

List of Publications Michael Klumpp

As of	h-Index	ResearcherID	ORCID
26. Januar 2018	6	L-5322-2016	0000-0002-2670-0887

Publications in peer-reviewed journals

- 15** T. L. Sheppard, S. W. T. Price, F. Benzi, S. Baier, M. Klumpp, R. Dittmeyer, W. Schwieger und J.-D. Grunwaldt. „In situ Multimodal 3D Chemical Imaging of a Hierarchically-Structured Core@Shell Catalyst at Work“. *Journal of the American Chemical Society* 139 (2017), S. 7855–7863. DOI: [10.1021/jacs.7b02177](https://doi.org/10.1021/jacs.7b02177)
- 14** C. Sun, M. Klumpp, J. R. Binder, P. Pfeifer und R. Dittmeyer. „Prozessintegration für die einstufige Umwandlung von Synthesegas in Treibstoffe mittels gedruckter Katalysatorschichten in mikrostrukturierten Reaktoren“. *Chemie Ingenieur Technik* 89 (2017), S. 894–902. DOI: [10.1002/cite.201600180](https://doi.org/10.1002/cite.201600180)
- 13** S. Baier, C. D. Damsgaard, M. Klumpp, J. Reinhardt, T. Sheppard, Z. Balogh, T. Kasama, F. Benzi, J. B. Wagner, W. Schwieger, C. G. Schroer und J.-D. Grunwaldt. „Stability of a bifunctional Cu-based core@zeolite shell catalyst for DME synthesis under redox conditions studied by ETEM and in situ ptychography“. *Microscopy and Microanalysis* 23 (2017), S. 501–512
- 12** W. Ding, G. Baracchini, M. Klumpp, W. Schwieger und R. Dittmeyer. „Adsorption Device Based on a Langatate Crystal Microbalance for High Temperature High Pressure Gas Adsorption in Zeolite H-ZSM-5“. *Journal of Visualized Experiments* 114 (2016). www.jove.com/video/54413/adsorption-device-based-on-langatate-crystal-microbalance-for-high. DOI: [10.3791/54413](https://doi.org/10.3791/54413)
- 11** M. Klumpp, L. Zeng, S. A. Al-Thabaiti, A. P. Weber und W. Schwieger. „Building concept inspired by raspberries: from microporous zeolite nanocrystals to hierarchically porous assemblies“. *Microporous and Mesoporous Materials* 229 (2016), S. 155–165. DOI: [10.1016/j.micromeso.2016.04.012](https://doi.org/10.1016/j.micromeso.2016.04.012)
- 10** W. Schwieger, M. Klumpp, S. A. Al-Thabaiti und M. Hartmann. „Präparationsprinzipien mikroporöser Materialien: Vom building block zum hierarchisch aufgebauten porösen System“. *Chemie Ingenieur Technik* 88 (2016), S. 237–257. DOI: [10.1002/cite.201500163](https://doi.org/10.1002/cite.201500163)
- 9** W. Schwieger, A. G. Machoke, T. Weissenberger, A. Inayat, T. Selvam, M. Klumpp und A. Inayat. „Hierarchy concepts: classification and preparation strategies for zeolite containing materials with hierarchical porosity“. *Chem. Soc. Rev.* 45 (2016), S. 3353–3376. DOI: [10.1039/C5CS00599J](https://doi.org/10.1039/C5CS00599J)
- 8** T. Selvam, F. Warmuth, M. Klumpp, K.-G. Warnick, M. A. Lodes, C. Körner und W. Schwieger. „Fabrication and pressure drop behavior of novel monolithic structures with zeolitic architectures“. *Chemical Engineering Journal* 288 (2016), S. 223–227. DOI: [10.1016/j.cej.2015.11.104](https://doi.org/10.1016/j.cej.2015.11.104)

