

Publication list Dr. Gunther Kolb

Publications in peer-reviewed Journals (best publications are indicated by bold type letters):

[1-53] {O'Connell, 2012 #6614; Ziogas, 2012 #6621; Kolb, 2012 #6732}#6[55]617;
[56-67]

- J[1] Kolb, G., Hofmann, H.; „*Gewinnung kinetischer Daten mit Hilfe einer adaptiven, modellgestützten Steuerung nach dem Prinzip der Konzentrationsregelung eines gradientenlosen Reaktors*“, Chem. Ing. Tech. **65**, 9 (1993) 1098.
- J[2] Hofmann, H., Kolb, G.; “*Experimental methods for the determination of coke formation and deactivation kinetics of heterogeneous catalysts*”, in Delmon, B. a. F., G.F. (Ed.) *Stud. Surf. Sci. Catal.*, Vol. 88, 257-263, Elsevier Ltd., Shannon, (1994).
- J[3] Kolb, G., Niu, F., Hofmann, H.; “*In-situ regeneration of the coked Y-zeolite under supercritical conditions by example of ethylbenzene disproportionation*”, Chemische Technik **47**, 2 (1995) 68.
- J[4] Niu, F., Kolb, G., Hofmann, H.; “*Deactivation kinetics and modelling of coke removal under supercritical conditions for the example of ethylbenzene disproportionation*”, Chem. Eng. Technol. **18**, 4 (1995) 278.
- J[5] Zapf, R., Becker-Willinger, C., Berresheim, K., Holz, H., Gnaser, H., Hessel, V., Kolb, G., Löb, P., Pannwitt, A.-K., Ziogas, A.; “*Detailed characterization of various porous alumina based catalyst coatings within microchannels and their testing for methanol steam reforming*”, Chem. Eng. Res. Dev. **A 81**, (2003) 721-729.
- J[6] Kolb, G., Hessel, V.; “*Micro-structured reactors for gas phase reactions: a review*”, Chem. Eng. J. **98**, 1-2 (2004) 1-38.
- J[7] Kolb, G., Zapf, R., Hessel, V., Löwe, H.; “*Propane steam reforming in micro-channels - results from catalyst screening and optimisation*”, Appl. Catal. A **277**, (2004) 155-166.
- J[8] Men, Y., Gnaser, H., Zapf, R., Kolb, G., Ziegler, C.; “*Steam reforming of methanol over Cu/CeO₂/γ-Al₂O₃ catalysts in a microchannel reactor*”, Appl. Catal. A **277**, (2004) 83-90.
- J[9] Ciumasu, I. M., Krämer, P. M., Weber, C. M., Kolb, G., Tiemann, D., Windisch, S., Frese, I., Kettrup, A. A.; “*A new, versatile field immunosensor for environmental pollutants: Development and proof of principle with TNT, diuron and atrazin*”, Biosensors and Bioelectronics **21**, 2 (2005) 354-364.
- J[10] Cominos, V., Hardt, S., Hessel, V., Kolb, G., Löwe, H., Wichert, M., Zapf, R.; “*A methanol steam micro-reformer for low power fuel cell applications*”, Chem. Eng. Comm. **192**, 5 (2005) 685-698.
- J[11] Cominos, V., Hessel, V., Hofmann, C., Kolb, G., Zapf, R., Ziogas, A., Delsman, E., Schouten, J.; “*Selective oxidation of carbon monoxide in a hydrogen-rich fuel cell feed using a catalyst coated microstructured reactor*”, Catal. Today **110**, 1-2 (2005) 140-153.
- J[12] Kolb, G., Cominos, V., Tiemann, D., Zapf, R., Hessel, V., Loewe, H.; „*Die katalytische Oxidation von Brennstoffen in Mikrokanälen zur Energieerzeugung für Reformierprozesse am Beispiel von Methanol und Propan*“, Chem. Ing. Tech. **76**, 9 (2005) 1330-1331.
- J[13] Kolb, G., Cominos, V., Hofmann, C., Pennemann, H., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V., Löwe, H.; “*Integrated microstructured fuel*

- processors for fuel cell applications”, Chem. Eng. Res. Design* **83**, A6 (2005) 626-633.
- J[14] Kolb, G., Pennemann, H., Zapf, R.; “*Water-gas shift reaction in micro-channels—Results from catalyst screening and optimisation*”, Catal. Today **110**, 1-2 (2005) 121-131.
- J[15] Men, Y., Gnaser, H., Ziegler, C., Zapf, R., Hessel, V., Kolb, G.; “*Characterization of Cu/CeO₂/γ-Al₂O₃ thin film catalysts by thermal desorption spectroscopy*”, Catalysis Letters **105**, 1-2 (2005) 35-40.
- J[16] Hessel, V., Kolb, G., Cominos, V., Löwe, H., Nikolaidis, G., Zapf, R., Ziogas, A., Schouten, J. C., Delsman, E. R., de Croon, M. H. J. M., Santamaria, J., de la Iglesia, O., Mallada, R.; “*Selective oxidations in microstructured catalytic reactors - a review and an overview of own work on fuel processing for fuel cells*”, Oil Gas European Magazine **32**, 2 (2006) 83-93.
- J[17] Kolb, G., Hessel, V., Cominos, V., Pennemann, H., Schürer, J., Zapf, R., Löwe, H.; “*Microstructured fuel processors for fuel-cell applications*”, Journal of Materials Engineering and Performance **15**, 4 (2006) 389-393.
- J[18] Hessel, V., Kolb, G., Cominos, V., Löwe, H., Nikolaidis, G., Zapf, R., Ziogas, A., Schouten, J. C., Delsman, E. R., de Croon, M. H. J. M., Santamaria, J., de la Iglesia, O., Mallada, R.; “*Selective oxidations in microstructured catalytic reactors A review and an overview of own work on fuel processing for fuel cells*”, Erdöl Erdgas Kohle **122**, 6 (2006) 83-93.
- J[19] Zapf, R., Kolb, G., Pennemann, H., Hessel, V.; “*Basic study of the adhesion of several alumina-based washcoats deposited onto stainless steel microchannels*”, Chem. Eng. Technol. **29**, 12 (2006) 1509-1512.
- J[20] Baier, T., Kolb, G.; “*Temperature control of the water-gas shift reaction in microstructured reactors*”, Chem. Eng. Sci. **62**, 17 (2007) 4602-4611.
- J[21] de la Iglesia, O., Sebastian, V., Mallada, R., Nikolaidis, G., Coronas, J., Kolb, G., Zapf, R., Santamaria, J.; “*Preparation of Pt/ZSM-5 films on stainless steel microreactors*”, Catal. Today **125**, 1-2 (2007) 2-10.
- J[22] Guan, G., Zapf, R., Kolb, G., Men, Y., Hessel, V., Löwe, H., Ye, J., Zentel, R.; “*Low temperatue catalytic combustion of propane over Pt/Al₂O₃ catalyst with inverse opal microstructure in microchannel reactor*”, Chem. Comm. **3**, (2007) 260-262.
- J[23] Hardt, S., Schilder, B., Tiemann, D., Kolb, G., Hessel, V., Stephan, P.; “*Analysis of flow patterns emerging during evaporation in parallel microchannels*”, Int. J. Heat Mass Transfer **50**, (2007) 226-239.
- J[24] Kolb, G., Hessel, V., Cominos, V., Hofmann, C., Löwe, H., Nikolaidis, G., Zapf, R., Ziogas, A., Delsman, E. R., de Croon, M. H. J. M., Schouten, J. C., de la Iglesia, O., Mallada, R., Santamaria, J.; “*Selective oxidations in micro-structured catalytic reactors- For gas-phase reactions and specifically for fuel processing for fuel cells*”, Catal. Today **120**, 1 (2007) 2-20.
- J[25] Kolb, G., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V., Löwe, H.; “*Fuel Processing in Integrated Microstructured Heat-Exchanger Reactors*”, J. Power Sources **171**, 1 (2007) 198-204.
- J[26] Men, Y., Kolb, G., Zapf, R., Hessel, V., Löwe, H.; “*Selective methanation of carbon oxides in a microchannel reactor – primary screening and impact of additives*”, Catal. Today **125**, (2007) 81-87.
- J[27] Men, Y., Kolb, G., Zapf, R., Hessel, V., Löwe, H.; “*Ethanol steam reforming in a microchannel reactor*”, Process Saf. Environ. Prot. **85**, B5 (2007) 413-418.
- J[28] Guan, G., Zapf, R., Kolb, G., Hessel, V., Löwe, H., Ye, J., Zentel, R.; “*Preferential CO oxidation over catalysts with well-defined inverse opal structure in microchannels*”, Int. J. Hydrogen Energy **33**, 2 (2008) 797-801.

