacher, K. *Experimental investigation of autonomous oscillations and pattern formation in a PEM fuel cell operated with H<sub>2</sub>/CO mixtures*. Presented at: ISE 2012 Satellite Meeting: Electromembrane Processes and Materials. Cesky Krumlov, Czech Republic, August 26, 2012.
- [CT261] Borchert, C., Temmel, E., Eisenschmidt, H., Lorenz, H., Seidel-Morgenstern, A., & Sundmacher, K. *Experimental Investigation of Crystal Size and Shape Dynamics*. Invited talk presented at: European Conference on Crystal Growth (ECCG4). Glasgow, UK, June 17, 2012.
- [CT260] Borchert, C., Eisenschmidt, H., & Sundmacher, K. *Morphology Evolution of Crystal Populations: Modeling, Observation, Control*. Invited talk presented at: University of Cambridge. Cambridge, UK, February 2, 2012.
- [CT259] Karst, F., Freund, H., Maestri, M., & Sundmacher, K. *Optimal Reactor Design for the Catalytic Partial Oxidation (CPO) of Methane Based on a Micro Kinetic Model*. Presented at: ISCRE 22. Maastricht, The Netherlands, September 2, 2012.
- [CT258] Do Thi, Q. N., Varničić, M., Vidaković-Koch, T., & Sundmacher, K. *Application of Electrochemical Impedance Spectroscopy for Studying of Redox Enzyme Kinetics*. Presented at: ISE 2012. Prague, Czech Republic, August 19, 2012.
- [CT257] Bensmann, B., Schlingmann, Y., Hanke-Rauschenbach, R., & Sundmacher, K. *Influence of operating conditions on mass transport in a PEM water electrolysis cell: theoretical and experimental analysis*. Presented at: ISE 2012 Satellite Meeting: Electromembrane Processes and Materials. Cesky Krumlov, Czech Republic, August 26, 2012.

- [CT256] Bensmann, B., Peña Arias, I., Hanke-Rauschenbach, R., & Sundmacher, K. *High pressure hydrogen production by means of asymmetric water electrolysis - A realistic option*. Presented at: ISE 2012. Prague, Czech Republic, August 19, 2012.
- [CT255] Temmel, E., Borchert, C., Lorenz, H., Seidel-Morgenstern, A., & Sundmacher, K. *Experimentelle Untersuchung der Kristallform- und Größenentwicklung zur Bestimmung von Wachstumskinetiken*. Presented at: Jahrestreffen der ProcessNet-Fachgruppen Agglomerations- und Schüttguttechnik & Kristallisation 2012. Wittenberg, Germany, March 5, 2012.
- [CT254] Oettel, C., Rihko-Struckmann, L., & Sundmacher, K. *Combined Separation and Generation of Hydrogen from Reformat Gas in an Electrochemical Water Gas Shift Reactor*. Presented at: WHEC 2012. Toronto, Canada, June 3, 2012.
- [CT253] Sharma, D. K., Rihko-Struckmann, L., & Sundmacher, K. *Controlling the Interactions between Microalgae, Bacteria and Fungi: Towards Synthetic Cellular Communities as Possible Basis for Future Biochemical Production Processes*. Presented at: Algae Europe 2011. Milan, Italy, October 5, 2011.
- [CT252] Chen, L., Ye, K., Qi, Z., Freund, H., & Sundmacher, K. *Highly Selective Oxidation of Cyclohexanol to Cyclohexanone in Ionic Liquids*. Presented at: APCRE - 6th Asia Pacific Chemical Reaction Engineering Symposium. Beijing, China, September 18, 2011.
- [CT251] Kadyk, T., Kirsch, S., Hanke-Rauschenbach, R., & Sundmacher, K. *Autonomous Potential Oscillations in a PEM Fuel Cell with a Pt Anode operated with H<sub>2</sub>/CO Mixtures*. Presented at: 220th ECS Meeting. Boston, USA, October 9, 2011.
- [CT250] Sundmacher, K. *Strom aus Stroh: Von der Biomasse zur Brennstoffzelle*. Invited talk presented at: MNU-Tag Südbayern 2011. Augsburg, Germany, September 23, 2011.
- [CT249] Hertel, C., Heidebrecht, P., & Sundmacher, K. *Design and evaluation of a cyclic fixed bed reactor for hydrogen purification*. Presented at: European Fuel Cell Forum 2011. Lucerne, Switzerland, June 28, 2011.
- [CT248] Peschel, A., Karst, F., Freund, H., & Sundmacher, K. *Optimal Reactor Design for Ethylene Oxide Production*. Presented at: 8th European Congress of Chemical Engineering together with ProcessNet-Annual Meeting. Berlin, Germany, September 25, 2011.
- [CT247] Hentschel, B., Peschel, A., Freund, H., & Sundmacher, K. *Optimal Reactor Design for the Hydroformylation of Higher Olefins in a Multiphase System*. Presented at: EPIC 2011. Manchester, England, June 20, 2011.

- [CT246] Hertel, C., Heidebrecht, P., & Sundmacher, K. *The Cyclic Watergas Shift Reactor for Carbon Monoxide Removal - Experimental Validation, Design and Evaluation*. Presented at: HFC 2011 - Hydrogen + Fuel Cells 2011. Vancouver, BC, Canada, May 14, 2011.
- [CT245] Flassig, R. & Sundmacher, K. *Design of Stimulus Experiments for Robust Model Discrimination*. Presented at: International Conference On Systems Biology. Heidelberg, Germany, August 28, 2011.
- [CT244] Hanke-Rauschenbach, R., Mangold, M., & Sundmacher, K. *Nonlinear Operating Behaviour of PEM Fuel Cells*. Presented at: EFCF 2011 - European Fuel Cell Forum 2011. Lucerne, Switzerland, June 28, 2011.
- [CT243] Zhou, T., Chen, L., Ye, K., Qi, Z., Freund, H., & Sundmacher, K. *Screening Ionic Liquid for Toluene/Isooctane Extraction by COSMO-RS*. Presented at: International Conference on Process Intensification for Sustainable Chemical Industries. Beijing, China, June 26, 2011.
- [CT242] Kadyk, T., Kirsch, S., Hanke-Rauschenbach, R., & Sundmacher, K. *Autonomous potential oscillations in a PEM Fuel Cell with a Pt anode under CO poisoning*. Presented at: ModVal 8. Bonn, Germany, March 8, 2011.
- [CT241] Hartono, B., Heidebrecht, P., & Sundmacher, K. *Exergy based methodology in energy system design*. Presented at: DBFZ Workshop "Fließschemasimulationen in der Energietechnik. Leipzig, Germany, June 23, 2011.
- [CT240] Kadyk, T., Hanke-Rauschenbach, R., & Sundmacher, K. *Discrimination of Performance Limiting Processes in PEMFC using Nonlinear Frequency Response Analysis*. Presented at: 220th ECS Meeting. Boston, USA, October 9, 2011.
- [CT239] Hentschel, B., Peschel, A., Freund, H., & Sundmacher, K. *Rational Catalyst and Reactor Design*. Invited talk presented at: IChemE, Catalysis Subject Group. Oxford, UK, September 19, 2011.
- [CT238] Sundmacher, K. *Towards Dream Processes: Systems Engineering Concepts for the Design of Efficient Chemical Production Routes*. Invited talk presented at: DSM. Geleen, Netherlands, October 10, 2011.
- [CT237] Sundmacher, K. *Dynamic Optimization of Catalytic Reactors*. Invited talk presented at: Workshop DeMiR 2011: from Detailed Microkinetics to the Reactor. Garching, Germany, September 6, 2011.

- [CT236] Freund, H., Peschel, A., Hentschel, B., & Sundmacher, K. *Optimal Reactor Design and Operation for Multiphase Systems*. Presented at: ECCE 2011/ECAB 2011. Berlin, Germany, September 25, 2011.
- [CT235] Hanke-Rauschenbach, R., Mangold, M., & Sundmacher, K. *Nonlinear Dynamics of Fuel Cells: A Prototype Model*. Presented at: 220th ECS Meeting. Boston, USA, October 9, 2011.
- [CT234] Flassig, R. & Sundmacher, K. *Design of robust discrimination experiments for modeling biochemical reaction networks*. Invited talk presented at: MaCKiE 7 - Mathematics in Chemical Kinetics and Engineering. Heidelberg, Germany, May 18, 2011.
- [CT233] Sundmacher, K., Hanke-Rauschenbach, R., Kirsch, S., & Rihko-Struckmann, L. *Dynamics of Electrochemical CO Oxidation in PEM Fuel Cells*. Invited talk presented at: International Conference on Engineering of Chemical Complexity. Berlin, Germany, July 4, 2011.
- [CT232] Singh, M. R., Boerrigter, S. X. M., Borchert, C., Sundmacher, K., & Ramkrishna, D. *Experimental Investigation of Crystal Shape Evolution During Growth and Dissolution*. Presented at: 2011 AIChE Annual Meeting. Minneapolis, USA, October 16, 2011.
- [CT231] Hentschel, B., Peschel, A., Freund, H., & Sundmacher, K. *Rational Reactor Design for the Hydroformylation of Higher Olefins based on a Dynamic Optimization Approach*. Presented at: IChemE Event Rational Catalyst and Process Design. Oxford, England, September 19, 2011.
- [CT230] Heuer, M., Käbisch, M., Styczynski, Z., Bensmann, B., Bornhöft, A., & Sundmacher, K. *Effiziente Elektroenergieversorgung im Kraftfahrzeug durch ein Brennstoffzellenhilfsstromaggregat*. Presented at: 10. Magdeburger Maschinenbau-Tage. Magdeburg, Germany, September 27, 2011.
- [CT229] Singh, A., Hanke-Rauschenbach, R., & Sundmacher, K. *Modeling of Morphology Transformations In Crystalline Materials: A Generalized Framework*. Presented at: AIChE 2011. Minneapolis, USA, October 16, 2011.
- [CT228] Voigt, A. & Sundmacher, K. *Modeling Solution Crystallization - Small Step and big Leaps towards improved understanding*. Presented at: AIChE Annual Meeting 2010. Salt Lake City, USA, November 7, 2010.
- [CT227] Freund, H., Kumar, R., Katariya, A., & Sundmacher, K. *Intensification Options for Different Hierarchical Process Levels Illustrated in the Conceptual Design of a Novel*

*Cyclohexanol Production Process*. Presented at: AIChE Annual Meeting 2010. Salt Lake City, USA, November 7, 2010.

- [CT226] Sundmacher, K., Hanke-Rauschenbach, R., Kirsch, S., & Rihko-Struckmann, L. *Electrochemical Preferential Oxidation (ECPrOx) of CO in a PEM-Reactor for Production the pure Hydrogen: Experimental and Model-Based Process Analysis*. Invited talk presented at: Annual ISE Meeting — 61th Annual Meeting of the International Society of Electrochemistry. Nizza, Frankreich, September 29, 2010.
- [CT225] Vidaković-Koch, T., Ivanov, I., & Sundmacher, K. *Anode Coatings for a Direct Glucose Fuel Cell Application*. Invited talk presented at: 37th International Conference on Metallurgical Coatings and Thin Films. San Diego, USA, April 26, 2010.
- [CT224] Sundmacher, K. *Strom aus Stroh: Von der Biomasse zur Brennstoffzelle*. Invited talk presented at: Max-Planck-Forum: Gespräche über Energie München. Munich, Germany, June 8, 2010.
- [CT223] Panic, V. V., Vidaković-Koch, T., Petkovska, M., & Sundmacher, K. *Non-linear Frequency Response Analysis of Hydrogen Reaction Kinetics*. Presented at: Electrochemistry 2010. Bochum, Germany, September 13, 2010.
- [CT222] Adiche, C. & Sundmacher, K. *Separation of Alcohol-Water Mixtures in a Micro-Scale Sweep Gas Membrane Distillation Process*. Presented at: ProcessNet Jahrestagung 2010. Aachen, Germany, September 21, 2010.
- [CT221] Tong, L., Qi, Z., Yuan, W., Freund, H., & Sundmacher, K. *Novel Green Processes Intensified by Direct and Indirect Auxiliary Reactions*. Presented at: SCPPE-2 - 2nd International Symposium on Sustainable Chemical Product and Process Engineering. Hangzhou, China, May 9, 2010.
- [CT220] Hartono, B., Heidebrecht, P., & Sundmacher, K. *Biomass-Based Fuel Cell Power Plants - Evaluation of Novel Reactors and Process Designs*. Presented at: ISCRE 21. Philadelphia, USA, June 13, 2010.
- [CT219] Borchert, C., Ramkrishna, D., & Sundmacher, K. *Towards Tailor-Made Crystal Shape Distributions - A Model-Based Analysis*. Presented at: WCPT6 2010 - World Congress on Particle Technology. Nuremberg, Germany, April 26, 2010.
- [CT218] Rihko-Struckmann, L., Peschel, A., & Sundmacher, K. *Energetic and Exergetic Comparison of the Utilization of CO<sub>2</sub> for the Production of Methanol or Methane as a Chemical Storage for Fluctuating Renewable Energy*. Presented at: E-MRS 2010 Fall Meeting - Eur. Mat. Res. Society. Warsaw, Poland, September 13, 2010.