- 7 A. Inayat, M. Klumpp, M. Lämmermann, H. Freund und W. Schwieger. „Development of a new pressure drop correlation for open-cell foams based completely on theoretical grounds: Taking into account strut shape and geometric tortuosity“. *Chemical Engineering Journal* 287 (2016), S. 704–719. DOI: [10.1016/j.cej.2015.11.050](https://doi.org/10.1016/j.cej.2015.11.050)
- 6 W. Ding, M. Klumpp, H. Li, U. Schygulla, P. Pfeifer, W. Schwieger, K. Haas-Santo und R. Dittmeyer. „Investigation of High-Temperature and High-Pressure Gas Adsorption in Zeolite H-ZSM-5 via the Langatate Crystal Microbalance: CO₂, H₂O, Methanol, and Dimethyl Ether“. *The Journal of Physical Chemistry C* 119.41 (2015), S. 23478–23485. DOI: [10.1021/acs.jpcc.5b06591](https://doi.org/10.1021/acs.jpcc.5b06591)
- 5 W. Ding, M. Klumpp, S. Lee, S. Reuß, S. A. Al-Thabaiti, P. Pfeifer, W. Schwieger und R. Dittmeyer. „Simulation of One-Stage Dimethyl Ether Synthesis over a Core-Shell Catalyst“. *Chemie Ingenieur Technik* 87.6 (2015), S. 702–712. DOI: [10.1002/cite.201400157](https://doi.org/10.1002/cite.201400157)
- 4 M. Klumpp, A. Inayat, J. Schwerdtfeger, C. Körner, R. Singer, H. Freund und W. Schwieger. „Periodic open cellular structures with ideal cubic cell geometry: Effect of porosity and cell orientation on pressure drop behavior“. *Chemical Engineering Journal* 242 (2014), S. 364–378. DOI: [10.1016/j.cej.2013.12.060](https://doi.org/10.1016/j.cej.2013.12.060)
- 3 S. Gütlein, C. Burkard, J. Zeilinger, M. Niedermaier, M. Klumpp, V. Kolb, A. Jess und B. J. Etzold. „A feasible way to remove the heat during adsorptive methane storage“. *Environmental science & technology* 49.1 (2014), S. 672–678. DOI: [10.1021/es504141t](https://doi.org/10.1021/es504141t)
- 2 A. Silvestre-Albero, S. Rico-Francés, F. Rodríguez-Reinoso, A. M. Kern, M. Klumpp, B. J. Etzold und J. Silvestre-Albero. „High selectivity of TiC-CDC for CO₂/N₂ separation“. *Carbon* 59 (2013), S. 221–228. DOI: [10.1016/j.carbon.2013.03.012](https://doi.org/10.1016/j.carbon.2013.03.012)
- 1 A. Inayat, M. Klumpp und W. Schwieger. „The urea method for the direct synthesis of ZnAl layered double hydroxides with nitrate as the interlayer anion“. *Applied Clay Science* 51.4 (2011), S. 452–459. DOI: [10.1016/j.clay.2011.01.008](https://doi.org/10.1016/j.clay.2011.01.008)

Patents (applied)

- 2 M. Klumpp, W. Schwieger, A. G. Machoke, M. Hartmann und T. Weißenberger. „Verfahren zur Erzeugung eines bindemittelfreien multifunktionalen Kompositmaterials mit hierarchischer Porosität“. Pat. DE 10 2016 003 731 (A1). 2017
- 1 S. Thangaraj, F. Warmuth, M. Klumpp, W. Schwieger und M. Lodes. „Monolithische Strukturen mit zeolithischen Architekturen und Verfahren zu deren Herstellung“. Pat. DE 10 2015 009 244 (A1). 2017

Proceedings

- 1 M. Klumpp, G. Baracchini, M. Siebert, S. Lee und R. Dittmeyer. „Highly active catalytic wall coatings in the channels of microstructured reactors for process intensification“. *Proceedings of the 30th International Conference on Surface Modification Technologies (Milan, Italy)* (2016). Online: www.smt30.org/application/view_file.php?name=Proceeding-SMT30_IKFT-KIT.pdf&idcontributions=253&idregistered=264