- J[29] Kolb, G., Baier, T., Schürer, J., Tiemann, D., Ziogas, A., Ehwald, H., Alphonse, P.; “*A micro-structured 5 kW complete fuel processor for iso-octane as hydrogen supply system for mobile auxiliary power units. Part I - development of the autothermal catalyst and reactor*”, Chem. Eng. J. **137**, 1-3 (2008) 653-663.
- J[30] Kolb, G., Baier, T., Schürer, J., Tiemann, D., Ziogas, A., Specchia, S., Galetti, E., Germani, G., Schuurman, Y.; “*A micro-structured 5 kW complete fuel processor for iso-octane as hydrogen supply system for mobile auxiliary power units. Part II - Development of water-gas shift and preferential oxidation reactors and assembly of the fuel processor*”, Chem. Eng. J. **138**, 3 (2008) 474-489.
- J[31] Men, Y., Kolb, G., Zapf, R., Tiemann, D., Wichert, M., Hessel, V., Löwe, H.; “*A complete miniaturised microstructured methanol fuel processor / fuel cell system for low power applications*”, Int. J. Hydrogen Energy **33**, 4 (2008) 1374-1382.
- J[32] Pennemann, H., Hessel, V., Kolb, G., Löwe, H., Zapf, R.; “*Partial oxidation of propane using a micro structured reactor*”, Chem. Eng. J. **135**, 1 (2008) S66-S73.
- J[33] Sebastian, V., de la Iglesia, O., Mallada, R., Casado, L., Kolb, G., Hessel, V., Santamaria, J.; “*Preparation of zeolite films as catalyst coatings on microreactor channels*”, Microp. Mesopor. Mat. **115**, 1-2 (2008) 147-155.
- J[34] Snytnikov, P. V., Popova, M. M., Men, Y., Rebrov, E. V., Kolb, G., Hessel, V., Schouten, J. C., Sobyanin, V. A.; “*Preferential CO oxidation over a copper-cerium oxide catalyst in a microchannel reactor*”, Appl. Catal. A **350**, (2008) 53-62.
- J[35] Nikolaidis, G., Baier, T., Zapf, R., Kolb, G., Hessel, V., Maier, W. F.; “*Kinetic study of CO preferential oxidation over Pt/Rh/ γ -Al₂O₃ catalyst in a microstructured recycle reactor*”, Catal. Today **145**, (2009) 90-100.
- J[36] O’Connell, M., Kolb, G., Zapf, R., Men, Y., Hessel, V.; “*Bimetallic catalysts for the catalytic combustion of methane using microreactor technology*”, Catal. Today **144**, (2009) 306-311.
- J[37]** Kolb, G., Hofmann, C., O’Connell, M., Schürer, J.; “*Micro-structured reactors for diesel steam reforming, water-gas shift and preferential oxidation in the kilowatt power range*”, Catal. Today **147**, (2009) 176-184.
- J[38] Men, Y., Kolb, G., Zapf, R., Pennemann, H., Hessel, V.; “*Total Combustion of propane in a catalytic microchannel combustor*”, Chem. Eng. Res. Design **87**, 1 (2009) 91-96.
- J[39] O’Connell, M., Kolb, G., Schelhaas, K. P., Schürer, J., Tiemann, D., Ziogas, A., Hessel, V.; “*Development and evaluation of a microreactor for the reforming of diesel fuel in the kW range*”, Int. J. Hydrogen Energy **34**, (2009) 6290-6303.
- J[40] Kolb, G., Schelhaas, K.-P., Wichert, M., Burfeind, J., Hesske, C., Bandlamudi, G.; „*Entwicklung eines mikrostrukturierten Methanolreformers gekoppelt mit einer Hochtemperatur-PEM Brennstoffzelle*”, Chem. Ing. Tech. **81**, 5 (2009) 619-628.
- J[41] Ziogas, A., Kolb, G., O’Connell, M., Attour, A., Lapicque, F., Matlosz, M., Rode, S.; “*Electrochemical Microstructured Reactors: Design and Application in Organic Synthesis*”, J. Appl. Electrochem. **39**, (2009) 2297-2313.
- J[42] Men, Y., Kolb, G., Zapf, R., O’Connell, M., Hessel, V.; “*Selective methanation of carbon monoxide in hydrogen-rich reformate using microstructured reactor*”, Chem. Lett. **38**, 8 (2009) 824-825.
- J[43] Kolb, G., Schelhaas, K.-P., Wichert, M., Burfeind, J., Hesske, C., Bandlamudi, G.; “*Development of a Microstructured Methanol Fuel Processor coupled to a High Temperature PEM Fuel Cell*”, Chem. Eng. Technol. **32**, 11 (2009) 1739-1747.
- J[44] O’Connell, M., Kolb, G., Schelhaas, K. P., Schuerer, J., Tiemann, D., Ziogas, A., Hessel, V.; “*An investigation into the transient behaviour of a microreactor system for the reforming of diesel fuel in the kW range*”, Chem. Eng. Technol. **32**, 11 (2009) 1790-1798.