- [CT217] Pfafferodt, M., Heidebrecht, P., & Sundmacher, K. *Multiphysics Simulation of a Molten Carbonate Fuel Cell Stack*. Presented at: IMA Conference on Fluid Problems in Process Engineering. Leeds, England, September 6, 2010.
- [CT216] Peschel, A., Freund, H., & Sundmacher, K. *Methodology for the Design of Optimal Chemical Reactors based on the Concept of Elementary Process Functions*. Presented at: ISCRE 21. Philadelphia, USA, June 13, 2010.
- [CT215] Panic, V. V., Vidaković-Koch, T., Zivkovic, L., Petkovska, M., & Sundmacher, K. *Non-linear frequency response analysis of the kinetics of electrochemical reactions*. Presented at: RSE-SEE - Second Regional Symposium on Electrochemistry South-East Europe. Belgrade, Serbia, June 6, 2010.
- [CT214] Sundmacher, K. & Freund, H. *Process Systems Engineering and Process Intensification: Rival Brothers or Best Buddies?* Presented at: CAPE Forum. Aachen, March 11, 2010.
- [CT213] Fricke, M., Voigt, A., & Sundmacher, K. *Emulsion Droplets as Reactors: A Model-Based Analysis of the Metal Oxide Nanoparticle Synthesis by Diffusive Mass Transfer across a Droplet Interface*. Presented at: WCPT6 2010 - World Congress on Particle Technology. Nuremberg, Germany, April 26, 2010.
- [CT212] Hanke-Rauschenbach, R., Kirsch, S., & Sundmacher, K. *Oscillations and Pattern Formation in an Electrochemical Membrane Reactor Exposed to H<sub>2</sub>O/CO Mixtures*. Presented at: 218th ECS Meeting. Las Vegas, USA, September 26, 2010.
- [CT211] Borchert, C. & Sundmacher, K. *Experimentelle Untersuchung von Aggregation im Strömungsrohr*. Presented at: ProcessNet-Jahrestagung 2010. Aachen, Germany, September 21, 2010.
- [CT210] Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *Direct Glucose Enzymatic Fuel Cell*. Presented at: Second Regional Symposium on Electrochemistry South-East Europe. Belgrade, Serbia, June 6, 2010.
- [CT209] Rihko-Struckmann, L., Peschel, A., Hanke-Rauschenbach, R., & Sundmacher, K. *Exergetic Analysis of the Utilisation of Exhaust CO<sub>2</sub> for the Chemical Storage of Renewable Energy*. Presented at: ISCRE 21. Philadelphia, USA, June 13, 2010.
- [CT208] Thotla, S., Freund, H., & Sundmacher, K. *Entrainer Based Reactive Divided Wall Columns*. Presented at: CHEMREACTOR-19. Vienna, Austria, September 5, 2010.
- [CT207] Kadyk, T., Hanke-Rauschenbach, R., & Sundmacher, K. *Nonlinear Frequency Response Analysis for the Diagnosis of Carbon Monoxide Poisoning in PEM Fuel Cell*

*Anodes*. Presented at: CHISA 2010 & ECCE-7 (Special Symposium on Electrochemical Engineering). Prague, Czech Republic, August 28, 2010.

- [CT206] Borchert, C. & Sundmacher, K. *Image-Based Experimental Investigation of Crystal Aggregation along a Pipe*. Presented at: AIChE Annual Meeting 2010. Salt Lake City, USA, November 7, 2010.
- [CT205] Kadyk, T., Hanke-Rauschenbach, R., & Sundmacher, K. *Nonlinear Frequency Response Analysis - Yet another Nonlinear Based on Electrochemical Impedance Spectroscopy?* Presented at: EIS 2010. Algarve, Portugal, June 6, 2010.
- [CT204] Rollié, S. & Sundmacher, K. *Preferential Targeting of Cells with Bionanoparticles: Flow Cytometric Analysis and Multivariate Population Balance Modeling*. Presented at: WCPT6 2010 - World Congress on Particle Technology. Nuremberg, Germany, April 26, 2010.
- [CT203] Singh, M. R., Chakraborty, J., Ramkrishna, D., Boerrigter, S., Borchert, C., & Sundmacher, K. *Morphological Measurements of Faceted Crystals Using Image Analysis*. Presented at: AIChE Annual Meeting 2010. Salt Lake City, USA, November 7, 2010.
- [CT202] Sundmacher, K. *Fuel Cell Engineering: Towards the Design of Efficient Electrochemical Power Plants*. Invited talk presented at: ISCRE 21. Philadelphia, USA, June 13, 2010.
- [CT201] Sundmacher, K. *Using Droplets as Chemical Reactors: Synthesis of Nanoparticles in Emulsions*. Invited talk presented at: East China University of Science and Technology. Shanghai, China, October 18, 2010.
- [CT200] Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *A flow-through glucose-oxygen fuel cell based on enzymatic anode and Pt cathode*. Presented at: ISE - The 60th Annual Meeting of the International Society of Electrochemistry. Beijing, China, August 16, 2009.
- [CT199] Heidebrecht, P., Sundmacher, K., & Biegler, L. *Experimental Design of dynamic Temperature-Programmed Reduction (TPR) Experiments*. Presented at: 2009 AIChE Annual Meeting. Nashville, TN, USA, November 8, 2009.
- [CT198] Borchert, C. & Sundmacher, K. *Dynamische Modellierung und Simulation von Kristallformverteilungen*. Presented at: ProcessNet-Jahrestagung 2009. Mannheim, Germany, September 8, 2009.



- [CT197] Piewek, S., Heidebrecht, P., & Sundmacher, K. *Model based Optimisation of High Temperature Fuel Cells*. Presented at: MODVAL 6 - 6th Symposium on Fuel Cell Modelling and Experimental Validation. Bad Herrenalb, Germany, March 25, 2009.
- [CT196] Diaz Ochoa, J. G., Voigt, A., Briesen, H., & Sundmacher, K. *Time Dependent Virus Replication in Cell Cultures*. Presented at: Complex 2009. Shanghai, China, February 22, 2009.
- [CT195] Hanke-Rauschenbach, R., Mangold, M., Oettel, C., & Sundmacher, K. *Bistable current-voltage characteristics of self-humidifying PEM fuel cells operated at constant flow rate*. Presented at: ECS-Meeting, 215th Meeting of the Electrochemical Society. San Francisco, USA, May 24, 2009.
- [CT194] Voigt, A. & Sundmacher, K. *Simulating the Shape Evolution of Crystals with Monte Carlo Methods*. Presented at: AIChE Annual Meeting 2009. Nashville, TN, USA, November 8, 2009.
- [CT193] Hanke-Rauschenbach, R., Weinzierl, C., Rihko-Struckmann, L., & Sundmacher, K. *EPROx: Elektrochemische präferentielle Oxidation von CO aus H<sub>2</sub>/CO-Gemischen in gekoppelten Membran-Reaktoren*. Presented at: Jahrestreffen Reaktionstechnik 2009. Würzburg, Germany, June 8, 2009.
- [CT192] Rihko-Struckmann, L., Chalakov, L., Munder, B., & Sundmacher, K. *Solid Electrolyte Membrane Reactor for the Oxidative Dehydrogenation of Ethane: Experiments and Modelling*. Presented at: ICCMR 9 - 9th International Conference on Catalysis in Membrane Reactors. Lyon, France, June 28, 2009.
- [CT191] Peschel, A., Freund, H.-J., & Sundmacher, K. *Systematik zur modellgestützten Ermittlung der optimalen Reaktionsführung am Beispiel der SO<sub>2</sub>-Oxidation*. Presented at: ProcessNet-Jahrestagung 2009. Mannheim, Germany, September 8, 2009.
- [CT190] Hartono, B., Hertel, C., Heidebrecht, P., & Sundmacher, K. *Modellbasierter Entwurf eines Brennstoffzellenkraftwerks mit Biomassevergasung*. Presented at: ProcessNet-Jahrestagung 2009 und 27. Jahrestagung der Biotechnologen. Mannheim, Germany, September 8, 2009.
- [CT189] Kumar, R., Katariya, A., Freund, H., & Sundmacher, K. *Reactive Distillation Process for Cyclohexanol Production: Miniplant Experiments and Complementary Process Simulations*. Presented at: EPIC 2009, 2nd International Congress on Green Process Engineering. Venice, Italy, June 14, 2009.
- [CT188] Kadyk, T., Hanke-Rauschenbach, R., & Sundmacher, K. *Nonlinear Frequency Response Analysis for the Diagnosis of PEM Fuel Cells*. Presented at: 216th ECS Meeting. Vienna, Austria, October 4, 2009.

- [CT187] Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *The influence of some structural parameters on the performance of an enzymatic anode for glucose oxidation*. Presented at: SMCBS 2009 - Surface Modification for Chemical and Biochemical Sensing, 4th International Workshop. Przegorzaly (Cracow), Poland, November 6, 2009.
- [CT186] Mangold, M., Sheng, M., Heidebrecht, P., Kienle, A., & Sundmacher, K. *Physical Model Development, Model Reduction, and Observer Design of a Molten Carbonate Fuel Cell*. Presented at: 18th International Symposium on Chemical Reaction Engineering - ISCRE 18. Chicago, USA, June 6, 2004.
- [CT185] Heidebrecht, P. & Sundmacher, K. *Schmelzkarbonatbrennstoffzellen (MCFC) mit interner Reformierung: modellgestützte mehrskalige Analyse*. Presented at: ProcessNet-Arbeitsausschusssitzung. Frankfurt, Germany, January 20, 2009.
- [CT184] Bensmann, B., Hanke-Rauschenbach, R., Meißner, E., Koch, I., & Sundmacher, K. *Theoretical analysis of proton incorporation into the positive active mass of a lead/acid battery: Influence on transient and steady-state behavior*. Presented at: ECS-Meeting, 215th Meeting of the Electrochemical Society. Vienna, Austria, October 4, 2009.
- [CT183] Borchert, C. & Sundmacher, K. *Statistic Modelling of Image-Based Crystallization Observation*. Presented at: AIChE Annual Meeting 2009. Nashville, USA, November 8, 2009.
- [CT182] Rollié, S. & Sundmacher, K. *Particle heteroaggregation: Analysis by a property-discrete population balance model*. Presented at: AIChE Annual Meeting 2009. Nashville, TN, USA, November 8, 2009.
- [CT181] Hanke-Rauschenbach, R., Weinzierl, C., Rihko-Struckmann, L., & Sundmacher, K. *Scale-up on oscillation EPrOx reactor for electrochemical CO removal from reformat gas*. Presented at: ECS-Meeting, 215th Meeting of the Electrochemical Society. San Francisco, USA, May 24, 2009.
- [CT180] Diaz Ochoa, J. G., Voigt, A., & Sundmacher, K. *Einfluss der Eigenimmunantwort von Zellpopulationen auf die Optimierung der Impfstoffherstellung*. Presented at: ProcessNet-Jahrestagung 2009 und 27. Jahrestagung der Biotechnologen. Mannheim, Germany, August 8, 2009.
- [CT179] Fricke, M., Voigt, A., & Sundmacher, K. *Tailoring the Size Distribution of Nanoparticles via an Emulsion-Assisted Precipitation Process: A Model-Based Analysis*. Presented at: AIChE Annual Meeting 2009. Nashville, TN, USA, November 8, 2009.

- [CT178] Borchert, C., Voigt, A., & Sundmacher, K. *Evolution of crystal shape distributions*. Presented at: ProcessNet-Fachausschuss-Sitzung "Trocknungstechnik und Kristallisation." Halle, March 5, 2008.
- [CT177] Heidebrecht, P., Rihko-Struckmann, L., & Sundmacher, K. *Modellgestützter Entwurf eines zyklischen Wassergasshiftreaktors zur Reinigung von Wasserstoff*. Presented at: ProcessNet Jahrestagung 2008. Karlsruhe, Germany, October 7, 2008.
- [CT176] Rollié, S. & Sundmacher, K. *Heteroaggregationsprozesse : Mehrdimensionale Vermessung der Clusterzusammensetzung mittels Durchflusszytometrie*. Presented at: ProcessNet Jahrestagung 2008. Karlsruhe, Germany, October 7, 2008.
- [CT175] Voigt, A., Fricke, M., & Sundmacher, K. *Molecular Modeling of Particle Nucleation In Emulsion Droplets: Towards An Improved Understanding of Nanoparticle Production Processes*. Presented at: AIChE Annual Meeting 2008. Philadelphia, USA, November 16, 2008.
- [CT174] Sundmacher, K. *Fuel Cell Engineering : State-of-the-Art and Future Prospects*. Invited talk presented at: International Summer CRIS Workshop on Distributed and Renewable Power Generation. Magdeburg, September 16, 2008.
- [CT173] Heidebrecht, P., Rihko-Struckmann, L., & Sundmacher, K. *Hydrogen production by a cyclic water gas shift reactor*. Presented at: ISCRE 20. Kyoto, Japan, September 7, 2008.
- [CT172] Hanke-Rauschenbach, R., Weinzierl, C., Rihko-Struckmann, L., & Sundmacher, K. *Electrochemical preferential oxidation of CO in a reformate for fuel cell application with coupled oscillation ECPrOx reactors*. Presented at: CHISA 2008 : 18th International Congress on Chemical and Process Engineering. Prag, Czech Republic, August 24, 2008.
- [CT171] Sundmacher, K. *Der Tropfen als Reaktor : Synthese von Nanopartikeln in Emulsionsphasen*. Presented at: Jahrestreffen Reaktionstechnik 2008. Würzburg, Germany, May 18, 2008.
- [CT170] Mangold, M., Hanke-Rauschenbach, R., & Sundmacher, K. *Single Cell Modelling and Experimental Validation of PEFC I*. Invited talk presented at: 5th Symposium on Fuel Cell Modelling and Experimental Validation. Winterthur, Switzerland, March 11, 2008.
- [CT169] Sundmacher, K. *Model-based Development of Fuel Cell Technologies for Mobile and Stationary Power Supply Systems*. Invited talk presented at: Tongji-University. Shanghai, China, September 11, 2008.

