

LIST OF PUBLICATIONS

Professor Dr.-Ing. Ulrike Krewer

• BOOKS

1. **Krewer, U.**, *System-oriented Analysis of the Dynamic Behaviour of Direct Methanol Fuel Cells*, Dissertation, Faculty of Process and Systems Engineering, University of Magdeburg, <http://diglib.uni-magdeburg.de/Dissertationen/2005/ulrkrewer.htm>, Magdeburg, 2005.

• JOURNAL PUBLICATIONS (WITH PEER REVIEW)

1. Mao, Q., **Krewer, U.**, *Sensing Methanol Concentration in Direct Methanol Fuel Cell with Total Harmonic Distortion: Theory and Application*, *Electrochimica Acta*, 2012, DOI 10.1016/j.electacta.2012.02.018.
2. Zenith, F., Kraus, M., **Krewer, U.**, *Model-based Analysis of Micro-Separators for Portable Direct-Methanol Fuel-Cell Systems*, *Computers and Chemical Engineering*, 38, pp. 64-73, 2012.
3. Yu, E.H., Wang, X., **Krewer, U.**, Li, L., Scott, K., *Direct Oxidation Alkaline Fuel Cells: From Materials to Systems*, *Energy & Environmental Science*, 5, pp. 5668-5680, 2012.
4. **Krewer, U.**, *Portable Energiesysteme: Von Elektrochemischer Wandlung bis Energy Harvesting*, *Chemie Ingenieur Technik*, 83(11), pp. 1974-1983, 2011.
5. Kraus, M., **Krewer, U.**, *Experimental Analysis of an Orientation Independent Gas/liquid Membrane Separator for Portable Direct Methanol Fuel Cell Systems*, *Separation and Purification Technology*, 81(3), pp. 347-356, 2011.
6. Kamat, A., Herrmann, M., Demian, T., **Krewer, U.**, Klein, O., Scholl, S., *Experimental Investigations into Phosphoric Acid Adsorption on Platinum Catalyst in a High Temperature PEM Fuel Cell*, *Fuel Cells*, 11(4), pp. 511-517, 2011.
7. **Krewer, U.**, Vidakovic-Koch, T., Rihko-Struckmann, L., *Electrochemical Oxidation of Carbon-containing Fuels and Their Dynamics in Low Temperature Fuel Cells*, *ChemPhysChem*, 12, pp. 2518-2544, 2011.
8. **Krewer, U.**, Zenith, F., Weinzierl, C. *Model-based Analysis of the Environmental Operating Range of Direct Methanol Fuel Cell Systems*, *Proceedings of the European Fuel Cell Forum 2011*, Ch. 12, pp. 44-50, 2011.
9. Zenith, F., **Krewer, U.**, *Simple and Reliable Model for Estimation of Methanol Cross-over in Methanol Fuel Cells and its Application on Methanol Concentration Control*, *Energy and Environmental Science*, 4, pp. 519-527, 2011.
10. Mao, Q., **Krewer, U.**, Hanke-Rauschenbach, R., *Total Harmonic Distortion Analysis for Direct Methanol Fuel cell Anode*, *Electrochemistry Communications*, 12, pp. 1517-1519, 2010.
11. Arisetty, S., **Krewer, U.**, Advani, S.G., Prasad, A.K., *Coupling of Kinetic and Mass Transfer Processes in Direct Methanol Fuel Cells*, *Journal of the Electrochemical Society*, 157, pp. B1443-B1455, 2010.
12. Yu, E.H., **Krewer, U.**, Scott, K., *Principles and Materials Aspects of Direct Alkaline Alcohol Fuel Cells*, *Energies*, 3, pp. 1499-1528, 2010.