- J[45] O'Connell, M., Kolb, G., Schelhaas, K. P., Schuerer, J., Tiemann, D., Ziogas, A., Hessel, V.; “*The development and evaluation of microstructured reactors for the water-gas shift and preferential oxidation reactions in the 5 kW range*”, Int. J. Hydrogen Energy **35**, (2010) 2317-2327.
- J[46] O'Connell, M., Kolb, G., Schelhaas, K.-P., Schuerer, J., Tiemann, D., Keller, S., Reinhard, D., Hessel, V.; “*An investigation into an integrated water gas shift and preferential oxidation reactor system on the kW scale*”, Ind. Eng. Chem. Res. **49**, 21 (2010), 10917-10923.
- J[47] O'Connell, M., Kolb, G., Pennemann, H., Zapf, R., Hessel, V.; “*Systemic aspects of micro-process engineering*”, Chemistry Today **28**, 4 (2010) 5-7.
- J[48] Men, Y., Kolb, G., Zapf, R., O'Connell, M., Ziogas, A.; “*Methanol steam reforming over bimetallic Pd-In/Al₂O₃ catalysts in a microstructured reactor*”, Appl. Catal. A **380**, (2010) 15-20.
- J[49] Kolb, G., Men, Y., Schelhaas, K. P., Tiemann, D., Zapf, R., Wilhelm, J.; “*Development Work on a Microstructured 50 kW Ethanol Fuel Processor for a Small Scale Stationary Hydrogen Supply System*”, Ind. Eng. Chem. Res. **50**, (2011) 2554-2561.
- J[50] Wichert, M., Men, Y., O'Connell, M., Tiemann, D., Zapf, R., Kolb, G., Butschek, S., Frank, R., Schiegl, A.; “*Self-sustained operation and durability test of a 300 W-class micro-structured LPG fuel processor*”, Int. J. Hydrogen Energy **36**, (2011) 3496-3504.
- J[51] Kolb, G., Keller, S., Pcov, S., Pennemann, H., Zapf, R.; “*Development of Microstructured Catalytic Wall Reactors for Hydrogen Production by Methanol Steam Reforming over Novel Pt/In₂O₃/Al₂O₃ Catalysts*”, Chem. Eng. Trans. **24**, Part 1 (2011) 133-138.
- J[52] Ziogas, A., Kolb, G., Kost, J., Hessel, V.; „*Entwicklung einer leistungsstarken Mikrorektifikationsapparatur für analytische und präparative Anwendungen*“, Chem. Ing. Tech. **83**, 4 (2011) 1-15.
- J[53] **G. Kolb, S. Keller, D. Tiemann, K.P. Schelhaas, J. Schuerer, O. Wiborg**, “*Design and Operation of a Compact Micro-channel 5 kW_{el,net} Methanol Steam Reformer with Novel Pt/In₂O₃ Catalyst for Fuel Cell Applications*”; Chem. Eng. J. **207-208** (2012) 388-402.
- J[54] Izquierdo, U., Barrio, V. L., Cambra, J. F., Requies, J., Guemes, M. B., Arias, P. L., Kolb, G., Zapf, R., Gutierrez, A. M., Arraibi, J. R.; “*Hydrogen production from methane and natural gas steam reforming in conventional and microreactor systems*”, Int. J. Hydrogen Energy **37**, (2012) 7026-7033.
- J[55] O'Connell, M., Kolb, G., Schelhaas, K.-P., Wichert, M., Tiemann, D., Pennemann, H., Zapf, R.; “*Towards mass production of microstructured fuel processors for application in future distributed energy generation systems: A review of recent progress at IMM*”, Chem. Eng. Res. Design **90** (2012) 11-18.
- J[56] Ziogas, A., Cominos, V., Kolb, G., Kost, J., Werner, B., Hessel, V.; “*Development of a microrectification apparatus for analytical and preparative applications*”, Chem. Eng. Technol. **35**, 1 (2012) 58-71.
- J[57] Kolb, G., Braune, T., Schuerer, J., Tiemann, D.; “*Microstructured plate heat exchanger reactors for high temperature applications*”, Chem. Ing. Tech. **85**, 10 (2013) 1619-1623.
- J[58] Kolb, G., Keller, S., O'Connell, M., Pcov, S., Schuerer, J., Spasova, B., Tiemann, D., Ziogas, A.; “*Microchannel Fuel Processors as Hydrogen Source for Fuel Cells in Distributed Energy Supply Systems*”, Energy and Fuels **27**, (2013) 4395-4402.
- J[59] Barbosa, R., Papaefthimiou, V., Law, Y. T., Teschner, D., Haevecker, M., Knop-Gericke, A., Zapf, R., Kolb, G., Schloegl, R., Zafeiratos, S.; “*Methanol steam*

- reforming over Indium-promoted Pt/Al₂O₃ catalyst: The nature of the active surface”, J. Phys. Chem. C **117**, 2 (2013) 6134-6150.*
- J[60] Hessel, V., Anastasopoulou, A., Wang, Q., Kolb, G., Lang, J.; “*Energy, catalyst and reactor considerations for (near)-industrial plasma processing and learning for nitrogen-fixation reactions*”, Catal. Today **211**, (2013) 9-28.
- J[61] Kolb, G.; “*Review: Micro-structured Reactors for Distributed and Renewable Production of Fuels and Electrical Energy*”, Chem. Eng. Proc. **65**, 3 (2013) 1-44.
- J[62] Pennemann, H., Dobra, M., Wichert, M., Kolb, G.; “*Optimisation of wash-coating slurries as catalyst carrier for screen printing into microstructured reactors*”, Chem. Eng. Technol. **36**, 6 (2013) 1033-1041.
- J[63] R. Zapf, R. Thiele, R. Wichert, M. O’Connell, M. Ziogas, A. Kolb, G. *Application of rhodium nanoparticles for steam reforming of propane in microchannels*, Catal. Com., **41** (2013) 140-145.
- J[64] Vural Guersel, I., Wang, Q., Noel, T., Kolb, G., Hessel, V., Van Veen, A. C.; “*Heat-integrated novel process of liquid fuel production from bioresources- Process simulation and costing study*”, Chem. Eng. Trans. **39**, (2014) 931-936.
- J[65] Neuberg, S., Keller, S., O’Connell, M., Schuerer, J., Thiele, R., Zapf, R., Ziogas, A., Kolb, G.; “*Effect of oxygen addition on the water-gas shift reaction over Pt/CeO₂ catalysts in microchannels – Results from catalyst testing and reactor performance in the kW scale*”, Int. J. Hydrogen Energy **39** (2014) 18120-18127.
- J[66] Schuerer, J., Thiele, R., Wiborg, O., Ziogas, A., Kolb, G.; “*Synthesis of biodiesel in microstructured reactors under supercritical reaction conditions*”, Chem. Eng. Trans. **37**, (2014) pp. 541-546.
- J[67] Izquierdo, U., Wichert, M., Barrio, V. L., Kolb, G.; “*Sustainable syngas production from ethylene glycol reforming processes using Rh-based catalyst in microreactors*”, Applied Catalysis B: Environmental **152-153**, 6 (2014) 19-27.
- J[68] Kolb, G., O’Connell, M., Kiesewalter, S.; “*Energy systems for a greener future*”, Green Process Synth **3**, 1 (2014) 81-84.
- J[69] Izquierdo, U., Wichert, M., Kolb, G., Barrio, V. L., Zapf, R., Ziogas, A., Neuberg, S., Ariasa, P. L., Cambra, J. F.; “*Micro reactor hydrogen production from ethylene glycol reforming using Rh catalysts supported on CeO₂ and La₂O₃ promoted α-Al₂O₃*”, Int. J. Hydrogen Energy **39**, 10 (2014) 5248-5256.
- J[70] Spasova, B., Tiemann, D., O’Connell, M., Ziogas, A., Kolb, G., hessel, V.; “*Synthesis gas production from methane and propane in a miniaturized GlidArc® reformer*”, Int. J. Hydrogen Energy **39**, 24 (2014) 12657-12666.
- J[71] Wang, Q., Spasova, B., Hessel, V., Kolb, G.; “*Methane reforming in a small scale-scaled plasma reactor – industrial application of a plasma process from the viewpoint of the environmental profile*”, Chem. Eng. J. **262**, (2015) 766-774.
- J[72] Wiborg, J. O., O’Connell, M., Thiele, R., Wichert, M., Kolb, G., ; “*Automated and continuous production of microstructured metallic plates via cold embossing*”, Chem. Eng. Technol. **38**, 8 (2015) 1308-1314.
- J[73] Neuberg, S., Pennemann, H., Wiborg, O., Wichert, M., Zapf, R., Ziogas, A., Kolb, G.; “*Thermocatalytic decomposition of propane for pure hydrogen production and subsequent carbon gasification: Activity and long-term stability of Ni/Al₂O₃ based catalysts*”, Catal. Today **242**, (2015) 139-145.
- J[74] Avgouropoulos, G., Schlicker, S., Schelhaas, K. P., Papavasiliou, J., Papadimitriou, K. D., Theodorakopoulou, E., Gourdoupi, N., Machocki, A., Ioannides, T., Kallitsis, J. K., Kolb, G., Neophytides, S.; “*Performance evaluation of a proof-of-concept 70 W internal reforming methanol fuel cell system*”, J. Power Sources **307**, (2016) 875-882.
- J[75] Dolanc, G., Pregelj, B., Petrov, J., Pasel, J., Kolb, G.; “*Control of autothermal reforming reactor of diesel fuel*”, J. Power Sources **313**, (2016) 223-232.