- [CT168] Zhou, S., Ji, G., Ma T., & Sundmacher, K. *The Direct Methanol Fuel Cell (DMFC): Determination of Model Parameters*. Presented at: American Control Conference. Seattle, USA, June 11, 2008.
- [CT167] Agarwal, V., Thotla, S., Kaur, R., Chalakova, M., Freund, H.-J., & Sundmacher, K. *Attainable Regions of Reactive Distillation*. Presented at: Indo-German Workshop on Advances in Reaction and Separation Processes. Madras, India, February 18, 2008.
- [CT166] Borchert, C., Nere, N., Voigt, A., Sundmacher, K., & Ramkrishna, D. *Modeling the Manipulation of Crystal Morphology Distributions*. Presented at: AIChE Annual Meeting 2008. Philadelphia, USA, November 16, 2008.
- [CT165] Sundmacher, K. & Freund, H. *Intensivierung chemischer Produktionsprozesse*. Invited talk presented at: BASF Ludwigshafen. Ludwigshafen, Germany, April 17, 2008.
- [CT164] Vidaković-Koch, T., Ivanov, I., & Sundmacher, K. *Biofuel cells : Prospects and current limitations*. Presented at: Indo German Workshop on Advances in Reaction and Separation Processes. Chennai, India, February 18, 2008.
- [CT163] Rollié, S. & Sundmacher, K. *Cluster Composition in Heteroaggregation of Binary Mixtures*. Presented at: ECIS 2008. Cracow, Poland, August 31, 2008.
- [CT162] Oettel, C., Hanke-Rauschenbach, R., & Sundmacher, K. *Experimental Investigation of the Nonlinear Behaviour of a CSTR PEM Fuel Cell*. Presented at: CHISA 2008 : 18th International Congress on Chemical and Process Engineering. Prag, Czech Republic, August 24, 2008.
- [CT161] Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *Glucose electrooxidation for biofuel cell applications*. Presented at: First Regional Symposium on Electrochemistry of South-East Europe. Crveni Otok, Rovinj, Croatia, May 4, 2008.
- [CT160] Sundmacher, K. & Engel, R. *Nanopartikel-Synthese in Mikro- und Miniemulsionen*. Invited talk presented at: DECHEMA-Kolloquium. Frankfurt, Germany, October 30, 2008.
- [CT159] Rihko-Struckmann, L. & Sundmacher, K. *ProBio : Integrierte Prozesssysteme zur energetischen Nutzung von Biomasse in Brennstoffzellen*. Presented at: DECHEMA Informationstag "Biomasse und Brennstoffzellen." Frankfurt am Main, Germany, January 16, 2007.
- [CT158] Freund, H. & Sundmacher, K. *Systematic Analysis of Process Intensification Options : The Elementary Process Function Methodology*. Presented at: AIChE Annual Meeting 2007. Salt Lake City, USA, November 4, 2007.

- [CT157] Chalakov, L., Rihko-Struckmann, L., Munder, B., & Sundmacher, K. *Feasibility Study of the Oxidative Dehydrogenation of Ethane in an Electrochemical Packed Bed Membrane Reactor*. Presented at: CAMURE-6 and ISMR-5. Pune, India, January 14, 2007.
- [CT156] Borchert, C., Nere, N., Voigt, A., Sundmacher, K., & Ramkrishna, D. *Prediction of Crystal Shape and Size Distributions using Multidimensional Population Balances*. Presented at: AIChE Annual Meeting 2007. Salt Lake City, USA, November 4, 2007.
- [CT155] Pfafferodt, M., Heidebrecht, P., & Sundmacher, K. *3D simulation of a symmetric MCFC stack model*. Presented at: Chemical Reaction Engineering XI - CRE XI. Bilbao, Spain, August 26, 2007.
- [CT154] Pfafferodt, M., Heidebrecht, P., & Sundmacher, K. *Multi-scale modeling of the anode and cathode compartments and the IIR unit within a MCFC*. Presented at: European Congress of Chemical Engineering ECCE-6. Copenhagen, Denmark, September 16, 2007.
- [CT153] Sundmacher, K. & Freund, H. *Prozessintensivierung: neue konzeptionelle Ansätze für die Prozessgestaltung und -führung*. Presented at: ProcessNet-Jahrestagung 2007. Aachen, Germany, October 16, 2007.
- [CT152] Sundmacher, K. *Electrochemical Energy Conversion using Fuel Cell Systems*. Invited talk presented at: Faculty of Natural Sciences and Technology. Trondheim, Norway, June 9, 2007.
- [CT151] Sundmacher, K. *Fuel Cell Systems for Electrochemical Energy Conversion*. Invited talk presented at: Max-Planck-Institut für Sonnensystemforschung. Göttingen, Germany, March 22, 2007.
- [CT150] Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *Glucose Oxidation : Electrocatalysis vs. Bioelectrocatalysis*. Presented at: 58th Annual Meeting of the International Society of Electrochemistry (ISE). Banff, Canada, September 9, 2007.
- [CT149] Sundmacher, K. *Einsatz von Mikro- und Miniemulsionen als alternative Medien zur Durchführung chemischer Reaktionen*. Invited talk presented at: ProcessNet-Fachtagung „Unkonventionelle Reaktionssysteme“. Frankfurt am Main, Germany, April 20, 2007.
- [CT148] Sundmacher, K. *Multifunktionale Reaktoren*. Invited talk presented at: GDCh-Kolloquium. Magdeburg, Germany, February 8, 2007.

- [CT147] Katariya, A., Chalakova, M., Sundmacher, K., & Mahajani, S. *Nonlinear Dynamics in Reactive Distillation with Multiple Reactions*. Presented at: AIChE Annual Meeting 2007. Salt Lake City, USA, November 4, 2007.
- [CT146] Sundmacher, K., Fricke, M., Niemann, B., & Voigt, A. *Synthese maßgeschneiderter Feststoffpartikel in Emulsionen: Status und Entwicklungstrends*. Presented at: ProcessNet-Jahrestagung 2007. Aachen, Germany, October 16, 2007.
- [CT145] Sundmacher, K. & Freund, H. *Process intensification : towards a design approach in terms of elementary process functions*. Presented at: XIX Polish Conference of Chemical and Process Engineering. Rzeszów, Poland, September 3, 2007.
- [CT144] Hertel, C., Heidebrecht, P., & Sundmacher, K. *Model-based Analysis of a Cyclic Water Gas Shift Reactor*. Presented at: Chemical Reaction Engineering XI - CRE XI. Bilbao, Spain, August 26, 2007.
- [CT143] Pfafferoth, M., Heidebrecht, P., & Sundmacher, K. *Mehrskalige CFD-Modellierung der örtlichen Katalysatorstrukturierung eines Indirekten Internen Reformers einer Schmelzkarbonatbrennstoffzelle*. Presented at: VDI-GVC Fachausschuß CFD. Würzburg, Germany, March 5, 2007.
- [CT142] Fricke, M., Parmer, R., Voigt, A., & Sundmacher, K. *Droplet Size Distribution of Technical Macroemulsions: Variation of Process Parameters*. Presented at: PARTEC 2007. Nuremberg, Germany, March 27, 2007.
- [CT141] Oncül, A., Sundmacher, K., & Thévenin, D. *Numerical Simulation of BaSO<sub>4</sub> Precipitation in a Coaxial Pipe Mixer with Micromixing Effects*. Presented at: AIChE-Meeting. San Francisco, USA, November 12, 2006.
- [CT140] Vidaković-Koch, T., Krewer, U., Christov, M., & Sundmacher, K. *Determination of a rate expression for electrochemical oxidation of methanol*. Presented at: International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface. Krakow, Poland, May 28, 2006.
- [CT139] Steyer, F. & Sundmacher, K. *Einsatz eines reaktiven Entrainers zur Synthese von Cyclohexanol in einem Prozess gekoppelter Reaktivdestillationskolonnen*. Presented at: GVC/DECHEMA-Jahrestagungen. Wiesbaden, Germany, September 26, 2006.
- [CT138] Munder, B., Rihko-Struckmann, L., & Sundmacher, K. *Distributed Impedance Modelling and Analysis of Reactions and Charge Transport in Au-YSZ Composite Electrodes*. Presented at: 57th ISE Meeting. Edinburgh, UK, August 27, 2006.
- [CT137] Chalakov, L., Rihko, L. K., & Sundmacher, K. *Electrocatalytic Oxidative Dehydrogenation of Ethane with a Solid Electrolyte Membrane Reactor*. Presented at:

17th International Congress of Chemical and Process Engineering. Prague, Czech Republic, August 27, 2006.

- [CT136] Galvita, V. & Sundmacher, K. *Hydrogen Purification for Low Temperature Fuel Cell by Redox Iron Process in Periodically Operated Catalytic reactor*. Presented at: CHEMREACTOR. Athens, Greece, May 15, 2006.
- [CT135] Niemann, B. & Sundmacher, K. *Manipulation and Control of the Particle Size Distribution of Nanoparticles during their Formation in Microemulsions Droplets by a Suitable Feed Strategy*. Presented at: AIChE-Meeting. San Francisco, USA, November 12, 2006.
- [CT134] Heidebrecht, P., Gundermann, M., & Sundmacher, K. *Optimierung von Betriebs- und Designparametern einer 300 kW-Carbonatbrennstoffzelle (MCFC), mittels eines 2D-Prozessmodells*. Presented at: GVC/DECHEMA-Jahrestagungen. Wiesbaden, Germany, September 26, 2006.
- [CT133] Heidebrecht, P., Ivanova, M., Munder, B., Heineken, W., & Sundmacher, K. *Development of a validated reduced model for DIR-DMFC*. Invited talk presented at: ISCRE 19th International Symposium on Chemical Reaction Engineering. Potsdam, Germany, September 3, 2006.
- [CT132] Sundmacher, K. *Elektrochemische Energieumwandlung mit Brennstoffzellen-Systemen*. Invited talk presented at: Nordrhein-Westfälische Akademie der Wissenschaften. Düsseldorf, Germany, November 15, 2006.
- [CT131] Sundmacher, K. & Voigt, A. *Populationsdynamik disperser Systeme in der Verfahrenstechnik*. Invited talk presented at: Jahre verfahrenstechnische Forschung und Lehre in Magdeburg. Magdeburg, Germany, October 6, 2006.
- [CT130] Voigt, A., Niemann, B., & Sundmacher, K. *The Influence of Nucleation Kinetics on the Particle Population Dynamics in Microemulsion Precipitation using Molecular Modelling Approaches*. Presented at: AIChE-Meeting. San Francisco, USA, November 12, 2006.
- [CT129] Heidebrecht, P. & Sundmacher, K. *Direkte Interne Reformierung in Hochtemperaturbrennstoffzellen: Prozessintegration und konzeptionelles Systemdesign*. Presented at: XXXVIII. Jahrestreffen Deutscher Katalytiker. Weimar, Germany, March 16, 2006.
- [CT128] Vidaković-Koch, T., Christov, M., & Sundmacher, K. *Can CO stripping voltammetry be used as a quantitative method for in situ fuel cell catalyst characterisation?* Presented at: 57th Annual Meeting of the International Society of Electrochemistry. Edinburgh, UK, August 27, 2006.

- [CT127] Ivanova, M., Qi, Z., Kamath, R., Mahajani, S., & Sundmacher, K. *Influence of the Reaction Kinetics on the Design of a Reactive Distillation Column for Isobutene Dimerisation*. Presented at: 17th International Congress of Chemical and Process Engineering. Prague, Czech Republic, August 27, 2006.
- [CT126] Hanke-Rauschenbach, R., Mangold, M., & Sundmacher, K. *Nonlinear Behaviour of PEM Fuel Cells operated in Auto-humidification Mode*. Presented at: AIChE-Meeting. San Francisco, USA, November 12, 2006.
- [CT125] Niemann, B. & Sundmacher, K. *Emulsionsgestützte Synthese von Nanopartikeln: Experimentelle und modelltheoretische Prozessanalyse*. Presented at: GVC/DECHEMA-Jahrestagungen. Wiesbaden, Germany, September 26, 2006.
- [CT124] Voigt, A. & Sundmacher, K. *Microemulsion-based nanoparticle production on a technical scale : Experimental and theoretical process evaluation*. Invited talk presented at: AICHEMA 2006. Frankfurt, Germany, May 15, 2006.
- [CT123] Voigt, A., Rauscher, F., & Sundmacher, K. *Calciumcarbonat-Kristallisation in Wasser-in-Öl-Mikroemulsionen : Steuerung von Form und Morphologie*. Presented at: GVC-Fachausschuss-Sitzung "Kristallisation." Basel, Schweiz, March 23, 2006.
- [CT122] Klose, F., Wolff, T., Hamel, C., Tota, A., Seidel-Morgenstern, A., Chalakov, L., Rihko-Struckmann, L., Sundmacher, K., Peglow, M., Ahchieva, D., Heinrich, S., Mörl, L., & Weiß, H. *Möglichkeiten und Grenzen des Einsatzes von Membranreaktoren in der katalytischen Oxidation von Kohlenwasserstoffen*. Presented at: XXXIX. Jahrestreffen Deutscher Katalytiker. Weimar, Germany, March 15, 2006.
- [CT121] Sundmacher, K. *Magdeburger Brennstoffzelle stellt Weltrekord auf, Festveranstaltung 30.000 Stunden*. Invited talk presented at: Weltbestzeit im Betrieb einer MCFC-Brennstoffzellenanlage–MTUHotModule. Magdeburg, Germany, June 14, 2006.
- [CT120] Voigt, A. & Sundmacher, K. *Herstellung von Nanopartikeln durch Fällungsreaktionen in Mikroemulsionen : Einstellung von Partikeleigenschaften durch Prozessvariationen Form und Morphologie*. Invited talk presented at: 3. Symposium des Fraunhofer ICT "Poduktgestaltung in der Partikeltechnologie. Pfinztal, Germany, June 22, 2006.
- [CT119] Gangadwala, J., Radulescu, G., Kienle, A., Steyer, F., & Sundmacher, K. *New Process for Recovery of Acetic Acid from Waste Water*. Presented at: 17th International Congress of Chemical and Process Engineering. Prague, Czech Republic, August 27, 2006.
- [CT118] Munder, B., Rihko-Struckmann, L., & Sundmacher, K. *Analysis of Steady-state and Forced Periodic Operation of Electrochemical Membrane Reactors for Selective Partial Oxidation of n-Butane to Maleic Anhydride*. Presented at: 19th International



Symposium on Chemical Reaction Engineering. Potsdam, Germany, September 3, 2005.