13. Zenith, F., Weinzierl, C., **Krewer, U.**, *Model-based Analysis of the Feasibility Envelope for Autonomous Operation of a Portable Direct Methanol Fuel-Cell System*, Chemical Engineering Science, 65, pp. 4411-4419, 2010.
14. Zenith, F., **Krewer, U.**, *Modelling, Dynamics and Control of a Portable DMFC System*, Journal of Process Control, 20, pp. 630-642, 2010.
15. **Krewer, U.**, Hanke-Rauschenbach, R., *Kinetisch und Dynamisch*, Nachrichten aus der Chemie, 57, pp. 753-756, 2009.
16. Zenith, F., **Krewer, U.**, *Dynamics and Control of a Portable DMFC System*, Proceedings of the 7th International Conference on Fuel Cell Science, Engineering and Technology, pp. 351-360, 2009.
17. **Krewer, U.**, Park, J.Y., Lee, J.H., Cho, H.J., Pak, C.H., You, D.J., Lee, Y.H., *Low and High Temperature Storage Characteristics of Membrane Electrode Assemblies for Direct Methanol Fuel Cells*, Journal of Power Sources, 187, pp. 103-111, 2009.
18. **Krewer, U.**, Park, J.Y., Lee, J.H., Cho, H.J., Pak, C.H., You, D.J., Lee, Y.H., *Storage of DMFC MEA at Extreme Temperatures*, Proceedings of the 6th International Conference on Fuel Cell Science, Engineering and Technology - 2008, pp. 113-122, 2008.
19. Ko, D., Lee M., Jang, W.-H., **Krewer, U.**, *Non-isothermal Dynamic Modelling and Optimization of a Direct Methanol Fuel Cell*, Journal of Power Sources, 180, pp. 71-83, 2008.
20. **Krewer, U.**, Kim, H.T., Yoon, H.K., *Basic Model for Membrane Electrode Assembly Design for Direct Methanol Fuel Cells*, Journal of Power Sources, 175, pp. 760-772, 2007.
21. **Krewer, U.**, Kamat, A., Sundmacher, K., *Understanding the Dynamic Behaviour of Direct Methanol Fuel Cells: Response to Step Changes in Cell Current*, Journal of Electroanalytical Chemistry, 609 (2), pp. 105-119, 2007.
22. Reshетенko, T.V., Kim, H.T., **Krewer, U.**, Kweon, H.J., *The Effect of the Anode Loading and Method of MEA Fabrication on DMFC Performance*, Fuel Cells, 7 (3), pp. 238-245, 2007.
23. Schultz, T., **Krewer, U.**, Sundmacher, K., *Impact of Electrode Kinetics on the Dynamic Response of a DMFC to Change of Methanol Feed Concentration*, Journal of Power Sources, 165 (1), pp. 138-151, 2007.
24. **Krewer, U.**, Pfafferoth, M., Kamat, A., Fernandez Menendez D., Sundmacher, K., *Hydrodynamic Characterisation and Modelling of Anode Flow Fields of Direct Methanol Fuel Cells*, Chemical Engineering Journal, 126 (2-3), pp. 87-102, 2007.
25. Schultz, T., **Krewer, U.**, Vidakovic, T., Pfafferoth, M., Christov, M., Sundmacher, K., *Systematic Analysis of the Direct Methanol Fuel Cell*, Journal of Applied Electrochemistry, 37 (1), pp. 111-119, 2007.
26. **Krewer, U.**, Christov, M., Vidakovic, T., Sundmacher, K., *Impedance Spectroscopic Analysis of the Electrochemical Methanol Oxidation Kinetics*, Journal of Electroanalytical Chemistry, 589 (1), pp. 148-159, 2006.
27. **Krewer, U.**, Sundmacher, K., *Transfer Function Analysis of the Dynamic Behaviour of DMFCs: Response to Step Changes in Cell Current*, Journal of Power Sources, 154 (1), pp. 153-170, 2005.
28. **Krewer, U.**, Song, Y., Sundmacher, K., John, V., Lübke, R., Matthies, G., Tobiska L., *Direct Methanol Fuel Cell (DMFC): Analysis of Residence Time Behaviour of Anodic Flow Bed*, Chemical Engineering Science 59 (1), pp. 119-130, 2004.