Bookchapters

- 1 W. Schwieger, M. Hartmann, M. Klumpp und T. Selvam. „Porous Inorganic Materials as Potential Supports for Ionic Liquids“. In: *Supported Ionic Liquids: Fundamentals and Applications*. Hrsg. von R. Fehrmann, A. Riisager und M. Haumann. Wiley-VCH Verlag GmbH & Co. KGaA, 2013, S. 37–74. ISBN: 352765478X

Presentations at nationalen and internationalen conferences

- 11 M. Klumpp, R. Dittmeyer und V. Hagenmeyer. *Energy Lab 2.0 – A research platform for the future energy system*. Greener Skies Ahead 2017, Bonn, Germany. 2017
- 10 T.L. Sheppard, S. Price, F. Benti, S. Baier, M. Klumpp, R. Dittmeyer, W. Schwieger und J.-D. Grunwaldt. *In situ multimodal X-ray tomography on a bifunctional core@shell catalyst for one-step DME synthesis*. 13th European Conference on Catalysis – EUROPACAT, Florence, Italy. 2017
- 9 M. Klumpp, G. Baracchini, A. Machoke, W. Ding, W. Schieger und R. Dittmeyer. *Preparation and characterization of bifunctional core@shell catalysts for the one-stage synthesis of DME*. 50. Jahrestreffen Deutscher Katalyiker, Weimar, Germany. 2017
- 8 H. Freund, A. Inayat, M. Klumpp, T. Heidig, E. Bianchi und W. Schwieger. *Periodic Open Cellular Structures for Catalytic Reactors: Interaction of Structuring and Transport Processes*. ProcessNet-Jahrestagung und 32. DECHEMA-Jahrestagung der Biotechnologen. 2016
- 7 G. Baracchini, M. Klumpp, A. Machoke, W. Ding, S. Lee, P. Pfeifer, W. Schwieger und R. Dittmeyer. *Bifunctional core-shell catalysts for the direct conversion of synthesis gas to dimethyl ether (DME)*. Jahrestreffen Reaktionstechnik, Würzburg, Germany. 2016
- 6 M. Klumpp, G. Baracchini, C. Sun, A. Machoke, L. Zeng, A. Weber, W. Schwieger, P. Pfeifer und R. Dittmeyer. *Hierarchically structured bifunctional core-shell catalysts for synthesis gas conversion to liquid fuels*. EMN Meeting on Mesoporous Materials, Prague, Czech Republic. 2016
- 5 M. Klumpp, S. Lee, W. Ding, L. Zeng, P. Pfeifer, A. Weber, R. Dittmeyer und W. Schwieger. *Bifunctional catalysts for the one-step synthesis of liquid fuels from synthesis gas: Concepts, preparation and characterization*. 27. Deutsche Zeolithtagung, Oldenburg, Germany. 2015

- 4 W. Ding, P. Pfeifer, R. Dittmeyer, S. Lee, M. Klumpp, S. Reuß und W. Schwieger. *Modeling of Bi-functional Core/Shell and Double-Layer Catalysts for direct Production of Dimethyl Ether from Synthesis Gas*. Jahrestreffen Reaktionstechnik , Würzburg, Germany. 2014
- 3 H. Freund, A. Inayat, M. Klumpp, T. Heidig, E. Bianchi und W. Schwieger. *Open-Cell Foam Supports for Structured Catalytic Reactors*. 14th AIChE Annual Meeting, Atlanta (GA), USA. 2014
- 2 M. Klumpp, J. Schwerdtfeger, C. Körner, R. Singer, H. Freund und W. Schwieger. *Periodic open cellular structures with cubic unit cell geometry: Effect of porosity and cell orientation on the pressure drop*. 3rd CellMat Conference, Dresden, Germany. 2014
- 1 S. Reuß, M. Klumpp, W. Ding, S. Lee, P. Pfeifer, R. Dittmeyer und W. Schwieger. *Bifunctional core/shell catalysts for the DME synthesis: catalyst preparation and simulation experiments*. 25. Deutsche Zeolithtagung, Hamburg, Germany. 2013