- [CT117] Krewer, U., Christov, M., & Sundmacher, K. *Kinetische Analyse der elektrochemischen Oxidation von Methanol in einer Zyklonströmungszelle*. Presented at: Sitzung der DECHEMA/GVC-Ausschüsse „Technische Reaktionsführung“ und „Energieverfahrenstechnik“. Bad Herrenalb, Germany, March 7, 2005.
- [CT116] Sundmacher, K., Heidebrecht, P., Gundermann, M., Mangold, M., Kienle, A., Koch, A., & Berndt, J. *Operation and Analysis of MCFCs with Direct Internal Reforming, International Centre for Science and High Technology of UNIDO (ICS-UNIDO)*. Invited talk presented at: Expert Group Meeting “Technologies for hydrogen production and fuel cells.” Trieste, Italy, March 7, 2005.
- [CT115] Vidaković, T., Christov, M., Sundmacher, K., Nagabhushana, K. S., Wen, F., Kinge, S., & Bönnemann, H. *Pt/Ru Colloidal Catalysts: Characterisation and Determination of Kinetics for Methanol Electrooxidation*. Presented at: 3rd Gerischer Symposium – Electrocatalysis: Theory and Experiment. Berlin, Germany, July 6, 2005.
- [CT114] Hanke, R., Mangold, M., & Sundmacher, K. *Hierarchical Modeling of Fuel Cell Systems – Virtual Fuel Cell Laboratory*. Presented at: Symposium on Modelling of Complex Processes. Texas, USA, March 5, 2005.
- [CT113] Mangold, M., Heidebrecht, P., Gundermann, M., Kienle, A., & Sundmacher, K. *Model Based Analysis and Control of an Industrial Molten Carbonate Fuel Cell Stack*. Invited talk presented at: Third Sino-German Workshop on Fuel Cells. Shanghai, China, May 1, 2005.
- [CT112] Niemann, B., Recksiedler, J., Adityawarman, D., & Sundmacher, K. *Nucleation and Growth Kinetics for the Nanoparticle Precipitation of Barium Sulfate in Microemulsions*. Presented at: AIChE 2005 Annual Meeting. Cincinnati, USA, October 30, 2005.
- [CT111] Sundmacher, K. *Elektrochemische Energieumwandlung mit Brennstoffzellen-Systemen*. Invited talk presented at: Max-Planck-Institut für Plasmaphysik. Greifswald, Germany, June 15, 2006.
- [CT110] Mitkova, T., John, V., Tobiska, L., Steyer, C., Voigt, A., & Sundmacher, K. *Simulationenmethoden für Partikel-Populationsbilanzen zur Analyse von Fällungsprozessen in Strömungsfeldern*. Presented at: GVC-Jahrestagung. Wiesbaden, Germany, September 6, 2005.

- [CT109] Heidebrecht, P. & Sundmacher, K. *Coupled Partial Differential Equations in Fuel Cell Models*. Presented at: 76th Annual GAMM Conference. Luxembourg, Luxembourg, March 28, 2005.
- [CT108] Krewer, U., Christov, M., Vidaković, T., & Sundmacher, K. *Analysis of the Kinetics of the Electrochemical Methanol Oxidation in a Cyclone Flow Cell*. Presented at: 207th Meeting of the Electrochemical Society. Quebec, Canada, May 15, 2005.
- [CT107] Sundmacher, K., Krewer, U., Schultz, T., Vidaković, T., Christov, M., & Pfafferodt, M. *Nichtlineare Dynamik der Direkt-Methanolbrennstoffzelle: Modellierung und Analyse*. Invited talk presented at: Seminar at the University of Ulm. Ulm, Germany, June 6, 2005.
- [CT106] Sundmacher, K. *Elektrochemische Energieumwandlung mit Brennstoffzellen – neue Wege der Energiegewinnung*. Invited talk presented at: Naturkundemuseum – Naturwissenschaftliche Vereine,. Magdeburg, Germany, November 28, 2006.
- [CT105] Yu, E. H. & Sundmacher, K. *Glucose Oxidation on Enzyme Modified Electrodes for Biofuel Cell Applications*. Presented at: ECS 208 : 208th Meeting of the Electrochemical Society. Los Angeles, USA, October 16, 2005.
- [CT104] Gundermann, M., Heidebrecht, P., & Sundmacher, K. *Validation of a Mathematical Model using an Industrial MCFC plant*. Presented at: 1st European Fuel Cell Technology and Applications Conference. Rome, Italy, December 14, 2005.
- [CT103] Galvita, V. & Sundmacher, K. *Hydrogen Production from Methane Steam Reforming in a Periodically Operated Reactor for Low-temperature Fuel Cells*. Presented at: 8th International Conference on Energy for a Clean Environment. Lisbon, Portugal, June 27, 2005.
- [CT102] Voigt, A., Adityawarman, D., Rauscher, F., Heidenreich, F., & Sundmacher, K. *Monte-Carlo Simulation für Nanopartikelfällung in Mikroemulsionen*. Presented at: GVC-Jahrestagung. Wiesbaden, Germany, September 6, 2005.
- [CT101] Mangold, M., Krasnyk, M., & Sundmacher, K. *Stationäre Mehrdeutigkeiten und Musterbildung in Hochtemperaturbrennstoffzellen*. Presented at: Sitzung der DECHEMA/GVC-Ausschüsse „Technische Reaktionsführung“ und „Energieverfahrenstechnik“. Bad Herrenalb, Germany, March 7, 2005.
- [CT100] Gundermann, M., Heidebrecht, P., Sundmacher, K., Koch, M., & Berndt, J. *Validierung eines Brennstoffzellenmodells an einer industriellen MCFC-Anlage*. Presented at: Sitzung der DECHEMA/GVC-Ausschüsse „Technische Reaktionsführung“ und „Energieverfahrenstechnik“. Bad Herrenalb, Germany, March 7, 2005.

- [CT99] Sundmacher, K. *Elektrochemische Energieumwandlung mit Brennstoffzellen – neue Wege der Energiegewinnung*. Invited talk presented at: 1200 Jahre Magdeburg – 12 Vorlesungen zur Wissenschaft. Magdeburg, Germany, October 26, 2005.
- [CT98] Sundmacher, K., Adityawarman, D., Rauscher, F., Niemann, B., & Voigt, A. *Emulsion-assisted Particle Precipitation*. Presented at: 2nd International Symposium on Particulate Processes. Magdeburg, Germany, November 17, 2004.
- [CT97] Heidebrecht, P., Mangold, M., Kienle, A., & Sundmacher, K. *Conceptual design of internal reforming in high temperature fuel cells*. Presented at: International Max Planck Symposium on Integrated Chemical Processes. Magdeburg, Germany, March 22, 2004.
- [CT96] Heidebrecht, P. & Sundmacher, K. *Development of a Hierarchical Model Family for Molten Carbonate Fuel Cells with Direct Internal Reforming (DIR-MCFC)*. Presented at: ECMI. Eindhoven, Netherlands, June 21, 2004.
- [CT95] Huang, Y.-S., Schlünder, E. U., & Sundmacher, K. *Feasibility Analysis of Membrane Reactors – Discovery of Reactive Arheotropes*. Presented at: ICCMR-6. Lahnstein, Germany, July 6, 2004.
- [CT94] Sundmacher, K., Rihko-Struckmann, L., & Galvita, V. *Solid Electrolyte Membrane Reactors – Status and Trends*. Invited talk presented at: Seminar of the Department of Chemical Engineering, University of Purdue. West Lafayette, USA, November 4, 2004.
- [CT93] Vidaković, T., Christov, M., & Sundmacher, K. *Electrochemical Oxidation of Methanol in a Cyclone Flow Cell*. Presented at: 55th Annual Meeting of the Int. Society of Electrochemistry. Thessaloniki, Greece, September 19, 2004.
- [CT92] Schultz, T. & Sundmacher, K. *Rigorous Dynamic Model of a DMFC based on Maxwell-Stefan Mass Transport Equations and a Flory-Huggins Activity Model: Formulation and Experimental Validation*. Presented at: Grove-Symposium. Munich, Germany, October 6, 2004.
- [CT91] Mangold, M., Krasnyk, M., & Sundmacher, K. *Instabilities and Pattern Formation in High Temperature Fuel Cells*. Presented at: CHISA 2004. Prague, Czech Republic, August 22, 2004.
- [CT90] Sundmacher, K. *Prozesse der Reaktivdestillation: Einsatzgebiete, Entwurf und Betrieb*. Invited talk presented at: GdCh-Kolloquium. Oldenburg, Germany, December 2, 2004.

- [CT89] Munder, B., Ye, Y., Rihko-Struckmann, L., & Sundmacher, K. *Electrochemical Membrane Reactor for Controlled Partial Oxidation of Hydrocarbons: Model and Experimental Validation*. Presented at: ICCMR-6. Lahnstein, Germany, July 6, 2004.
- [CT88] Kukul'a, R., Schultz, T., Schröder, T., Sundmacher, K., & Hasal, P. *Multifunctional Unit Combining a Fuel Cell and an Enzyme Electro-Membrane Reactor: Concepts, Design, Experiments*. Presented at: CHISA 2004. Prague, Czech Republic, August 22, 2004.
- [CT87] Galvita, V. & Sundmacher, K. *Novel Catalytic Concepts for Ethanol Processing in Low and High Temperature Fuel Cell Systems*. Presented at: 13th International Congress on Catalysis. Paris, France, July 11, 2004.
- [CT86] Adityawarman, D., Veit, P., Voigt, A., & Sundmacher, K. *Precipitation of BaSO<sub>4</sub> Nanoparticles in Non-ionic Microemulsion*. Presented at: NANO 2004. Wiesbaden, Germany, June 20, 2004.
- [CT85] Krewer, U., Schultz, T., & Sundmacher, K. *Direct Methanol Polymer Electrolyte Fuel Cell: Transfer Function Analysis of Current-Voltage Dynamics*. Presented at: Fuel Cell Research Symposium: Modelling and Experimental Validation. Zurich, Switzerland, March 18, 2004.
- [CT84] Heidebrecht, P., Mangold, M., Kienle, A., & Sundmacher, K. *Conceptual Design of the Integration of the Reforming Process in High-Temperature Fuel Cells*. Presented at: International Max Planck Symposium on Integrated Chemical Processes. Magdeburg, Germany, March 22, 2004.
- [CT83] Sundmacher, K., Huang, Y.-S., Qi, Z., & Schlünder, E.-U. *Thermodynamic and Kinetic Effects on the Feasible Products of Reactive Distillation*. Presented at: International Max Planck Symposium on Integrated Chemical Processes. Magdeburg, Germany, March 22, 2004.
- [CT82] Frömmichen, R., Chalakov, L., & Sundmacher, K. *Reaction Kinetics of Partial Oxidation of Ethane in a Tubular Electrolytic Cell*. Presented at: 55th Annual Meeting of the Int. Society of Electrochemistry. Thessaloniki, Greece, September 19, 2004.
- [CT81] Schultz, T. & Sundmacher, K. *Rigorous Dynamic Model of a DMFC based on Maxwell-Stefan Mass Transport Equations and a Flory-Huggins Activity Model : Formulation and Experimental Validation*. Presented at: Grove-Symposium. Munich, Germany, October 6, 2004.
- [CT80] Sundmacher, K., Rihko-Struckmann, L., Munder, B., & Ye, Y. *Partielle Oxidation von Butan in einem elektrochemischen Membranreaktor*. Presented at: DECHEMA-Arbeitsausschuss Technische Reaktionen. Frankfurt, Germany, January 14, 2003.