29. **Krewer, U.**, Liauw, M.A., Ramakrishna, M., Hari Babu, M., Raghavan, K.V., *Pollution Prevention Through Solvent Selection and Waste Minimization*, Industrial and Engineering Chemistry Research 41 (18), pp. 4534-4542, 2002.

• CONFERENCE CONTRIBUTIONS (ORAL)

1. Schröder, D., **Krewer, U.**, *Modeling of Secondary Zinc Air Batteries - Environmental Condition Impact on Cycling Stability*, 9th Symposium on Fuel Cell and Battery Modeling and Experimental Validation (ModVal 9), Campus Sursee, Switzerland, Apr. 2-4, 2012.
2. Weinzierl, C., **Krewer, U.**, *Model-based Analysis of Water Management Demands in Alkaline Direct Methanol Fuel Cells (ADMFCs)*, 9th Symposium on Fuel Cell and Battery Modeling and Experimental Validation (ModVal 9), Campus Sursee, Switzerland, Apr. 2-4, 2012.
3. Kraus, M., **Krewer, U.**, *Modellbasierte Untersuchung von Mikroseparatoren zur Gas/Flüssig-Trennung*, Jahrestreffen der Fachgruppen Mechanische Flüssigkeitsabtrennung & Partikelmess-technik 2012, Bad Dürkheim, Germany, Feb. 29, 2012.
4. Khadke, P.S., **Krewer, U.**, *Determination of Transport Characteristics of Oxygen in Anion Exchange Ionomer for Alkaline Direct Methanol Fuel Cell Application*, International Workshop on Polymers at Electrodes: A Quarter of a Century Later, Bad Schandau, Germany, Nov. 6-9, 2011.
5. Schröder, D., **Krewer, U.**, *Basic Model for Secondary Zinc Air Batteries to Quantify Environmental Impacts*, 2011 AIChE Annual Meeting, Minneapolis, USA, Oct. 16-21, 2011.
6. Kraus, M., **Krewer, U.**, *Phase Selective Membrane based Separators for Portable Direct Methanol Fuel Cell Systems*, 2011 AIChE Annual Meeting, Minneapolis, USA, Oct. 16-21, 2011.
7. Khadke, P.S., **Krewer, U.**, *Performance Stability in Alkaline Direct Methanol Fuel Cell*, 210th ECS Meeting and Electrochemical Energy Summit, Boston, USA, Oct. 9-14, 2011.
8. Kraus, M., **Krewer, U.**, *Orientation independent gas/liquid separation in micro structures*, 10. Magdeburger Maschinenbau-Tage, Magdeburg, Germany, Sept. 27-29 2011.
9. Kraus, M., **Krewer, U.**, *Orientation Independent Gas/Liquid Separation in Micro Structures*, 8th European Congress of Chemical Engineering, Berlin, Germany, Sept. 25- 29, 2011.
10. **Krewer, U.**, Zenith, F., Weinzierl, C., *Model-based Analysis of the Environmental Operating Range of Direct Methanol Fuel Cell Systems*, European Fuel Cell Forum 2011, Lucerne, Switzerland, June 28- July 1, 2011.
11. **Krewer, U.**, *Model-based Analysis of Portable DMFC Systems*, Small Fuel Cells 2011: Fuel Cells & Hybrid Devices for Commercial & Military Applications, Boston, USA, June 9-10, 2011.
12. **Krewer, U.**, *Frontiers in Direct Methanol Fuel Cell Research*, International Fuel Cell Forum 2011, Green Energy Expo 2011, Daegu, South Korea, April 6- 8, 2011.
13. Qing, M., **Krewer, U.**, Hanke-Rauschenbach, R., *Linear and Nonlinear Frequency Response Analysis for DMFC Electrodes*, 3rd International Workshop on Impedance Spectroscopy, Chemnitz, Germany, Oct. 22-23, 2010.
14. Qing, M., **Krewer, U.**, Hanke-Rauschenbach, R., *Total Harmonic Distortion Analysis for DMFC Anode*, 61st Annual Meeting of the International Society of Electrochemistry, Nice, France, Sept. 26- Okt. 1, 2010.