- J[76] Pennemann, H., Kolb, G.; “*Review: Microstructured Reactors as efficient tool for the operation of selective oxidation reactions*”, Catal. Today (2016) **278** 3-21.
- J[77] Schuerer, J., Bersch, D., Schlicker, S., Thiele, R., Wiborg, J. O., Ziogas, A., Zapf, R., Kolb, G.; “*Operation of a small scale demonstration plant for biodiesel synthesis under supercritical conditions*”, Chem. Eng. Technol. **39** (2016) 2151-2163.
- J[78] Wichert, M., Zapf, R., Ziogas, A., Klemm, E., Kolb, G.; “*Kinetic Investigations of the Steam Reforming of Methanol over a Pt/In₂O₃/Al₂O₃ Catalyst in Microchannels*”, Chem. Eng. Sci. **155** (2016) 201-209.
- J[79] Shanmugam, V., Neuberg, S., Zapf, R., Hessel, V., Kolb, G.; “*Novel route to control the size, distribution and location of Ni nanoparticles in mesoporous silica for steam reforming of propylene glycol on microchannel reactor*”, Catal. Com. **83** (2016) 43-47.
- J[80] Liu, D. Wang, J., Liu, X., Wang, Y. Sun, Q. Men, Y., Kolb, G.; “*Highly Active and Durable Bimetallic Pt-In/Al₂O₃ Catalysts in Methanol Steam Reforming*”, Int. J. Hydrogen Energy, **41** (2016) 21990-21999.
- J[81] Sundaram, S., Kolb, G., Hessel, V., Wang, Q.; “*Energy-efficient routes for the production of gasoline from Biogas and pyrolysis oil- process design and life-cycle assessment*”, ACS Sust. Chem. & Eng., **56** (2017) 3373-3387.
- J[82] Izquierdo, U., Pennemann, H., Zapf, R., Barrio, V.L., Kolb, G.; “*Hydrogen production with a microchannel heat-exchanger reactor by single stage water-gas shift; catalyst development*”, Chem. Eng. J., **313** (2017) 1494-1508.
- J[83] Shanmugam, V., Neuberg, S., Zapf, R., Hessel, V., Kolb, G.; “*Effect of ceria and zirconia promoters on Ni/SBA-15 catalysts for coking and sintering resistant steam reforming of propylene glycol in microreactors*” Applied Catalysis B: Environmental, **203** (2017) 859-869.
- J[84] Pala, L.P.R., Wang, Q., Kolb, G., Hessel, V.; “*Steam Gasification of Biomass with Subsequent Syngas Adjustment using Shift Reaction for Syngas Production: An Aspen Plus Model*”, Renew. Energy, **101** (2017) 484-492.
- J[85] Kolb, G., Lenz, M., Ziogas, A.; “*Aufbau eines multidimensionalen Prozess-GC*“ Nachr. Chem., **65** (2017) 897-902.
- J[86] Ortega, C., Rezaei, M., Hessel, V. and Kolb, G.; “*Methanol to dimethyl ether conversion over a ZSM-5 catalyst. Intrinsic kinetic study on an external recycle reactor*”; Chem. Eng. J. **347** (2018) 741-753
- J[87] Ortega, C., Hessel, V. and Kolb, G. “*Dimethyl ether to hydrocarbons over ZSM-5: kinetic study in an external recycle reactor*”; Chem. Eng. J. **354** (2018) 21-34.
- J[88] Chai, S., Men, Y., Wang, J., Liu, S. Song, Q., An, W., Kolb, G.; “*Boosting CO₂ methanation activity of Ru/TiO₂ catalysts by exposing (001) facets of TiO₂*” J. CO₂ Util., **33** (2018) 242-252.
- J[89] Shanmugam, V., Neuberg, S., Zapf, R., Hessel, V., Kolb, G.; “*Nano-architectured CeO₂ supported Rh with remarkably enhanced catalytic activity for propylene glycol reforming reaction in microreactors*”, Applied Catalysis B: Environmental, **226** (2018) 403-411.
- J[90] Papavasiliou, J., Schütt, C., Kolb, G., Neophytides, S., Avgouropoulos, G.; “*Technological aspects of an auxiliary power unit with internal reforming methanol fuel cell*”, Int. J. Hydrogen Energy, **44** (2019) 12818-12828.
- J[91] Neuberg, S. Pennemann, H., Shanmugam, V., Thiermann, R., Zapf, R., Gac, Greluk, M., Zawadski, W., Kolb, G.; “*CO₂ methanation in microstructured reactors – catalyst development and process design*”, Chem. Eng. Technol., **42** (2019) 2076-2084.

- J[92] Ortega, C., Kolb, G.; “*DME-to-hydrocarbon over an MFI zeolite. Product selectivity controlled by oxygenates under the kinetic regime*”, Ind. Eng. Chem. Res. **58** 51 (2019) 22893-22904.
- J[93] Shanmugam, V., Neuberg, S., Zapf, R., Pennemann, H., Kolb, G.; “*Hydrogen production over highly active Pt based catalyst coatings by steam reforming of methanol: Effect of support and co-support*” Int. J. Hydrogen Energy **45** (2020) 1658-1670.
- J[94] Danilov, V., Kolb, G.; “*Tanks-in-series model for high-temperature electrochemical hydrogen pump*” Int. J. Hydrogen Energy, **46** (2020) 11536-11543.
- J[95] Divins, N.J., Lopez, E., Angurell, I., Neuberg, S., Zapf, R., Kolb, G., Llorca, J.; “*CO Total and Preferential Oxidation over Stable Au/TiO₂ Catalysts Derived from Preformed Au Nanoparticles*”, Catalysts **10** (2020) 1-20.
- J[96] Engelbrecht, N., Everson, R.C., Bessarabov, D., Kolb, G.; “*Microchannel reactor heat-exchangers: A review of design strategies for the effective thermal coupling of gas phase reactions*”, Chem. Eng. Proc., **157** (2020) 108164.
- J[97] Ziogas, A., Pennemann, H., Kolb, G.; “*Electrochemical Synthesis of Tailor-Made Hydrocarbons from Organic Solvent Free Aqueous Fatty Acid Mixtures in a Micro Flow Reactor*”, Electrocatalysis, **11** (2020) 432-442.
- J[98] Gac, W., Zawadski, W., Rotko, M., Greluk, M., Slowik, G., Kolb, G.; “*Effects of support composition on the performance of nickel catalysts in CO₂ methanation reaction*”, Catal. Today, **357** (2020) 468-482.
- J[99] Shanmugam, V., Neuberg, S., Zapf, R., Pennemann, H., Kolb, G.; “*Effect of support and chelating ligand on the synthesis of Ni catalysts with high activity and stability for CO₂ methanation*” Catalysts, **10** (2020) 493-508.
- J[100] Ziogas, A., Hofmann, C., Baranyai, S., Löb, P., Kolb, G.; “*Novel Flexible Electrochemical Microreactor and its Validation by Three Model Electrosyntheses*” Chem. Ing. Tech., **92** (2020) 513–524.
- J[101] Neuberg, S., Pennemann, H., Shanmugam, V., Zapf, R., Kolb, G.; “*Promoting effect of Rh on the activity and stability of Pt-based methane combustion catalyst in microreactors*”, Catal. Com., **149** (2021) 106202.
- J[102] Danilov, V., G. Kolb, G. “*Tanks-in-series model for an auto-thermal reforming reactor with a channeled monolith*”, Chem. Eng. Sci., **231** (2021) 116269-116279.
- J[103] Danilov, V., G. Kolb, G.; “*2D model of the transfer processes in S-traps with wash-coated monolith channels and fixed bed for the application of H₂S chemisorption in a fuel processor/fuel cell system*” Chem. Eng. J., **419** (2021) 129508-129515.
- J[104] Danilov, V., Hofmann, C., Kolb, G.; “*2D Model of Transfer Processes for Water Boiling Flow in Microchannel*,” ChemEng., 5 (2021) 42-51.
- J[105] Neuberg, S., Pennemann, H., Shanmugam, V., Zapf, R., Kolb, G.; ”*Promoting effect of Rh on the activity and stability of Pt-based methane combustion catalyst in micro-reactors*”, Catal. Com., 149 (2021) 106202.
- J[106] Kolb, G., Keller, S., Neuberg, S., Schuerer, J., Tiemann, D., Valenteijn, H., Wichert, M., Zapf, R; “*A complete fuel processor for propylene glycol as hydrogen supply for a 5 kW low temperature PEM fuel cell*” Catal. Today, 383 (2022) 183-192.