- [CT79] Hanke, R. & Sundmacher, K. *Hierarchical Process Modelling Strategies to Fuel Cell Systems - Towards a Virtual Fuel Cell Laboratory*. Presented at: CHEMA 2003. Frankfurt am Main, Germany, May 19, 2003.
- [CT78] Steyer, F., Qi, Z., & Sundmacher, K. *Selective Separation by Reactive Distillation Applied to Close Boiling Mixtures Undergoing Phase Splitting*. Presented at: CHEMA 2003. Frankfurt am Main, Germany, May 19, 2003.
- [CT77] Schultz, T. & Sundmacher, K. *Dynamische Modellierung und Simulation von Direkt-Methanolbrennstoffzellen auf Basis der verallgemeinerten Maxwell-Stefan-Transportgleichungen*. Presented at: GDCh-Jahrestagung. Munich, Germany, October 6, 2003.
- [CT76] Huang, Y.-S., Schlünder, E. U., & Sundmacher, K. *Mass Transfer Effects on the Residue Curve Maps for Membrane Reactors*. Presented at: International Symposium on Multifunctional Reactors ISMR-3. Bath, Germany, August 27, 2003.
- [CT75] Schultz, T. & Sundmacher, K. *Direkte Methanol-Brennstoffzelle (DMFC): Analyse experimenteller Miniplant-Bilanzdaten auf Basis der Maxwell-Stefan-Gleichungen*. Presented at: GVC/DECHEMA-Jahrestagungen. Mannheim, Germany, September 16, 2003.
- [CT74] Heidebrecht, P., Gundermann, M., Sundmacher, K., Berndt, J., & Koch, M. *Experimental Validation of a Mathematical Model for a MCFC Power Plant*. Presented at: CHEMA 2003. Frankfurt am Main, Germany, March 24, 2003.
- [CT73] Sundmacher, K., Mangold, M., & Heidebrecht, P. *Modellierung und Simulation von Schmelzcarbonat-Brennstoffzellen*. Invited talk presented at: Seminar des IWE, Universität Karlsruhe. Karlsruhe, Germany, January 16, 2003.
- [CT72] Sundmacher, K. *Modellierung der Prozessdynamik von Schmelzcarbonat-Brennstoffzellen*. Invited talk presented at: Seminar über Nichtlinearität und Unordnung in komplexen Systemen. Magdeburg, Germany, January 20, 2003.
- [CT71] Rauscher, F., Niemann, B., & Sundmacher, K. *Charakterisierung von W/O-Mikroemulsionen - Voraussetzung für die Nutzung als Reaktionsmedium*. Presented at: GVC/ DECHEMA-Jahrestagungen. Mannheim, Germany, September 16, 2003.
- [CT70] Sundmacher, K. *Catalytic Distillation*. Invited talk presented at: Ringvorlesung Katalyse des Fritz-Haber-Instituts. Berlin, Germany, November 20, 2003.
- [CT69] Rihko, L. K., Ye, Y., Munder, B., Sundmacher, K., Chalakov, L., Schulz, M., & Rau, H. *Kontrollierte Partialoxidation von Butan in einem elektrochemischen*

*Membranreaktor*. Presented at: XXXVI. Treffen Deutscher Katalytiker. Weimar, Germany, March 19, 2003.

- [CT68] Sundmacher, K. *Direct Fuel Cells: Experimental and Model-based Analysis of Dynamic Process Behaviour*. Invited talk presented at: Fuel Cell Workshop. Dalian, China, October 30, 2002.
- [CT67] Sundmacher, K. & Qi, Z. *Integration von Reaktion und Stofftrennung: Konzepte und Bewertung*. Presented at: GVC/DECHEMA-Jahrestagung. Wiesbaden, Germany, May 11, 2002.
- [CT66] Kienle, A. & Sundmacher, K. *Synthesis, Dynamics and Control of Reactive Distillation Processes*. Invited talk presented at: Aspen World 2002. Washington, USA, October 27, 2002.
- [CT65] Sundmacher, K., Rauscher, F., Steyer, C., & Niemann, B. *Modellierung und Simulation von Fällungsreaktionen in Emulsionen*. Invited talk presented at: Max-Planck-Institut für Mathematik in den Naturwissenschaften. Leipzig, Germany, November 19, 2002.
- [CT64] Sundmacher, K. & Heidebrecht, P. *Dynamic Simulation of Molten Carbonate Fuel Cells*. Presented at: 53rd Annual Meeting of the Int. Society of Electrochemistry. Dusseldorf, Germany, September 15, 2002.
- [CT63] Schultz, T. & Sundmacher, K. *Stofftransportphänomene in PEM für die DMFC: Modellierung auf Basis des vollständigen Maxwell-Stefan-Ansatzes*. Presented at: 72. AGEF-Seminar : Grundlagenuntersuchungen und neue Entwicklungen von Brennstoffzellen-Membranen. Jülich; Germany, December 4, 2002.
- [CT62] [Sundmacher, K. *Prozessintegration in Direkt-Brennstoffzellen*. Invited talk presented at: DECHEMA-Kolloquium "Integrierte Reaktionstechnik in Brennstoffzellen." Frankfurt, Germany, March 2, 2002.
- [CT61] Gundermann, M., Sundmacher, K., & Styczynski, Z. *Fuel Cells*. Presented at: Internationales Innovationsseminar. Magdeburg, Germany, December 5, 2002.
- [CT60] Sundmacher, K. & Qi, Z. *Separative Reactors: Concepts and Evaluation*. Invited talk presented at: Scientific Symposium of the Max-Planck-Institute for Complex Technical Systems. Magdeburg, Germany, May 24, 2002.
- [CT59] Sundmacher, K. *Fuel Cell Systems*. Invited talk presented at: Seminar des Fritz-Haber-Instituts der Max-Planck-Gesellschaft. Berlin, Germany, September 25, 2002.

- [CT58] Sundmacher, K., Schultz, T., Munder, B., Ginkel, M., & Mangold, M. *Modellbildung und systemwissenschaftliche Analyse von Brennstoffzellen – auf dem Weg zu einem virtuellen Labor*. Invited talk presented at: DFG-Kolloquium „Neue Schichtstrukturen für Brennstoffzellen“. Pommersfelden, Germany, May 21, 2001.
- [CT57] Sundmacher, K. *Brennstoffzellen und elektrochemische Membranreaktoren: Entwicklung, Betrieb, Modellierung und Prozessanalyse*. Invited talk presented at: Fakultätskolloquien der Universitäten Karlsruhe, Dortmund und Erlangen-Nuremberg. Karlsruhe, Germany, November 6, 2001.
- [CT56] Sundmacher, K. *Reaktive Destillationsprozesse*. Invited talk presented at: Verfahrenstechnisches Kolloquium der Universität Sofia. Sofia, Bulgaria, November 19, 2001.
- [CT55] Sundmacher, K. *Importance of Micro- and Macrokineitics of Chemical Reactions for Catalytic Distillation Processes*. Presented at: 1st International Max-Planck-Symposium on Reactive Distillation. Magdeburg, Germany, July 2, 2001.
- [CT54] Steyer, F., Qi, Z., & Sundmacher, K. *Synthesis of Cyclohexanol by Three-Phase Catalytic Distillation: Kinetics and Equilibria*. Presented at: International Symposium on Multifunctional Reactors. Nuremberg, Germany, June 26, 2001.
- [CT53] Sundmacher, K. & Schultz, T. *Steady State and Dynamic Process Behaviour of DMFCs*. Presented at: Open Problems of Direct Methanol Fuel Cells, Workshop des Weierstraß-Instituts für Angewandte Analysis und Stochastik. Berlin, Germany, November 23, 2001.
- [CT52] Sundmacher, K. & Schultz, T. *Performance of Oxygen Gas-Liquid Membranes for Application in Electrochemical Oxidation Processes*. Presented at: European Congress on Chemical Engineering. Nuremberg, Germany, June 26, 2001.
- [CT51] Styczinski, F., Purmann, M., Sundmacher, K., & Schultz, T. *Use of Fuel Cells for Stationary and Mobile Applications - System Oriented Approach*. Presented at: Int. Conf. on Advances in Processing, Testing and Applications of Dielectric Materials. Wroclaw, Poland, September 17, 2001.
- [CT50] Heidebrecht, P. & Sundmacher, K. *Integrierte Dampfreformierung und elektrochemische Wasserstoffoxidation in Schmelzcarbonatbrennstoffzellen*. Presented at: Fachtreffen Reaktionstechnik. Weimar, Germany, March 21, 2001.
- [CT49] Scott, K., Argyropoulos, P., Jackson, C., Taama, W., Horsfall, J., Lovell, K., & Sundmacher, K. *Methanol Crossover Aspects of Materials for Direct Methanol Fuel Cells*. Presented at: Fuel Cells - Powering the 21st Century. Portland, USA, October 30, 2000.

- [CT48] Schultz, T., Zhou, S., & Sundmacher, K. *Direkt-Methanolbrennstoffzelle: Experimentelle und modellbasierte Analyse des stationären und dynamischen Betriebsverhaltens*. Presented at: GVC-Jahrestagung. Karlsruhe, Germany, September 20, 2000.
- [CT47] Sundmacher, K. *Katalytische Destillationsprozesse: Auswahlkriterien, Einsatzfelder, Betriebsverhalten*. Invited talk presented at: Verfahrenstechnisches Kolloquium der Degussa-Hüls AG. Marl, Germany, October 27, 2000.
- [CT46] Sundmacher, K. *Einsatz mathematischer Methoden in der Systemverfahrenstechnik*. Invited talk presented at: Kolloquium des Weierstraß-Instituts. Berlin, Germany, April 10, 2000.
- [CT45] Sundmacher, K. *Advanced Catalysis Engineering*. Presented at: Dutch Graduate Schools in Catalysis (NIOK) and Engineering (OSPT). Delft, The Netherlands, November 27, 2000.
- [CT44] Sundmacher, K. *Fuel Cells: Modelling, Simulation and Process Analysis*. Presented at: Modelling and Computation in Chemical Engineering and Biotechnology. Hohenwart, Germany, October 1, 2000.
- [CT43] Sundmacher, K., Schultz, T., Zhou, S., Scott, K., Ginkel, M., & Gilles, E.-D. *Dynamics of the Direct Methanol Fuel Cell: Experiments and Model-based Analysis*. Presented at: 16th International Symposium on Chemical Reaction Engineering. Cracow, Poland, September 10, 2000.
- [CT42] Sundmacher, K., Kolah, A., & Qi, Z. *Reaktive Destillationssysteme*. Invited talk presented at: Verfahrenstechnisches Kolloquium der Degussa-Hüls AG. Marl, Germany, March 16, 2000.
- [CT41] Sundmacher, K., Zhou, S., & Schultz, T. *Steady-State and Dynamic Behaviour of the Direct Methanol Fuel Cell (DMFC)*. Presented at: International Innovation Seminar, Session on Computational Chemical Engineering. Magdeburg, Germany, October 26, 2000.
- [CT40] Sundmacher, K. & Schultz, T. *Electrochemical Gas Absorption in GDE-Membrane Reactor: Analysis of Reaction Mechanisms and Transport Phenomena*. Presented at: CHISA 2000. Prague, Czech Republic, August 27, 2000.
- [CT39] Zhou, S., Schultz, T., & Sundmacher, K. *Operation and Control of a Direct Methanol Fuel Cell System*. Presented at: 1st North American Symposium on Chemical Reaction Engineering. Houston, USA, January 6, 2000.



- [CT38] Peglow, M., Sundmacher, K., & Koch, M. *Prozesssimulation eines Blockheizkraftwerkes unter Einbindung einer Schmelzcarbonat-Brennstoffzelle*. Presented at: International Innovation Seminar, Session on Computational Chemical Engineering. Magdeburg, Germany, October 26, 2000.
- [CT37] Sundmacher, K., Schultz, T., Zhou, S., & Petrov, P. *Prozessführung von Brennstoffzellen-Systemen*. Presented at: DECHEMA-Kolloquium "Neue Aspekte der Brennstoffzellen-Systemtechnik in mobilen und stationären Anwendungen." Magdeburg, Germany, December 7, 2000.
- [CT36] Sundmacher, K. & Kolah, A. *Process Intensification by Integration of Reaction and Distillation in Multifunctional Reactors*. Presented at: NICHE-Conference on Reactive Separations. Marco Island, USA, June 13, 1999.
- [CT35] Schultz, T., Zhou, S., & Sundmacher, K. *Direkte Methanol-Brennstoffzelle: Analyse des nichtlinearen dynamischen Verhaltens*. Presented at: 99. Hauptversammlung der Deutschen Bunsen-Tagung für Physikalische Chemie. Würzburg, Germany, June 1, 1999.
- [CT34] Sundmacher, K. *Integration verfahrenstechnischer Grundoperationen in multifunktionalen Reaktoren dargestellt am Beispiel der Reaktivdestillation*. Presented at: Tagung der DGMK-Bezirksgruppe Berlin/Brandenburg. Berlin, Germany, May 6, 1999.
- [CT33] Sundmacher, K. & Kolah, A. *Integration of Reaction and Distillation in Multifunctional Reactors*. Invited talk presented at: Mobil Technology Company. Paulsboro, USA, June 17, 1999.
- [CT32] Sundmacher, K., Schultz, T., Ginkel, M., Gilles, E., & Scott, K. *Methods and Tools for Modelling and Simulation of Fuel Cells*. Presented at: 4th International Congress on Industrial and Applied Mathematics. Edinburgh, UK, July 5, 1999.
- [CT31] Sundmacher, K. & Scott, K. *Electrochemical Oxidation of Methanol in a Polymer Electrolyte Fuel Cell: Modelling and Experimental Validation of Current-Voltage Characteristics*. Presented at: IChemE Research Event. Newcastle upon Tyne, UK, April 7, 1998.
- [CT30] Bessling, B., Schoenmakers, S., Gorak, A., Schembecker, G., & Sundmacher, K. *Auslegung reaktiver Destillationsprozesse, Möglichkeiten und Grenzen*. Presented at: GVC-Fachauschuß "Thermische Zerlegung von Gas- und Flüssigkeitsgemischen." Munich, Germany, September 30, 1998.