15. **Krewer, U.**, Khadke, P.S., Weinzierl, C., *Optimisation of Three-phase Boundary in Alkaline Direct Methanol Fuel Cells*, 8th International Symposium on New Materials and Nano Materials for Electrochemical Systems, Shanghai, China, July 11-15, 2010.
16. Zenith, F., **Krewer, U.**, *System-Analysis of Portable Direct Methanol Fuel Cell Systems*, World Hydrogen Energy Conference 2010, Essen, May 16-21, 2010.
17. Kamat, A., Klein O., **Krewer U.**, Scholl S., *Hysteresis Investigations in a PBI/Phosphoric Acid Based High Temperature PEMFC*, 7th Symposium on Fuel Cell Modelling and Experimental Validation (MODVAL 7), Morges, Switzerland, March 22-24, 2010.
18. Zenith, F., **Krewer, U.**, *Conditions for Autonomy of Methanol Fuel-Cell Systems*, 7th Symposium on Fuel Cell Modelling and Experimental Validation (MODVAL 7), Morges, Switzerland, March 22-24, 2010.
19. **Krewer, U.**, Zenith, F., *Systemanalyse und Prozessführung von Portablen Direkt-Methanol-Brennstoffzellen-Systemen*, ProcessNet-Jahrestagung 2009, Mannheim, Sept. 9-11, 2009.
20. Zenith, F., **Krewer, U.**, *Dynamics and Control of a Portable DMFC System*, 7th International Conference on Fuel Cell Science, Engineering and Technology, Newport Beach, USA, June 8-10, 2009.
21. Arisetty, S., **Krewer, U.**, Advani, S.G., Prasad, A.K., *Cathode Potential of DMFC: Kinetics and Mass Transfer*, 7th International Conference on Fuel Cell Science, Engineering and Technology, Newport Beach, USA, June 8-10, 2009.
22. **Krewer, U.**, Park, J.Y., Lee, J.H., Cho, H.J., *Storage of DMFC MEA at Extreme Temperatures*, 6th International Conference on Fuel Cell Science, Engineering and Technology, Denver, USA, June 16-18, 2008.
23. **Krewer, U.**, Park, J.Y., Lee, J.H., Cho, H.J., *Low and High Temperature Storage Characteristics of DMFC MEA*, 4th Samsung Tech. Conference, Giheung, South Korea, Nov. 07-09, 2007.
24. **Krewer, U.**, Kim, H.T., Yoon, H.K., *Basic Model for DMFC MEA Design*, 5th International Conference on Fuel Cell Science, Engineering and Technology, New York, USA, June 18-20, 2007.
25. Vidakovic, T., **Krewer, U.**, Christov, M., Sundmacher, K., *Determination of Rate Expression for Electrochemical Oxidation of Methanol*, International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface, Krakow, Poland, May 28 - June 01, 2006.
26. **Krewer, U.**, Christov, M., Vidakovic, T., Sundmacher, K., *Analysis of the Kinetics of the Electrochemical Methanol Oxidation in a Cyclone Flow Cell*, 207th Meeting of the Electrochemical Society, Quebec City, Canada, May 15-20, 2005.
27. **Krewer, U.**, Christov, M., Sundmacher, K., Vidakovic, T., *Kinetische Analyse der elektrochemischen Oxidation von Methanol in einer Zyklonströmungszelle*, DECHEMA/ GVC-Fachsektion Reaktionstechnik, DECHEMA-Arbeitsausschuss Technische Reaktionen, GVC-Fachausschüsse Technische Reaktionsführung und Energieverfahrenstechnik, Bad Herrenalb, Germany, March 07-09, 2005.
28. **Krewer, U.**, Sundmacher, K., *Transfer Function Analysis of the Direct Methanol Fuel Cell's Response to Dynamic Changes in Cell Current*, Proceedings of the 24th IASTED International Conference on Modelling, Identification and Control, Innsbruck, Austria, pp. 310-315, Feb. 15-18, 2005.