Other publications

Sole Author of the book:

- B[1] Kolb, G.; Fuel Processing for Fuel Cells, Wiley-VCH, Weinheim (2008)

Co-Author of the book:

- B[2] Hessel, V., Löwe, H., Müller, A., Kolb, G.; Chemical Micro Process Engineering –

Processing and Plants, Wiley-VCH, Weinheim (2005)

Book Contributions:

- B[3] Kolb, G. ,”Steam Reforming”, in: Hessel, V., Renken, A., Schouten, J.C. Yoshida, J. (Eds.), Micro Process Engineering, Wiley-VCH, Weinheim (2009), Vol.2, 421-444
- B[4] Hessel, V., Kolb, G., Brandner, J.; “Microfabrication for energy generating devices and fuel processors”, in Mitsos, A., Barton, P. I. (Eds.) Microfabricated power generation devices, Wiley-VCH, Weinheim, (2009), 7-37
- B[5] Kolb, G. “Microreactors for Fuel Processing” in Emonts, B. and Stolten, D. (Eds.) Fuel Cell Science and Engineering – Material, Processes and Systems, Wiley-VCH, Weinheim, (2012)
- B[6] Kolb, G.; “Catalytic reactors for fuel processing” in Onsan, Z. I., Avci (Eds.): Multiphase Catalytic Reactors: Theory, Design, Manufacturing, and Applications, Wiley VCH, Weinheim (2016), 330-364.
- B[7] Kolb, G., “Innovative Design of Microstructured Plate-and-Frame Heat Exchangers” in Barth, H.-J. and Scholl, S. Innovative Heat Exchangers, Springer, Cham, Switzerland (2018), 117-134
- B[8] Kolb, G. “Fuel processing for fuel cells and energy related applications”, in: M. van de Voorde (Ed.) Hydrogen Technologies For Sustainable Economy, De Gruyter (2021) 469-492.

Patents and Patent Applications

- [PA1] European Patent EP 1 703 578 B1, "*Reformer-Fuel Cell System with External Burner*", Inventors Andreas Schiegl, Reinhard Frank, Sven Butschek, Gunther Kolb; issuing organization Truma Gerätetechnik GmbH & Co. and Institut für Mikrotechnik Mainz GmbH .
- [PA2] European Patent EP 1 879 674 B1, "*Micro evaporator*", Inventors David Tiemann Gunther Kolb; issuing organization Institut für Mikrotechnik Mainz GmbH.
- [PA3] European Patent EP 2 490 804 B1, "*Catalyst for methanol steam reforming*", Inventors Gunther Kolb, Ralf Zapf, Yong Men; issuing organization Institut für Mikrotechnik Mainz GmbH.
- [PA4] European Patent EP 3 286 357 B1, "*Process for the electrochemical conversion of fatty acids and system for carrying out the process*", Inventors Athanassios Ziogas, Gunther Kolb, Helmut Pennemann, Jochen Schürer, David Thiermann; issuing organization Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- [PA5] European Patent EP 3 387 330 B1, "*Heat exchanger and method of using it*", Inventors Gunther Kolb, Stefan Henninger, Felix Jeremias, Harry Krummer, Gunther Munz; issuing organization Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.

- [PA6] German Patent DE 10 2017 001 564 B4, "Verfahren zum Starten einer Brennstoffzellenanordnung und Brennstoffzellenanordnung", Inventors Gunther Kolb, Jochen Schürer; issuing organization Diehl Aerospace GmbH
- [PA7] German Patent DE 10 2017 001 564 B4, "Verfahren zum Starten einer Brennstoffzellenanordnung und Brennstoffzellenanordnung", Inventors Gunther Kolb, Jochen Schürer; issuing organization Diehl Aerospace GmbH
- [PA8] German Patent DE 10 2017 212337 B4, "Vorrichtung und Verfahren zur Vor-Ort-Herstellung eines Sterilisationsgases und Sterilisation von Gegenständen und deren Verwendung", Inventors Gunther Kolb, Stefan Neuberg, Helmut Pennemann, Richard Thiele., Peter Wernig., Martin Wichert; issuing organization Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- [PA9] German Patent Application DE 10 2017 001 561 A1, "Propylenglykol Reformierung", Inventors Gunther Kolb, Ralf Zapf, Helmut Pennemann, Stefan Neuberg; issuing organization Diehl Aerospace GmbH
- [PA10] German Patent Application DE 10 2017 001 562 A1, "Fuel-Prozessor-Komponente für einen Propylenglykol Fuel Prozessor und Propylenglykol Fuel Prozessor", Inventors Gunther Kolb, David Tiemann, Jochen Schürer; issuing organization Diehl Aerospace GmbH
- [PA11] German Patent Application DE 10 2017 001 567 A1, "Verdampfer und Brennstoffzellenanordnung", Inventors Gunther Kolb, David Tiemann, Jochen Schürer; issuing organization Diehl Aerospace GmbH

Conference presentations (only oral contributions presented by G. Kolb)

- P[1] Kolb, G., Hofmann, H.; "Experimental methods for the determination of coke formation and deactivation kinetics of heterogeneous catalysts", 6th International Symposium on Catalyst Deactivation, Ostend (Belgium), October 3-5, 1994
- P[2] Kolb, G., Cominos, V., Drese, K., Hessel, V., Hofmann, C., Löwe, H., Wörz, O., Zapf, R.; "A Novel Catalyst Testing Microreactor for Heterogeneous Gas Phase Reactions", in Proceedings of the "6th International Conference on Microreaction Technology, IMRET 6", pp. 61-72; (11 -14 March 2002); AIChE New Orleans, USA.
- P[3] Kolb, G., Cominos, V., Hessel, V., Löwe, H., Zapf, R.; „Mikrostrukturierte Testreaktoren für heterogen-katalytische Prozesse und ihre Anwendungen in der Reformiertechnik“, 4. AK-Tagung Resourcen- und Umweltschonende Prozesse und ihre Anwendung in der Reformiertechnik, Jena, Germany, 2 - 4 September, 2002
- P[4] Kolb, G., Hessel, V., Krämer, P., Löwe, H., Tiemann, D., Werner, B.; „Ein mobiles immunochemisches Analysensystem für die schnelle vor-Ort-Analytik von umweltrelevanten Chemikalien“, in Proceedings of the „11. Heiligenstädter