- [CT29] Sundmacher, K. & Uhde, G. *Modeling, Simulation, Operation and Analysis of Reactive Distillation Processes*. Invited talk presented at: Department of Chemical Engineering, University of Amsterdam. Amsterdam, The Netherlands, July 14, 1998.
- [CT28] Sundmacher, K. *Elektrochemische Absorptionsprozesse mit Gasdiffusionselektroden: Modellierung und Zelldesign*. Presented at: GDCh-Jahrestagung der Fachgruppe Angewandte Elektrochemie. Frankfurt am Main, Germany, September 30, 1998.
- [CT27] Sundmacher, K. & Scott, K. *Direct Methanol Polymer Electrolyte Fuel Cell: Analysis of Charge and Mass Transfer in the Vapour-Liquid-Solid System*. Presented at: 15th International Symposium on Chemical Reaction Engineering. Newport Beach, USA, September 13, 1998.
- [CT26] Bessling, B., Schoenmakers, H., Gorak, A., Schembecker, G., & Sundmacher, K. *Auslegung reaktiver Destillationsprozesse, Möglichkeiten und Grenzen*. Presented at: GVC-Fachausschuß "Thermische Zerlegung von Gas- und Flüssigkeitsgemischen." Munich, Germany, March 9, 1998.
- [CT25] Sundmacher, K., Uhde, G., & Hoffmann, U. *Multiple Reactions in Catalytic Distillation Processes for the Production of the Fuel Oxygenates MTBE and TAME: Analysis by Rigorous Model and Experimental Validation*. Presented at: Technische Universität Clausthal, External Organizations. Newport Beach, USA, September 13, 1998.
- [CT24] Scott, K., Sundmacher, K., & Taama, W. *Direct Methanol Polymer Electrolyte Fuel Cell: Model-based Analysis and Experimental Validation*. Presented at: EPSRC-Meeting on Polymer Electrolyte Fuel Cells & Fuel Processing. Loughborough, UK, January 29, 1998.
- [CT23] Mohl, K. D., Kienle, A., Gilles, E. D., Rapmund, P., Sundmacher, K., & Hoffmann, U. *Nonlinear Dynamics of Reactive Distillation Processes for the Production of Fuel Ethers*. Presented at: European Symposium on Computer Aided Process Engineering. Trondheim, Norway, May 26, 1997.
- [CT22] Hoffmann, U., Schwarzer, S., Sundmacher, K., & Thiel, C. *Chemical Reaction Engineering Aspects in the ETBE-Production*. Presented at: DGMK-Conference "C4-Chemistry: Manufacture and Use of C4-Hydrocarbons." Aachen, Germany, October 6, 1997.
- [CT21] Thiel, C., Sundmacher, K., & Hoffmann, U. *Design katalytischer Destillationskolonnen für kinetisch limitierte Reaktionen*. Presented at: GVC-Fachausschuß "Thermische Zerlegung von Gas- und Flüssigkeitsgemischen." Wiesbaden, Germany, April 10, 1997.

- [CT20] Sundmacher, K. & Hoffmann, U. *Simulation der katalytischen Destillation in Packungskolonnen mit einem detaillierten, kinetisch basierten Modell*. Presented at: Colloquium of VW-Foundation on „Modellierung komplexer Systeme in der Verfahrenstechnik“. Aachen, Germany, February 22, 1996.
- [CT19] Sundmacher, K. *Reaktivdestillation*. Invited talk presented at: Verfahrenstechnisches Kolloquium der BASF AG. Ludwigshafen, Germany, June 4, 1996.
- [CT18] Uhde, G., Sundmacher, K., & Hoffmann, U. *Simultaneous Gas-Solid Reaction and Comminution - A Novel Multifunctional Reactor*. Presented at: 5th World Congress of Chemical Engineering. San Diego, USA, July 14, 1996.
- [CT17] Sundmacher, K. & Hoffmann, U. *Development of a New Catalytic Distillation Process for Fuel Ethers via a Detailed Nonequilibrium Model*. Presented at: 14th International Symposium on Chemical Reaction Engineering. Bruges, Belgium, May 5, 1996.
- [CT16] Sundmacher, K. *Reaktions- und prozeßtechnische Grundlagen der Herstellung von MTBE*. Invited talk presented at: Institut für Chemische Verfahrenstechnik, Universität Stuttgart. Stuttgart, Germany, November 30, 1996.
- [CT15] Sundmacher, K. & Hoffmann, U. *Dynamische Simulation der Reaktions- und Transportprozesse in Gasdiffusionselektroden dargestellt am Beispiel der Sauerstoffreduktion in Brennstoffzellen*. Presented at: GDCh-Jahrestagung der Fachgruppe Angewandte Elektrochemie. Monheim am Rhein, Germany, October 9, 1996.
- [CT14] Sundmacher, K. *Reactive Distillation*. Invited talk presented at: Department of Chemical Engineering, University of Amsterdam. Amsterdam, Netherlands, September 25, 1996.
- [CT13] Nowitzki, O., Hamelmann, R., Sundmacher, K., & Hoffmann, U. *Production of Gas-Diffusion-Electrodes loaded with Non-noble Metal Catalyst for Oxygen Reduction by a Calendering Rolling Process*. Presented at: 4th European Symposium on Electrochemical Engineering. Prague, Czech Republic, August 28, 1996.
- [CT12] Sundmacher, K., Nowitzki, O., & Hoffmann, U. *Dynamic Simulation and Analysis of Reaction and Transport Processes During Oxygen Reduction at Gas-Diffusion-Electrodes*. Presented at: 4th European Symposium on Electrochemical Engineering. Prague, Czech Republic, August 28, 1996.
- [CT11] Hoffmann, U. & Sundmacher, K. *Reaktivdestillation: Stand und Entwicklungsrichtungen*. Presented at: GVC-Jahrestagung. Strasbourg, France, September 27, 1995.

- [CT10] Sundmacher, K. *Kopplung von chemischen Reaktionen und physikalischen Transportphänomenen bei der Reaktivdestillation*. Invited talk presented at: Lehrstuhl für Thermische Verfahrenstechnik der Universität Dortmund. Dortmund, Germany, October 10, 1995.
- [CT9] Hoffmann, U. & Sundmacher, K. *Reaktivdestillation mit katalytisch aktiven Füllkörperpackungen*. Presented at: GVC-Fachausschuss "Thermische Zerlegung von Gas- und Flüssigkeitsgemischen." Jena, Germany, May 4, 1995.
- [CT8] Sundmacher, K. & Hoffmann, U. *Reactive Distillation of Nonideal Multicomponent Mixtures - Demonstrated for the Synthesis of MTBE, TAME and ETBE*. Presented at: Eurogas '94. Trondheim, Norway, March 21, 1994.
- [CT7] Sundmacher, K. & Hoffmann, U. *Multicomponent Mass and Energy Transport on Different Length Scales in a Packed Reactive Distillation Column for Heterogeneously Catalyzed Fuel Ether Production*. Presented at: 13th International Symposium on Chemical Reaction Engineering. Baltimore, USA, September 25, 1994.
- [CT6] Sundmacher, K. & Hoffmann, U. *Oscillatory Vapor-Liquid Transport Phenomena in a Packed Reactive Distillation Column for Fuel Ether Production*. Presented at: International Symposium on Maxwell-Stefan Approach to Mass Transfer. Amsterdam, Netherlands, November 18, 1994.
- [CT5] Sundmacher, K. & Hoffmann, U. *Heterogeneously Catalyzed Formation of MTBE in a Reactive Distillation Column*. Presented at: EUROPACAT-1. Montpellier, France, September 12, 1993.
- [CT4] Sundmacher, K., Rihko-Struckmann, L., & Hoffmann, U. *Classification of Reactive Distillation Processes by Dimensionless Numbers*. Presented at: CHISA '93. Prague, Czech Republic, August 29, 1993.
- [CT3] Sundmacher, K. *Catalytic Distillation in a Fixed Bed Reaction Column for Producing the Antiknock Enhancer MTBE*. Presented at: Chemical Engineering Forum for Young Scientists. Turino, Italy, July 2, 1992.
- [CT2] Sundmacher, K. & Hoffmann, U. *Importance of Irreversible Thermodynamics for Liquid Phase Ion Exchange Catalysis: Experimental Verification for MTBE-Synthesis*. Presented at: 12th International Symposium on Chemical Reaction Engineering - ISCRE 12. Turino, Italy, June 28, 1992.
- [CT1] Sundmacher, K. *Importance of Irreversible Thermodynamics for Liquid Phase Ion Exchange Catalysis: Experimental Verification for MTBE-Synthesis*. Invited talk presented at: Deutsche Luft- und Raumfahrtgesellschaft (DLR). Göttingen, Germany, May 5, 1992.

[CT0] Sundmacher, K. *Einsatz einer Finite-Volumen-Methode zur Simulation der katalytischen Destillation in Füllkörper-Reaktionskolonnen*. Presented at: DECHEMA-Arbeitsausschuss „Reaktorberechnung“. Frankfurt am Main, Germany, March 13, 1992.

## Poster

- [CP164] McHardy, C., König-Mattern, L., Knappert, J., Rauh, C., Rihko-Struckmann, L., & Sundmacher, K. *Prozessintegration von Zellaufschluss und Extraktion zur Fraktionierung feuchter Mikroalgen-Biomasse*. Presented at: 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020: Processes for Future. virtual, September 21-24, 2020.
- [CP163] Jokiel, M. & Sundmacher, K. *Prozessintensivierung durch optimierte Reaktionsführung in Tandem-Reaktoren am Beispiel der Hydroformylierung von 1-Dodecen*. Presented at: 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020: Processes for Future. virtual, September 21-24, 2020.
- [CP162] Rätze, K., McBride, K., & Sundmacher, K. *Optimal Experimental Design with Bayesian Parameter Identification for Chemical Reaction Networks*. Presented at: 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020: Processes for Future. virtual, September 21-24, 2020.
- [CP161] Bremer, J., Zimmermann, R. T., & Sundmacher, K. *FOReCAST: A Novel Power-to-Gas Pilot-Plant Concept for Flexible CO<sub>2</sub> Methanation*. Presented at: 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020: Processes for Future. virtual, September 21-24, 2020.
- [CP160] Otrin, L., Diehl, C., Erb, T., Sundmacher, K., & Vidaković-Koch, T. *Mitochondrion Reimagined: Fueling Synthetic Life*. Presented at: 64th Annual Meeting of the Biophysical Society. San Diego, California, USA, February 15, 2020.
- [CP159] Marusic, N., Otrin, L., Zhao, Z., Lira, R. de, Vidaković-Koch, T., Ivanov, I., Dimova, R., & Sundmacher, K. *Reconstitution of respiratory enzymes in PDMS-g-PEO polymer and polymer/lipid hybrid vesicles*. Presented at: 64th Annual Meeting of the Biophysical Society. San Diego, California, USA, February 15, 2020.
- [CP158] Zimmermann, R. T., Bremer, J., & Sundmacher, K. *“Egg-Yolk” Catalyst Particle Design for Improved Flexibility of Industrial Scale Fixed-Bed Reactor used for CO<sub>2</sub> Methanation*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.

- [CP157] Maggi, A., Wenzel, M., & Sundmacher, K. *Power-to-Syngas Processes by Reactor-Separator Superstructure Optimization*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CP156] Wiedmeyer, V., Voigt, A., & Sundmacher, K. *Crystal Growth Simulation in a Continuously Operated Helically Coiled Tube*. Presented at: 12th European Congress of Chemical Engineering – ECCE 12. Florence, Italy, September 15, 2019.
- [CP155] Zimmermann, R. T., Bremer, J., & Sundmacher, K. *Optimal “Egg-Yolk” Catalyst Particle Design for Thermal Sensitivity Reduction of Industrial Scale Fixed-Bed CO<sub>2</sub> Methanation Reactors*. Presented at: Jahrestreffen Reaktionstechnik 2019 DECHEMA. Würzburg, Germany, May 27, 2019.
- [CP154] König, L., Wiedmeyer, V., Voigt, A., & Sundmacher, K. *Crystallization in standard batch crystallizers and advanced helically coiled flow tubes: Numerical limits of current simulation methods*. Presented at: YCOPE 2019. Magdeburg, Germany, March 18, 2019.
- [CP153] Bremer, J. & Sundmacher, K. *Flexible Production of Synthetic Methane: Dynamic Operation and Control of Fixed-Bed Methanation Reactors*. Presented at: YCOPE 2019. Magdeburg, Germany, March 18, 2019.
- [CP152] Wiedmeyer, V., Voigt, A., Sundmacher, K., Anker, F., Bartsch, C., John, V., Ahrens, R., & Le Borne, S. *Growth and Aggregation in a Shape Selective Fluidized Bed Crystallizer: Experiments versus Numerical Simulation*. Presented at: PARTEC. Nuremberg, Germany, April 9, 2019.
- [CP151] Himmel, A. & Sundmacher, K. *Strategie zur Betriebsführung von Power-to-X Prozessen und der Anwendung zur optimalen Auslegung von Speicherelementen*. Presented at: ProcessNet Energieverfahrenstechnik 2019. Frankfurt am Main, Germany, March 6, 2019.
- [CP150] Song, Z., Zhou, T., & Sundmacher, K. *Systematic method for screening ionic liquids as extraction solvents exemplified by extractive desulfurization process*. Presented at: COSMO-RS Symposium. Cologne, Germany, March 6, 2018.
- [CP149] Bremer, J. & Sundmacher, K. *Dynamic Operation of Exothermic Fixed-Bed Reactors for Flexible Fuel Production exemplified for CO<sub>2</sub> Methanation*. Presented at: Tailor-Made Fuels – From Production to Propulsion. Aachen, Germany, June 19, 2018.
- [CP148] Pischel, D., Sundmacher, K., & Flassig, R. *Efficient simulation of variability and heterogeneity in bioprocess engineering*. Presented at: MATHMOD 2018. Vienna, Austria, February 21, 2018.