29. **Krewer, U.**, Schultz, T., Sundmacher, K., *Direct Methanol Polymer Electrolyte Fuel Cell: Transfer Function Analysis of Current-Voltage Dynamics*, Fuel Cell Research Symposium: Modelling and Experimental Validation, Zürich, Switzerland, March 18/19, 2004.

● CONFERENCE CONTRIBUTIONS (POSTER)

27. Zenith, F., **Krewer, U.**, *Process Integration in a Direct Methanol Fuel Cell System*, Hydrogen and Fuel Cells in the Nordic Countries 2011, Malmö, Sweden, Oct. 25-26, 2011.
28. Weinzierl, C., **Krewer, U.**, *Analysis of the Water Balance in Alkaline Direct Methanol Fuel Cells (ADMFCs)*, 8th European Congress of Chemical Engineering, Berlin, Germany, Sept. 25- 29, 2011.
29. Kraus, M., **Krewer, U.**, *Capillary based gas/liquid separation for portable DMFC-Systems*, Small Fuel Cells 2011: Fuel Cells & Hybrid Devices for Commercial & Military Applications, Boston, USA, June 9-10, 2011.
30. Weinzierl, C., **Krewer, U.**, *Modelling Extreme Case Scenarios for Cathodic Water Supply in Alkaline Direct Methanol Fuel Cells (ADMFCs)*, 8th Symposium on Fuel Cell Modeling and Experimental Validation, Bonn, Germany, March 7-9, 2011.
31. **Krewer, U.**, Schymaniuk, S., Müller, M., Mergel, J., *Methanol Concentration Sensing in and with Direct Methanol Fuel Cells*, 61st Annual Meeting of the International Society of Electrochemistry, Nice, France, Sept. 26- Okt. 1, 2010.
32. Kraus, M., **Krewer, U.**, *Lageunabhängige Gas/Flüssigkeitstrennung in Mikrostrukturen*, ProcessNet-Jahrestagung 2010, Aachen, Germany, Sept. 21-23, 2010.
33. Khadke, P., Weinzierl, C., **Krewer, U.**, *Electrochemical Studies of Alkaline Direct Methanol Fuel Cell with Different Ionomer Content in Catalyst Layer*, Materials for Energy 2010, Karlsruhe, Germany, July 4-8 2010.
34. **Krewer, U.**, *Portable Energy Systems*, 2009 German-American Frontiers of Engineering Symposium, Potsdam, Germany, Apr. 22-25, 2009.
35. **Krewer, U.**, Park, J.Y., Lee, J.H., Cho, H.J., *Low and High Temperature Storage Characteristics of DMFC MEA*, Fuel Cells Science & Technology 2008: Scientific Advances in Fuel Cell Systems, Copenhagen, Denmark, Oct. 08-09, 2008.
36. **Krewer, U.**, Jang, W.H., Yoon H.K., Kim H.T., *Model-based Performance Prediction of Direct Methanol Fuel Cells*, 3rd Samsung Tech. Conference, Giheung, South Korea, Nov. 06-10, 2006.

● FURTHER INVITED TALKS/CONTRIBUTIONS

1. **Krewer, U.**, Schröder, D., Weinzierl, C., Mao, Q., *Analysis and Design of Electrochemical Energy Systems*, Workshop: Mathematische Modellierung und experimentelle Untersuchung elektrochemischer Prozesse in Energiespeichersystemen, WIAS, Berlin, Germany, Nov. 21-22, 2011.
2. **Krewer, U.**, *Analysis and Design of Electrochemical Energy Systems*, Seminar of the Max Planck Institute for Solid State Research, Stuttgart, Germany, April 13, 2011.
3. **Krewer, U.**, *Systematic Analysis of Direct Methanol Fuel Cell Systems*, Seminar at the Korean Institute for Energy Research, Daejeon, South Korea, April 5, 2011.