- Kolloquium“, pp. 183-195; (30 September - 2 October 2002); Institut für Bioprozess- und Analysentechnik e.V., Heiligenstadt, Germany.
- P[5] Kolb, G., Hessel, V., Löwe, H., Zapf, R., Wörz, O.; “*Novel microstructured reactors for detailed testing of heterogeneous gas phase reactions*”, 27th International Exhibition-Congress on Chemical Engineering, Environmental Protection and Biotechnology, ACHEMA 2003, Frankfurt, Germany, 19 -24 May,2003
- P[6] Kolb, G., Zapf, R., Hessel, V., Löwe, H.; “*Wash-coat catalysts in micro-channels - results of screening and mechanistic studies on propane steam reforming*”, 4th European Conference of Chemical Engineering, ECCE, Granada, Spain, 21 - 25 September,2003
- P[7] Kolb, G.; „*Mikrostrukturierte Reformersysteme zur Wasserstofferzeugung für Brennstoffzellen im Leistungsbereich zwischen 100 Watt und 5 kW*“, Brennstoffzellentag Rheinland-Pfalz, Bingen, 14 November,2003
- P[8] Kolb, G., Zapf, R., Pennemann, H., Hessel, V., Löwe, H.; “*Wash-coat catalysts applied for the water-gas shift reaction in micro-channels*”, AIChE Spring Meeting, New Orleans, LU, 5 - 9 April,2004
- P[9] Kolb, G., Cominos, V., Tiemann, D., Zapf, R., Hessel, V., Löwe, H.; „*Die katalytische Oxidation von Brennstoffen in Mikrokanälen zur Energieerzeugung für Reformierprozesse am Beispiel von Methanol und Propan*“, Dechema/VDI-GVC Jahrestagung, Karlsruhe, Germany, 12 - 14 October,2004
- P[10] Kolb, G., Hessel, V., Löwe, H.; “*Microstructured fuel processors for fuel cell applications*”, American Society for Materials (ASM) Annual Materials Solutions Conference, Columbus, USA, 18 - 21 October,2004
- P[11] Kolb, G., Pennemann, H., Wichert, M., Zapf, R., Hessel, V., Löwe, H.; “*Wash-coat catalysts applied for partial and total oxidation reactions of propane in micro-channels*”, in Proceedings of the “PowerMEMS”, pp. 138-141; (28 -30 Nov. 2004); Kyoto, Japan.
- P[12] Kolb, G., Cominos, V., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V., Löwe, H.; „*Die autotherme Reformierung in mikrostrukturierten Reaktoren - Betriebsweisen und praktische Erfahrungen*“, GVC Fachausschuß Technische Reaktionsführung und Energievefahrenstechnik, Bad Herrenalb, Germany, 7 - 9 March,2005
- P[13] Kolb, G., Wichert, M., Löwe, H.; “*Integrated microstructured fuel processor concepts - heading for hydrogen generation for fuel cells*”, in Proceedings of the “7th Italian Conference on Chemical and Process Engineering, ICheAP-7”, pp. 161-170; (15- 18 May 2005); AIDIC Conference Series, Gardini-Naxos, Italy.
- P[14] Kolb, G.; „*Wasserstofferzeugung durch autothermes Reformieren von Iso-Oktan – Realisierung eines Kompletltreformers mit mikrostrukturierten Reaktoren für eine Brennstoffzelle mit einer Leistung von 5000 W*“, 93. Bunsen - Kolloquium, Schwerin, Germany, 16 - 17 June,2005, **invited lecture**
- P[15] Kolb, G., Cominos, V., Men, Y.; „*Reformieren von Ethanol und Methanol zur Wasserstoffbereitstellung für Brennstoffzellen in kompakten Kleinanlagen*“, f-cell, Stuttgart, September, 26,2005, **invited lecture**
- P[16] Kolb, G., Hofmann, C., Pennemann, H., Zapf, R., Hessel, V., Löwe, H.; “*Catalytic combustion in integrated micro-structured heat-exchanger reactors*”, in Proceedings of the “6th International Workshop on Catalytic Combustion, IWCC”, pp. 146-150; (20 - 22 September 2005); Polipress-Politecnico di Milano, Ischia, Italy.
- P[17] Kolb, G., Hessel, V.; “*Selective oxidations in microstructured catalytic reactors - our own work on fuel processing for fuel cells*”, 13th DGKM Conference, Milan, Italy, 12 - 14 October,2005, **plenary lecture**

- P[18] Kolb, G., Hessel, V., Löwe, H.; “*Integrated microstructured reactors as hydrogen generation devices for fuel cells*”, 2nd International Conference on Structured Catalysts and Reactors, ICOSCAR-2, Delft, The Netherlands, 16 - 19 October, 2005
- P[19] Kolb, G.; „*Autothermes und Dampf-Reformieren in mikrostrukturierten Reaktoren*“, VDI Wissensforum Mikroverfahrenstechnik, Mainz, Germany, 16 November, 2005, , invited lecture
- P[20] Kolb, G., Men, Y., Tiemann, D., Zapf, R., Wichert, M., Hessel, V., Loewe, H.; “*A Miniaturised complete methanol fuel processor/ fuel cell system for low power applications*”, in Proceedings of the “2nd European Hydrogen Energy Conference “, pp. 513-514; (November 22-25 2005); Zaragoza (Spain).
- P[21] Kolb, G., Men, Y., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V., Löwe, H.; “*Fuel processing in microstructured heat-exchanger reactors - a practical comparison of different fuels from methanol to diesel*”, in Proceedings of the “CHEMREACTOR XVII”, p. Published on CD; (15 - 19 May 2006); Athen, Greece.
- P[22] Kolb, G., Men, Y., Pennemann, H., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V., Loewe, H.; “*Application of Micro-structured Plate Heat-Exchanger Reactors – A Novel Way Towards the Improved Thermal Management of Compact Fuel Processors*”, in Proceedings of the “28th International Exhibition-Congress on Chemical Engineering, Environmental Protection and Biotechnology, ACHEMA 2006”, pp. 80-81; (2006); Dechema, Frankfurt, Germany.
- P[23] Kolb, G., Detemple, P., Latta, D., Schmitt, S., Men, Y., Zapf, R.; “*A novel and miniaturized thin film pellistor for carbon monoxide detection in hot gas flows*”, in Proceedings of the “4rd International Conference on Microchannels and Minichannels, ICMM”, p. Published on CD; (19 - 21 June 2006); Limerick, Ireland.
- P[24] Kolb, G., Pennemann, H., Zapf, R., Hessel, V., Löwe, H.; “*Partial oxidation of propane performed in microstructured reactor systems*”, in Proceedings of the “9th International Conference on Microreaction Technology, IMRET 9”, pp. 94-95; (September 6-9 2006); Dechema, Potsdam, Germany.
- P[25] Kolb, G.; “*Fuel Processing in Integrated Microstructured Heat-Exchanger Reactors - Current Status and Future Perspectives -*”, in Proceedings of the “Fuel Cells Science & Technology 2006, Scientific Advances in Fuel Cell Systems”, p. 3B7; (13 - 14 September 2006); Elsevier Ltd., Turin, Italy.
- P[26] Kolb, G., Schürer, J., Tiemann, D., Ziogas, A., Hessel, V., Loewe, H., Ehwald, H.; “*A Micro-structured 5 kW Complete Fuel Processor for Iso-octane as Hydrogen Supply system for Mobile Auxiliary Power Units*”, AIChE Annual Meeting, San Francisco, November 15th, 2006
- P[27] Kolb, G., Men, Y., Pennemann, H., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V., Loewe, H.; “*Application of Micro-structured Plate Heat-Exchanger Reactor Technology for the Development of Portable Fuel Processors*”, AIChE Annual Meeting, San Francisco, November 15th, 2006
- P[28] Kolb, G., Baier, T., Tiemann, D., Schürer, J., Wichert, M., Zapf, R., Hessel, V., Löwe, H.; “*Multifunctional microstructured reactors as fuel processor components for mobile fuel cell systems*”, in Proceedings of the “6th International Symposium on Catalysis in Multiphase Reactors, CAMURE-6, and 5th International Symposium on Multifunctional Reactors (ISMR-5)”, pp. 77-78; (January 14-17 2007); Poona, India
- P[29] Kolb, G., Men, Y., Schürer, J., Tiemann, D., Wichert, M., Zapf, R., Hessel, V.; “*Mass-production of miniaturised microstructured fuel processors for distributed energy generation*”, in Proceedings of the “6th European Congress of Chemical Engineering “, pp. 835-836; (September 16-20 2007); Technical University of Denmark, Copenhagen.