- [CP147] McBride, K., Linke, S., & Sundmacher, K. *Greener Solvents in Homogeneous Catalyst Recovery*. Presented at: ProcessNet-Jahrestagung und 33. DECHEMA-Jahrestagung der Biotechnologen 2018. Aachen, Germany, September 10, 2018.
- [CP146] Uebbing, J., Rihko-Struckmann, L., & Sundmacher, K. *Exergy Efficiency Analysis of Methane as a Chemical Energy Carrier for Renewable Energies*. Presented at: JT ProcessNet: EVT 2018. Frankfurt am Main, Germany, March 7, 2018.
- [CP145] Ahrens, R., Anker, F., Bartsch, C., Voigt, A., Wiedmeyer, V., Sundmacher, K., John, V., & Le Borne, S. *ADVANCED NUMERICAL METHODS FOR THE SIMULATION OF POPULATION BALANCE SYSTEMS*. Presented at: 6th International Conference on Population Balance Modelling. Ghent, Belgium.
- [CP144] Krafft, D., Lopez-Castellanos, S., Ivanov, I., & Sundmacher, K. *Compartments for protocells: Microfluidic liposome production*. Presented at: Microfluidics for Synthetic Biology and Health Applications. Bordeaux, France, December 6, 2018.
- [CP143] Sorrentino, A., Vidaković-Koch, T., & Sundmacher, K. *Studying mass transport dynamics in PEMFCs using concentration-alternating frequency response analysis*. Presented at: 69th ISE Annual Meeting. Bologna, Italy, September 2, 2018.
- [CP142] McBride, K. & Sundmacher, K. *Surrogate Modeling of Liquid-Liquid Equilibria for Process Optimization Purposes*. Presented at: ESCAPE 2017. Barcelona, Spain, October 1, 2017.
- [CP141] Bremer, J., Rätze, K., Benner, P., & Sundmacher, K. *Fast Optimal Control of CO<sub>2</sub> Methanation Reactors via Reduced Order Models*. Presented at: ECCE/WCCE 2017. Barcelona, Spain, October 1, 2017.
- [CP140] Zinser, A. & Sundmacher, K. *Process Optimization by Applying a Simultaneous Dynamic Method*. Presented at: WCCE10+ECCE11+ECAB4. Barcelona, Spain, October 1, 2017.
- [CP139] McBride, K., Kaiser, N. M., & Sundmacher, K. *Influence of enhanced homogeneous catalyst recovery on optimal reactor trajectories in the hydroformylation of 1-dodecene*. Presented at: Jahrestreffen Reaktionstechnik 2017. Wuerzburg, Germany, May 22, 2017.
- [CP138] Facht, M., Rihko-Struckmann, L., & Sundmacher, K. *Durchflusszytometrische Bioprozesskontrolle am Beispiel einer carotinoidbildenden Mikroalge*. Presented at: BioProcessing Days. Recklinghausen, Germany, February 22, 2016.
- [CP137] Bremer, J., Goyal, P. K., Feng, L., Benner, P., & Sundmacher, K. *Optimization and Reduced Order Modeling of CO<sub>2</sub> Methanation Reactors*. Presented at: KoMSO

Challenge Workshop “Reduced-Order Modeling for Simulation and Optimization”.  
Renningen, Germany, November 17, 2016.

- [CP136] Do Thi, Q. N., Krishna, G. S. R., Varničić, M., Vidaković-Koch, T., & Sundmacher, K. *Multi-step Biotransformations by Electroenzymatic Cascades*. Presented at: EU-ISMET 2016. Rome, Italy, September 26, 2016.
- [CP135] Kovačević, T., Wiedmeyer, V., Schock, J., Pfeiffer, F., Voigt, A., Sundmacher, K., & Briesen, H. *Orientation of Primary Particles in Potash Alum Aggregates*. Presented at: BIWIC 2016. Magdeburg, September 6, 2016.
- [CP134] Sorrentino, A., Vidaković-Koch, T., & Sundmacher, K. *Beyond classical EIS: A new Method for Analysing the Dynamics of PEM Fuel Cells*. Presented at: Electrochemistry 2016. Goslar, Germany, September 26, 2016.
- [CP133] Flassig, R., Facht, M., Gladebeck, S., Pirwitz, K., Rihko-Struckmann, L., & Sundmacher, K. *Modeling of Biomass Composition Using Dynamic Flux Balance Analysis for Optimization of Microalgal Biorefineries*. Presented at: FOSBE 2016. Magdeburg, Germany, October 9, 2016.
- [CP132] Rihko-Struckmann, L., Pirwitz, K., Molnar, M., & Sundmacher, K. *Exploitation and Utilisation of Carbohydrate Derivatives Recovered from Lipid Extracted Algae*. Presented at: Industrial Biotechnology Forum 2016 (IBF). Garching, Germany, March 14, 2016.
- [CP131] Kaiser, N. M. & Sundmacher, K. *Optimal Reactor-Separator-Network Synthesis*. Presented at: AIChE Annual Meeting 2016. San Francisco, USA, November 13, 2016.
- [CP130] Wenzel, M., Rihko-Struckmann, L., & Sundmacher, K. *CO<sub>2</sub> Activation via Reverse Water Gas Shift (RWGS) Processes: A Comparative Thermodynamic Analysis*. Presented at: ISCRE 24. Minneapolis, USA, June 12, 2016.
- [CP129] Pirwitz, K., Rihko-Struckmann, L., & Sundmacher, K. *Assessment of innovative downstream processes for microalgal  $\beta$ -carotene production*. Presented at: BioProcessing Days. Recklinghausen, Germany, February 22, 2016.
- [CP128] Flassig, R., Facht, M., Höffner, K., & Sundmacher, K. *Dynamic flux balance modeling to increase the production of high-value compounds in green microalgae*. Presented at: Industrial Biotechnology Forum 2016 (IBF). Garching/Munich/Germany, March 14, 2016.
- [CP127] Himmel, A., Rihko-Struckmann, L., Sager, S., & Sundmacher, K. *Modellgestützte optimale Steuerung von Biogasanlagen*. Presented at: Processnet-Jahrestagung. Aachen, Germany, September 12, 2016.



- [CP126] Fricke, M., Voigt, A., & Sundmacher, K. *Shaping without Touching: ZnO Nanoparticle Production in Miniemulsions*. Presented at: Processnet-JT. Aachen, September 12, 2016.
- [CP125] Kaiser, N., Flassig, R., & Sundmacher, K. *Hydroformylation reactor design under model and design uncertainties*. Presented at: DGMK "Synthesis Gas Chemistry." Dresden, Germany, October 7, 2015.
- [CP124] Wenzel, M., Rihko-Struckmann, L., & Sundmacher, K. *CO<sub>2</sub>- Aktivierung mittels Chemical Looping*. Presented at: ProcessNet Jahrestreffen der Fachgruppe "Energieverfahrenstechnik." Bonn, February 23, 2015.
- [CP123] McBride, K., Gaide, T., Vorholt, A., Behr, A., & Sundmacher, K. *Temperature-switchable solvents for the recovery of homogeneous catalyst in alkene hydroformylation*. Presented at: DECHEMA Infoday Switchable Solvent Systems. Frankfurt am Main, Germany, September 28, 2015.
- [CP122] Bremer, J., Feng, L., Benner, P., & Sundmacher, K. *Quadratic Approximation for Model Order Reduction in Reaction Engineering*. Presented at: MORE - Workshop on MOdel REduction. Pilsen, Czech Republic, September 6, 2015.
- [CP121] Schack, D., Rihko-Struckmann, L., & Sundmacher, K. *Thermodynamische Analyse der Erzeugung flüssiger Kraftstoffe aus erneuerbarer Energie und Biomasse*. Presented at: ProcessNet Jahrestreffen der Fachgruppe "Energieverfahrenstechnik." Bonn, Germany, February 23, 2015.
- [CP120] Facht, M., Flassig, R., Rihko-Struckmann, L., & Sundmacher, K. *Model-based process design for natural b-carotene: Accounting for parameter uncertainties and process design variabilities*. Presented at: Algal Biomass, Biofuels and Bioproducts. San Diego, USA, June 7, 2015.
- [CP119] Zhou, T., Wang, J., & Sundmacher, K. *Computer-aided solvent design for extractive reaction processes*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CP118] Wiedmeyer, V., Anker, F., Voigt, A., John, V., & Sundmacher, K. *Crystal Shape Evolution in a Continuous Helically Coiled Flow Tube Crystallizer*. Presented at: ECCE10+ECAB3+EPIC5. Nice, France, September 27, 2015.
- [CP117] Facht, M., Rihko-Struckmann, L., & Sundmacher, K. *Durchflusszytometrische Bioprozesskontrolle am Beispiel einer carotinoidbildenden Mikroalge*. Presented at: 8. Bundesalgenstammtisch. Garching, Germany, September 7, 2015.

- [CP116] Zhou, T. & Sundmacher, K. *Robust design of optimal solvents for chemical reactions - a combined experimental and computer-aided strategy*. Presented at: PSE2015 Conference. Copenhagen, Denmark, May 31, 2015.
- [CP115] Kaiser, N. M. & Sundmacher, K. *Model-based optimal design of a hydroformylation process with catalyst recovery by a thermomorphic solvent system*. Presented at: PSE2015 Conference. Copenhagen, Denmark, May 31, 2015.
- [CP114] Varničić, M., Vidaković-Koch, T., & Sundmacher, K. *Partial Glucose Oxidation in Electroenzymatic Reactor*. Presented at: 65th Annual Meeting of the International Society of Electrochemistry. Lausanne, Switzerland, August 31, 2014.
- [CP113] Kirsch, S., Peña Arias, I., Hanke-Rauschenbach, R., & Sundmacher, K. *Experimental study of autonomous oscillations and patterns in a PEM fuel cell operated with H<sub>2</sub>/CO mixtures*. Presented at: 65th Annual Meeting of the International Society of Electrochemistry. Lausanne, Switzerland, August 31, 2014.
- [CP112] Wang, W., Voigt, A., & Sundmacher, K. *Application of synthetic bionanoparticles to affinity membrane adsorption, Soft Smart Particles: Preparation and Applications*. Presented at: DECHMA. Frankfurt am Main, Germany, October 27, 2014.
- [CP111] El-Sibai, A., Rihko-Struckmann, L., & Sundmacher, K. *Dynamic Optimisation of the Sabatier Process for Power-to-Gas Applications*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.
- [CP110] Kaiser, N. M., Hentschel, B., & Sundmacher, K. *Technische Realisierung eines optimalen Reaktors für die Hydroformylierung langkettiger Olefine in thermomorphen Lösungsmittelsystemen*. Presented at: Jahrestreffen Reaktionstechnik. Würzburg, Germany, April 28, 2014.
- [CP109] McBride, K. & Sundmacher, K. *Conceptual and data driven process design for the hydroformylation of 1-dodecene in a thermomorphic solvent system*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.
- [CP108] Pirwitz, K., Rihko-Struckmann, L., & Sundmacher, K. *Process analysis of  $\beta$ -carotene with *Dunaliella salina**. Presented at: Algal Biomass, Biofuels & Bioproducts. Santa Fe, USA, June 15, 2014.
- [CP107] Zhou, T. & Sundmacher, K. *Integrated Solvent and Process Design Exemplified for a Diels-Alder Reaction*. Presented at: AIChE Annual Meeting. Atlanta, USA, November 16, 2014.
- [CP106] Bensmann, A., Hanke-Rauschenbach, R., Heyer, R., Kohrs, F., Benndorf, D., Reichl, U., & Sundmacher, K. *Methanisierung von erneuerbarem Wasserstoff in Biogas-*

*Anlagen*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.

- [CP105] Do Thi, Q. N., Varničić, M., Hanke-Rauschenbach, R., Vidaković-Koch, T., & Sundmacher, K. *Mathematical Modeling of a Porous Enzymatic Electrode with Direct Electron Transfer Mechanism*. Presented at: 65th Annual Meeting of the International Society of Electrochemistry. Lausanne, Switzerland, August 31, 2014.
- [CP104] Zinser, A., Rihko-Struckmann, L., & Sundmacher, K. *Dynamic Optimization of a Methanol Synthesis Process using renewable Hydrogen and CO<sub>2</sub>*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.
- [CP103] Wang, W., Voigt, A., Wolff, M. W., Reichl, U., & Sundmacher, K. *A Synthetic Biology Approach to Affinity Membrane Adsorption*. Presented at: ProcessNet-Annual Meeting. Aachen, Germany, September 30, 2014.
- [CP102] Vidaković-Koch, T., Varničić, M., Do Thi, Q. N., & Sundmacher, K. *Partial Oxidations in Electroenzymatic Reactors*. Presented at: Dechema Workshop. Frankfurt, Germany, November 11, 2013.
- [CP101] Pirwitz, K., Rihko-Struckmann, L., & Sundmacher, K. *Development of an integrated multi-product process based on the photosynthetic organisms *Chlamydomonas reinhardtii* and *Rhodospirillum rubrum**. Presented at: 2nd European Congress of Applied Biotechnology 2013, (ECCE-ECAB). The Hague, The Netherlands, April 21, 2013.
- [CP100] Van der Zalm, E. & Sundmacher, K. *Experimental analysis and dynamic-kinetic modeling of light energy conversion in microalgae*. Presented at: 2nd European Congress of Applied Biotechnology 2013 (ECCE-ECAB). The Hague, The Netherlands, April 21, 2013.
- [CP99] Eisenschmidt, H., Voigt, A., & Sundmacher, K. *Estimation of Crystal Shape Distributions from Microscopic Images*. Presented at: PARTEC 2013. Nuremberg, Germany, April 23, 2013.
- [CP98] Temmel, E., Borchert, C., Eisenschmidt, H., Seidel-Morgenstern, A., Lorenz, H., & Sundmacher, K. *Online-Analyse der Kristallform- und -größenentwicklung bei Kristallisationsprozessen*. Presented at: 8. Kolloquium Prozessanalytik Berlin 2012. Berlin, Germany, December 2, 2012.
- [CP97] Flassig, R., Maubach, G., Schenkendorf, R., Mangold, M., & Sundmacher, K. *Systems Biology of Genotoxic Stress Induced DNA Double-Strand Breaks*. Presented at: SBMC 2012. Leipzig, Germany, July 9, 2012.