4. **Krewer, U.**, *Model-based Analysis of Electrochemical Energy Systems*, Seminar at the Samsung Advanced Institute of Technology, Giheung, South Korea, April 4, 2011.
5. **Krewer, U.**, *Influence of Reactant Transport on Methanol Fuel Cells and Their Systems* Seminar of the Institute of Micro Process Engineering, Karlsruhe Institute of Technology, Karlsruhe, Germany, March 10, 2011.
6. **Krewer, U.**, *Influence of Reactant Transport on Electrochemical Energy Systems*, Seminar at the Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany, Feb. 17, 2011.
7. **Krewer, U.**, *Using System Analysis for Optimising Electrochemical Energy Systems*, Energiespeichertechnisches Seminar, TU München, Munich, Germany, Dec. 13, 2010.
8. **Krewer, U.**, *Analyse und Design von DMFCs und Portablen Brennstoffzellen*, Workshop MPI - ISE, Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany, Dec. 13, 2010.
9. **Krewer, U.**, *Direkt-Methanol-Brennstoffzelle: Zwischen Grundlagenforschung und Anwendung*, GDCh-Kolloquium, Krefeld, Germany, July 15, 2010.
10. **Krewer, U.**, *Research trends and application issues of Li-ion batteries based on cell chemistry*, Kolloquium des State Research Center for Fuel Cell Vehicle And Power Train System Engineering Technologies, Tongji University, Shanghai, Germany, July 9, 2010.
11. **Krewer, U.**, *Die Direkt-Methanol-Brennstoffzelle als Komplexes Portables Kraftwerk*, Jahressitzung der Wasserstoff-Technologie-Initiative Mecklenburg-Vorpommern, Leibniz-Institut für Katalyse, Rostock, Germany, Dec. 10, 2010.
12. **Krewer, U.**, Hanke-Rauschenbach, R., *Optimierung von Direkt-Methanol-Brennstoffzellen - Analyse der Methanoloxidation*, HZwei, 10, pp. 23-25, 2009.
13. **Krewer, U.**, *Analysis and Design of Direct Methanol Fuel Cells*, Graduiertenschule Chemische Reaktionen in Grünen Lösemitteln – Nachhaltige Prozesse Verstehen und Optimieren, University of Potsdam, Golm, Germany, May 29, 2009.
14. **Krewer, U.**, *Direkt-Methanol-Brennstoffzelle: Zwischen Grundlagenforschung und Anwendung*, GDCh-Kolloquium, Aachen, Germany, Jan. 13, 2009.
15. **Krewer, U.**, *Neue Energietechnologien und Ihre Rohstoffe*, 24. FDBR-Fachtagung Rohrleitungstechnik, Magdeburg, Germany, March 24/25, 2009.

• PATENTS

1. **Krewer, U.**, Park, J.-Y., Lee, J.-H., Cho, H.-J., Ichinose, T., *Fuel Cell System And Operating Method Thereof*, KR 2009/0081623A (Korea), US 2009/191433A1 (USA).
2. **Krewer, U.**, Kim, H.T., *Method and Apparatus for Controlling Fuel Concentration in Direct Liquid Fuel Cell*, KR 2009/0043966A (Korea), US 2009/0110968 A1 (USA), EP 2056385A2 (EU), JP 2009/110919A (Japan), CN 101425592A (China).
3. Ko, D., Park, J., Jang, W., **Krewer, U.**, Suh, D., Park, T., Cho, E., Kong, S., Kim, D., *Mixing Tank and Fuel Cell System Possessing the Same*, KR 2008/0085325 (Korea), US 2008/0233449 A1 (USA).