- P[30] Kolb, G., Schürer, J., Hofmann, C., Baier, T., Wails, D., Womann, M.; “*Diesel Steam Reforming in micro-structured devices for the kilowatt power range*”, International Advanced Mobility Forum, Geneva, March, 11-13,2008
- P[31] Kolb, G.; “Microreactor Technologies for Decentralised Energy Generation”, 5th European Biorefinery Symposium Flensburg, April 9-10,2008, **invited lecture**
- P[32] Kolb, G.; „*Mikrostrukturierte Reaktoren und BoP für Fuel Processing und Brennstoffzellen*“, in Proceedings of the „6. VDI Fachtagung Brennstoffzelle“, pp. 329-336; (May 27-28 2008); VDI Berichte, Braunschweig.
- P[33] Kolb, G., Men, Y., Nikolaidis, G., Zapf, R., Hessel, V.; “*Carbon monoxide fine clean-up of fuel cell reformate in microchannel reactors by selective oxidation and methanation*”, in Proceedings of the “18th International Congress of Chemical and Process Engineering”, pp. 35-36; (August 24-28 2008); Process Engineering Publisher, Prague, **keynote lecture**
- P[34] Kolb, G., Tiemann, D., Schürer, J., Hessel, V.; “*Microstructured evaporators for laboratory applications and mobile power generation*”, 6th International Conference on Nanochannels, Microchannels and Minichannels, Darmstadt, 2008
- P[35] Kolb, G., Men, Y., Zapf, R.; “*Development of sulfur-tolerant catalysts for fuel processing applications*”, 20th International Symposium on Chemical Reaction Engineering, Kyoto (Japan), September 8th,2008
- P[36] Kolb, G., Schelhaas, K. P., Tiemann, D., Wichert, M.; „*Entwicklung eines mikrostrukturierten Methanolreformers für ein portables 100 W Brennstoffzellensystem*“, PROCESSNET Jahrestagung Karlsruhe, October, 7,2008
- P[37] Kolb, G., Tiemann, D., Wichert, M., Ehrich, H.; “*Development of a 500W ethanol reformer for portable applications*”, in Proceedings of the “Fuel Cell Science and Technology”, p. 1.A.7; (2008); Kopenhagen.
- P[38] Kolb, G., Wichert, M., Tiemann, D., Zapf, R.; “*Development of an air-cooled microstructured reactor for the partial oxidation of propane*”, 20th International Symposium on Chemical Reaction Engineering, Kyoto (Japan), September 8th,2008
- P[39] Kolb, G., Schiegl, A., Tiemann, D., Wichert, M.; “*VeGA – A LPG based fuel cell / fuel processor system for mobile applications*”, H2 Expo Congress, Hamburg, October 23rd, 2008
- P[40] Kolb, G.; „*Mikrostrukturierte Reaktoren für Fuel Processing*“, Fachseminar: Brennstoffzellen mit verfügbaren Kraftstoffen anwenden - durch Reformertechnologie, Ulm, February 12-13,2009, **invited lecture**
- P[41] Kolb, G.; “*Microstructured Fuel Processors as Hydrogen Supply for Fuel Cells – From Dynamic Simulations Towards System Integration and Field Trials*“, 29th International Exhibition-Congress on Chemical Engineering, Environmental Protection and Biotechnology, ACHEMA 2009, Frankfurt, Germany, May 11-15,2009
- P[42] Kolb, G., Keller, S., O’Connell, M., Tiemann, D.; „*Entwicklung eines mikrostrukturierten 5 kW Dieselreformers für ein mobiles Brennstoffzellensystem*“, in Proceedings of the „ProcessNet Jahrestreffen Reaktionstechnik“, pp. 11-12; (June 8th 2009); Dechema, Würzburg.
- P[43] Kolb, G., Tiemann, D., Wichert, M.; “*Microstructured LPG fuel processor for a 250W fuel cell system*”, in Proceedings of the “World Conference of Chemical Engineering (WCCE8)”, (August 23-27 2009); Published on CD, Montreal, Canada.
- P[44] Kolb, G., Men, Y., Zapf, R.; “*Development of an accelerated testing procedure for LPG steam reforming in microchannels*”, in Proceedings of the “International Symposium on Catalyst Deactivation”, (October 25-28 2009); Published on CD, Delft, Netherlands.

- P[45] Kolb, G.; „*Gasprozesstechnik für Brennstoffzellen: Grundlagen, Status, Perspektiven und Herausforderungen*“ Fachtagung Gasprozesstechnik, Duisburg (8-9 Dec. 2009), **plenary lecture**
- P[46] Kolb, G., Schelhaas, K. P., Tiemann, D., Wilhelm, J.; “*Development work on a micro-structured 50 kW ethanol fuel processor for a small scale stationary hydrogen supply system*“, International-Mexican Congress of Chemical Reaction Engineering, Ixtapa-Zihuatanejo (June 10th 2010)
- P[47] Kolb, G., Pennemann, H., Tiemann, D.; “*Mass-Production Issues of Micro-structured Fuel Processors for Distributed Energy Generation*”, in Proceedings of the “World Hydrogen Energy Conference 2010”, pp. 233-236; (May 17th-19th 2010); Forschungszentrum Jülich GmbH, Essen, Germany.
- P[48] Kolb, G., Men, Y., Wichert, M., Zapf, R.; “*Kinetic Investigations for Methanol Steam Reforming in Microchannels over Novel Pd/In₂O₃ Catalysts*“, CHISA, Prague, 2010
- P[49] Kolb, G., Keller, S., Pecov, S., Tiemann, D., Zapf, R.; “*Partial dehydrogenation of kerosene as hydrogen source for fuel cells in microstructured reactors*”, XIX International Conference on Chemical Reactors, CHEMREACTOR-19, Vienna, September 8th 2010
- P[50] Kolb, G.; “*Heterogeneously catalyzed gas phase reactions in catalytic wall reactors – from modelling to practical applications*“, International Workshop on Near-Wall Reactive Flows, Darmstadt, Germany, November 19th 2010
- P[51] Kolb, G., Kost, H.-J., Tiemann, D., Ziogas, A.; „*Mikrostrukturierte Verdampfer für energietechnische Anwendungen und Rektifikationskonzepte zur Stofftrennung*“, in Proceedings of the „Statusseminar Mikrotrenntechnik“, (February 14 2011); Frankfurt, Germany.
- P[52] Kolb, G., Tiemann, D., Keller, S., Pecov, S., Zapf, R.; “*Development of Micro-structured Catalytic Wall Reactors for Hydrogen Production by Methanol Steam Reforming over Novel Pt/In₂O₃/Al₂O₃ Catalysts*“, in Proceedings of the “10th International Conference on Chemical & Process Engineering“, (May 8-11 2011); Florence, Italy.
- P[53] Kolb, G.; “*Micro-structured Reactors for Distributed Energy Generation*”, in Proceedings of the “European Congress of Chemical Engineering”, (September 25-29 2011); Berlin.
- P[54] Kolb, G.; “*Development of compact FC- and fuel processor based auxiliary power units using micro-channel reactor technique*”, in Proceedings of the “XII World Renewable Energy Congress”, (2012); published on CD, Denver, **invited lecture**
- P[55] Kolb, G.; “*Micro-structured Reactors for Distributed and Renewable Production of Fuels and Electrical Energy*”, in Proceedings of the “International Conference on Microrecreation Technology (IMRET)”, (2012); Published on CD, Lyon, France, **keynote lecture**.
- P[56] Kolb, G., Keller, S., Tiemann, D., Schelhaas, K.-P., Schuerer, J., Wiborg, O.; “*Operation of a Compact Micro-channel 5 kWel.net Methanol Steam Reformer with Novel Pt/In₂O₃ Catalyst for Fuel Cell Applications*”, in Proceedings of the “International Symposium on Chemical Reaction Engineering”, (2012); Maastricht, Netherlands.
- P[57] Kolb, G., Keller, S., O’Connell , M., Schuerer, J., Tiemann, D., Wichert, M.; “*Micro-channel fuel processors as hydrogen source for fuel cells in distributed energy supply systems*”, in Proceedings of the “Annual Meeting of the American Institute of Chemical Engineering”, (2012); Published on CD, Pittsburgh, Pennsylvania, **keynote lecture**.
- P[58] Kolb, G., Wichert, M., Pennemann, H., O’Connell , M., Butschek, S., Frank, R., Schiegl, A.; “*Current status on LPG based Auxiliary Power Unit Development for*