- [CP96] Heidebrecht, P., Hanke-Rauschenbach, R., Jörke, A., & Sundmacher, K. *Cascade of oscillating electrochemical converters for deep CO-removal from H<sub>2</sub>/CO-mixtures: A model-based design approach*. Presented at: ISE 2012. Prague, Czech Republic, August 19, 2012.
- [CP95] Flassig, R., Heise, S., Sundmacher, K., & Klamt, S. *An effective Framework for Gene Regulatory Network Reconstruction from Genetical Genomics Data*. Presented at: GCB 2012. Jena, Germany, September 19, 2012.
- [CP94] Facht, M., Rihko-Struckmann, L., & Sundmacher, K. *Metabolic network construction and analysis in Dunaliella salina*. Presented at: Young Algaeneers Symposium. Wageningen, The Netherlands, June 14, 2012.
- [CP93] Voigt, A. & Sundmacher, K. *Multidimensional Monte Carlo Cell Population Dynamics in Virus Replication Systems*. Presented at: PSE 2012. Singapur, July 15, 2012.
- [CP92] Freund, H., Peschel, A., & Sundmacher, K. *Ermittlung der optimalen Reaktionsführung im prozesstechnischen Kontext am Beispiel der Ethylenoxidsynthese*. Presented at: JT Reaktionstechnik. Würzburg, Germany, May 14, 2012.
- [CP91] González Martínez, I., Sundmacher, K., & Vidaković-Koch, T. *Interrelation of catalyst layer parameters for more physically reasonable gas diffusion electrode modeling*. Presented at: ISE 2012. Prague, Czech Republic, August 19, 2012.
- [CP90] Kuwertz, R., González Martínez, A. J., Kunz, U., Sundmacher, K., Turek, T., & Vidaković-Koch, T. *Elektrolyse von gasförmigem Chlorwasserstoff in einem PEM-Brennstoffzellenreaktor*. Presented at: Jahrestreffen Reaktionstechnik 2012. Würzburg, Germany, May 14, 2012.
- [CP89] Pirwitz, K., Grammel, H., Rihko-Struckmann, L., & Sundmacher, K. *Analysis of dynamic interactions in a coculture of green algae and purple nonsulfur bacteria*. Presented at: Young Algaeneers Symposium. Wageningen, The Netherlands, June 14, 2012.
- [CP88] Freund, H., Peschel, A., & Sundmacher, K. *Intensivierung des sauerstoffbasierten Ethylenoxid-Prozesses: Optimaler Reaktor für den Gesamtprozess*. Presented at: ProcessNet Jahrestagung 2012. Karlsruhe, Germany, September 10, 2012.
- [CP87] Eisenschmidt, H. & Sundmacher, K. *Bestimmung von Kristallformverteilungen aus binären Bildern*. Presented at: Jahrestreffen der ProcessNet-Fachgruppen Agglomerations- und Schüttguttechnik & Kristallisation 2012. Wittenberg, Germany, March 5, 2012.

- [CP86] Karst, F., Freund, H., Maestri, M., & Sundmacher, K. *Incorporating Micro Reaction Kinetics in Dynamic Optimization: Intensified Reactor concepts for the Catalytic Partial Oxidation (CPO) of Methane*. Presented at: JT Reaktionstechnik. Würzburg, Germany, May 14, 2012.
- [CP85] Hanke-Rauschenbach, R., Mangold, M., & Sundmacher, K. *Nonlinear Dynamics of Fuel Cells: A Survey Based on a Prototype Model*. Presented at: ECCE 2011/ECAB 2011. Berlin, Germany, September 25, 2011.
- [CP84] Zinser, A., Rihko-Struckmann, L., & Sundmacher, K. *Energetic Comparison of the Utilization of CO<sub>2</sub> for Production of Methanol or Methane as a Chemical Storage for Renewable Energy*. Presented at: ICCDU XI – 11th International Conference on carbon dioxide utilization. Dijon, France, June 27, 2011.
- [CP83] Hentschel, B., Peschel, A., Freund, H.-J., & Sundmacher, K. *Modellbasierte Optimierung der zweiphasigen Hydroformylierung höherer Olefine in innovativen Lösungsmittel-Systemen*. Presented at: 44. Jahrestreffen Dt. Katalytiker und Jahrestreffen Reaktionstechnik. Weimar, Germany, March 16, 2011.
- [CP82] Bajcinca, N. & Sundmacher, K. *Convex Optimization for Shape Manipulation of Crystal Populations*. Presented at: ISIC 18 – 18th International Symposium on Industrial Crystallization. Zurich, Switzerland, September 13, 2011.
- [CP81] Oettel, C., Rihko-Struckmann, L., & Sundmacher, K. *Impact of Pt-Ru on the CO Tolerance and Dynamic Step Behaviour of the HT-PEMFC*. Presented at: Hydrogen + Fuel Cells 2011. Vancouver, BC, Canada, May 15, 2011.
- [CP80] Zhou, S., Chen, L., Qi, Z., Freund, H., & Sundmacher, K. *Mutual Solubility of Water with Ionic Liquids*. Presented at: ECCE 2011/ECAB 2011. Berlin, Germany, September 25, 2011.
- [CP79] Voigt, A. & Sundmacher, K. *Molecular Modeling of Crystal Shape Evolution in Solutions*. Presented at: International Conference on Simulation Technology 2011. Stuttgart, Germany, June 14, 2011.
- [CP78] Sharma, D., Rihko-Struckmann, L., & Sundmacher, K. *Emerging need of Studying Quorum Sensing and Signal Transduction in Microalgae for Boosting the Product of Biofuels from Algae*. Presented at: 5th International Algae Congress 2011. Berlin, Germany, December 1, 2011.
- [CP77] Hertel, C., Heidebrecht, P., & Sundmacher, K. *Der zyklische Wassergas-Shiftreaktor – Zeitkonstanten, Modellierung und experimentelle Validierung*. Presented at: 44. Jahrestreffen Deutscher Katalytiker und Jahrestreffen Reaktionstechnik. Weimar, Germany, May 16, 2011.

- [CP76] Peschel, A., Freund, H., & Sundmacher, K. *Systematik zum Entwurf und zur apparativen Gestaltung optimaler chemischer Reaktoren am Beispiel der SO<sub>2</sub>-Oxidation*. Presented at: Jahrestreffen Reaktionstechnik 2010. Würzburg, Germany, May 10, 2010.
- [CP75] Hanke-Rauschenbach, R., Kirsch, S., Rihko-Struckmann, L., & Sundmacher, K. *Electrochemical Preferential CO Oxidation in CO/H<sub>2</sub> Mixtures: Influence of Nonlinear Pattern Formation on Selectivity*. Presented at: ISCRE 21. Philadelphia, USA, June 13, 2010.
- [CP74] Ivanov, I., Vidaković-Koch, T., & Sundmacher, K. *Enzymatic Glucose Fuel Cell - Influence of Structural and Operational Parameters on Performance*. Presented at: Annual ISE Meeting — 61th Annual Meeting of the International Society of Electrochemistry. Nice, France, September 26, 2010.
- [CP73] Borchert, C. & Sundmacher, K. *Modellbasiertes Messen von Kristallformverteilungen*. Presented at: Fachausschuss Kristallisation. Magdeburg, Germany, March 11, 2010.
- [CP72] Vidaković-Koch, T., Ivanov, I., & Sundmacher, K. *Kinetics of Glucose Oxidation in an Enzymatic Electrode Assembly*. Presented at: Annual ISE Meeting — 61th Annual Meeting of the International Society of Electrochemistry. Nice, France, September 26, 2010.
- [CP71] Hartono, B., Heidebrecht, P., & Sundmacher, K. *Integration of Gasifier and Fuel Cell by Anode Exhaust Gas Recycle*. Presented at: Jahrestreffen Reaktionstechnik 2010. Würzburg, Germany, May 10, 2010.
- [CP70] Adiche, C. & Sundmacher, K. *Micro-scale Sweep Gas Membrane Distillation for the Separation of Sub-cooled Mixtures*. Presented at: Bioprozessorientiertes Anlagendesign. Nuremberg, Germany, May 10, 2010.
- [CP69] Freund, H., Kumar, R., Katariya, A., & Sundmacher, K. *Konzeptioneller Entwurf eines neuen Reaktivdestillationsprozesses zur Herstellung von Cyclohexanol aus Cyclohexen*. Presented at: ProcessNet-Jahrestagung 2010. Aachen, Germany, September 21, 2010.
- [CP68] Adiche, C. & Sundmacher, K. *A Novel Membrane Distillation based Continuous Micro-Device for the Separation of Liquid Mixtures*. Presented at: PRES 2010. Prague, Czech Republic, August 28, 2010.
- [CP67] Rollie, S. & Sundmacher, K. *Heteroaggregation in Particle Systems: Model-based Analysis with Property Discrete PBM*. Presented at: ProcessNet-Jahrestagung 2009. Mannheim, Germany, September 8, 2009.

- [CP66] Diaz Ochoa, J. G., Voigt, A., Sundmacher, K., & Briesen, H. *Virus Production in Cell Populations with Innate Immune Response*. Presented at: Complex 2009. Shanghai, China, February 23, 2009.
- [CP65] Heidebrecht, P., Piewek, S., & Sundmacher, K. *Robuste Optimierung eines integrierten Reaktors am Beispiel einer DIR-MCFC*. Presented at: Jahrestreffen Reaktionstechnik 2009. Würzburg, Germany, June 8, 2009.
- [CP64] Rihko-Struckmann, L., Hanke-Rauschenbach, R., Alten, S., & Sundmacher, K. *Bewertung und energetische Analyse der chemischen Speicherung von erneuerbarer Energie durch Reduktion von CO<sub>2</sub>*. Presented at: ProcessNet-Jahrestagung 2009. Mannheim, Germany, September 8, 2009.
- [CP63] Fricke, M., Zinser, A., Borchert, C., & Sundmacher, K. *Numerical Simulation of Spatially Distributed Population Balances*. Presented at: AIChE Annual Meeting 2009. Nashville, USA, November 8, 2009.
- [CP62] Borchert, C. & Sundmacher, K. *A New Method for the Determination of Crystallization Kinetics*. Presented at: WCCE8 – 8th World Congress of Chemical Engineering. Montréal, Canada, August 23, 2009.
- [CP61] Rollié, S. & Sundmacher, K. *Heteroaggregation in Particle/Cell Systems: Populations Balance Modelling and Experiments*. Presented at: WCCE8 – 8th World Congress of Chemical Engineering. Montréal, Canada, August 23, 2009.
- [CP60] Thomas, S., Schotte, F., Hermann, A., He, L., Sundmacher, K., Rihko-Struckmann, L., Heidebrecht, P., Kumar, V., Datta, P., Hertel, C., Oettel, C., Hartono, B., Kusnezoff, M., & Kayurucu-Schubert, S. *ProBio: Integrated Process System for the Transformation of Biomass into Electrical Energy by use of Fuel Cells*. Presented at: 17th European Biomass Conference & Exhibition – From Research to Industry and Markets. Hamburg, Germany, June 29, 2009.
- [CP59] Banerjee, S., Voigt, A., Briesen, H., & Sundmacher, K. *Multiscale Model to Simulate Crystal Growth*. Presented at: BACG 40th Anniversary Conference 2009. Bristol, UK, June 6, 2009.
- [CP58] Kumar, R., Katariya, A., Freund, H.-J., & Sundmacher, K. *Continuous Reactive Distillation Process for the Production of Cyclohexanol from Cyclohexene*. Presented at: AIChE Annual Meeting 2008. Philadelphia, USA, November 16, 2008.
- [CP57] Voigt, A., Flockerzi, D., & Sundmacher, K. *Dynamical Evolution of Particle Size and Shape Distribution in Crystallization and Precipitation Processes – Detailed Modelling and System Analysis*. Presented at: ESCAPE 18. Lyon, France, June 1, 2008.

- [CP56] Fricke, M., Voigt, A., & Sundmacher, K. *Miniemulsion-Assisted Reactive Crystallization of Nanoparticles*. Presented at: ISIC 17-17th International Symposium on Industrial Crystallization. Maastricht, The Netherlands, September 14, 2008.
- [CP55] Voigt, A. & Sundmacher, K. *Multidimensional Property Design of Crystal Populations using a Systems Approach*. Presented at: BIWIC 2008, 15th International Workshop on Industrial Crystallization. Magdeburg, Germany, September 10, 2008.
- [CP54] Rihko-Struckmann, L., Cui, Y., Lu, H., & Sundmacher, K. *Biomasse-Konversion zu Wasserstoff: Dampfreformierung von Glycerin an Mischoxid-Katalysatoren*. Presented at: 41. Jahrestreffen Deutscher Katalytiker. Weimar, Germany, February 27, 2008.
- [CP53] Heidebrecht, P. & Sundmacher, K. *Modellbasierte Analyse eines zyklischen Wassergas-Shiftreaktors*. Presented at: Jahrestreffen Reaktionstechnik 2008. Würzburg, Germany, May 18, 2008.
- [CP52] Katariya, A., Chalakova, M., Freund, H., Mahajan, S., & Sundmacher, K. *Investigation of Isobutene Dimerization Process in Reactive Distillation Using Rigorous Three-Phase Non-Equilibrium Stage Model*. Presented at: AIChE Annual Meeting 2008. Philadelphia, USA, November 16, 2008.
- [CP51] Borchert, C., Voigt, A., & Sundmacher, K. *Evolution of Crystal Shape Distributions and Morphology Classification*. Presented at: ISIC 17, 17th International Symposium on Industrial Crystallization. Maastricht, The Netherlands, September 14, 2008.
- [CP50] Ivanov, I., Vidaković, T., & Sundmacher, K. *The Influence of a Self-Assembled Monolayer on the Activity of Rough Gold for Glucose Oxidation*. Presented at: ISE-59th Annual Meeting of the International Society of Electrochemistry. Seville, Spain, September 7, 2008.
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## Further Publications

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