- Application in Recreational Vehicles*“, in Proceedings of the “World Conference of Chemical Engineering”, (2013); Published on CD, Seoul, Korea.
- P[59] Kolb, G., Pfeifer, P.; „*Mikroreaktoren für die Erzeugung synthetischer und regenerativer Treibstoffe*“, in Proceedings of the „Jahrestagung Reaktionstechnik“, (2014); Würzburg, **plenary lecture**.
- P[60] Kolb, G., Neuberg, S., Pennemann, H., Ziogas, A.; “*Thermocatalytic decomposition of LPG as hydrogen source for fuel cells*”, in Proceedings of the “European Hydron Energy Conference”, (2014); Published on CD, Sevilla, Spain.
- P[61] Kolb, G.; “*Specific aspects of catalyst, reactor and system design for microreactors in distributed energy related applications*”, in Proceedings of the “International Conference on Micro Reaction Technology (IMRET)”, (23-25 June 2014); Budapest, Hungary, **keynote lecture**.
- P[62] Kolb, G.; “*Hydrogen Production from conventional and renewable fuels in micro-structured reactors*”, in Proceedings of the “XIII World Renewable Energy Congress”, (2014); published on CD, London, **invited lecture**
- P[63] G.Kolb, D.Tiemann, A.Ziogas, J.Schuerer; “*Steam Reforming of Polyalcohols as a Hydrogen Source for Fuel Cells in Microchannel Reactors of the kW Scale*”, in Proceedings of the “CHEMREACTOR XXI”, p. Published on CD; (22 - 25 September 2014); Delft, Netherlands.
- P[64] Kolb, G., “*Micro-structured Reactors for Fuel Processing*”AIChE Annual Meeting, Published on CD, Pittsburgh, Pennsylvania (2014), **keynote lecture**.
- P[65] Kolb, G., “*Microstructured Reactors as efficient tool for the operation of selective oxidation reactions*”, XI European Workshop on innovation in selective oxidation, Published on CD, Kasan, Russian Federation (2015), **keynote lecture**.
- P[66] Kolb, G., Schlicker, S., Avgouropoulos, G., Schelhaas, K. P., Ioannides, T., Kalitsis, J., Neophytides, S., “*Design and Operation of an Auxiliary Power Unit with High Temperature PEM Fuel Cell AND Internal Methanol Reforming*”, European Conference of Chemical Engineering (ECCE), Nizza, France 2015.
- P[67] Kolb, G., „*BIO-GO: Umsetzung von Biogas und Pyrolyseölen in synthetische Treibstoffe*“, Jahrestreffen der Fachgruppe Prozessanalytik, Apparate- und Anlagenbau, Published on CD, Bruchsal, Germany 2015.
- P[68] Schuerer, J., Thiele, R., Wiborg, J. O., Ziogas, A., Kolb, G., “*Operation of a complete pilot plant for Biodiesel synthesis under supercritical conditions*”, European Symposium of Chemical Reaction Engineering (ESCRE), Published on CD, Fürstenfeldbruck, Germany 2015.
- P[69] Kolb, G., “*BIO-GO: Conversion of Bio Gas and Pyrolysis Oil to Synthetic Fuels via reforming, methanol synthesis and MTG processes*”, CASCATBEL Workshop, Published on CD, Thessaloniki, Greece 2016, **invited lecture**.
- P[70] Wichert, M., Zapf, R., Ziogas, A., Kolb, G., Klemm, E., “*Detailed kinetic study of methanol steam reforming over novel Pt/In₂O₃/Al₂O₃ catalyst in a microstructured recycle reactor*”, X. International Symposium of Mechanisms of Chemical Reactions (MCR X), Kaliningrad, Russian Federation 2016.
- P[71] Keller, S., Neuberg, S., Tiemann, D., Ziogas, A., Schuerer, J., Kolb, G., “*Microstructured fuel processors for the hydrogen production from ethanol and propylene glycol*”, International Conference on Microreaction Engeneering (IMRET), Bejing, China 2016.
- P[72] Kolb, G., Pennemann, H., Schuerer, J., “*Conversion of pyrolysis oil to synthesis gas through autothermal reforming operated in a miniplant in a modular containerised environment*”, International Conference CATALYSIS FOR RENEWABLE SOURCES: FUEL, ENERGY, CHEMICALS CRS-4, Adriatic Riviera, Gabicce Mare, Italy 2017.

- P[73] Neuberg, S., Pennemann, H., Tiemann, D., Wichert, M., Kolb, G., “*Power to gas: Heat management of the methanation of carbon dioxide in microchannel plate heat-exchangers of 5-50 kW power equivalent*”, World Congress of Chemical Engineering, Barcelona, Spain 2017.
- P[74] Neuberg, S., Pennemann, H., Tiemann, D., Wichert, M., Kolb, G., „*Power to gas: Heat management of the methanation of carbon dioxide in microchannel plate heat-exchangers of 5-50 kW power equivalent*”, World Congress of Chemical Engineering, Barcelona, Spain 2017.
- P[75] Neuberg, S., Pennemann, H., Shanmugam, V., Wichert, M., Schuerer, J., Kolb, G., “*Microstructured reactors for distributed power generation, power storage and fuel synthesis*”, 28th Annual Conf. of the Catalysis Society of South Africa, Pilanesberg, South Africa 2017 **keynote lecture**.
- P[76] Pennemann, H., Schindler, C., Schuerer, J., Kolb, G. “*Operation of a modular containerized mini-plant for the conversion of pyrolysis oil to synthetic gasoline*” 6th International Conference on Green Process Engineering, Toulouse, France, June 3-6, 2018.
- P[77] Pennemann, H., Schindler, C., Schuerer, J., Kolb, G., Ortega, C., Sundaram, S. “*The BIOGO process: Conversion of wood residue derived pyrolysis oil and biogas to synthetic gasoline operated in a mini-plant in a modular containerised environment*” VENICE 2018 7th Int. Symp. on Energy from Biomass and Waste, Venice (Italy), October 15-18, 2018.
- P[78] C. Ortega, V. Hessel, G. Kolb, “*Dimethyl Ether Conversion to Gasoline Grade Hydrocarbons over ZSM-5: Kinetic Study in a Recycle Reactor*”, XXIII International Conference on Chemical Reactors CHEMREACTOR-23, Ghent, Belgium, November 5-9, 2018.
- P[79] W. Gac, W. Greluk, M., Kolb, G., Neuberg, S.,Pennemann, H., Tiemann, D., Wichert, M., Zawadski, W. “*Methanation of carbon dioxide: Comparison of different microreactor concepts and their application in the power range up to 50 kW*”, Int. Conf. on Microreaction Technology, Karlsruhe, Germany, October 21-24, 2018.
- P[80] Wichert, M., Neuberg, S., Pennemann, H., Kolb, G. “*Development of 50 kWel natural gas reformers as hydrogen source for low temperature PEM fuel cells*” 6th Int. Conf. on Structured Catalysts and Reactors Bad Herrenalb, Germany, September 11-13, 2019.
- P[81] Kolb, G., “*Microstructured reactors for distributed power generation, power storage and fuel synthesis*”, Microfluidics 2019: from laboratory tools to process development, IFP Energies nouvelles, Rueil-Malmais, 13-15 November 2019, **keynote lecture**.
- P[82] Kolb, G., Keller, S., Neuberg, S., Schuerer, J., Valenteijn, H., Wichert, M., Bidart, C.; “*Development of a two stage reactor concept for the methanation of carbon dioxide from renewable sources*”, XXIII International Conference on Chemical Reactors CHEMREACTOR-24, Virtual Conference, September 13-16, 2021.