

List of Publications Michael Rubin (néé Klumpp)

As of:	Scopus h-Index / Author ID	google Scholar h-Index / Profile
5. April 2024	14 / 37026311100	15 / Link

Publications in peer-reviewed journals

- 31** D. Dharmo, J. Kühn, S. Lüttin, M. Rubin und R. Dittmeyer. „Coupling the high-temperature Fischer-Tropsch synthesis and the skeletal isomerization reaction at optimal operation conditions in the Power-to-Fuels process route for the production of sustainable aviation gasoline“. *Sustainable Energy Fuels* (2024). accepted
- 30** P. Kant, S. Liang, M. Rubin, G. A. Ozin und R. Dittmeyer. „Low-cost photoreactors for highly photon/energy-efficient solar-driven synthesis“. *Joule* 7 (2023), 1347—1362. DOI: [10.1016/j.joule.2023.05.006](#)
- 29** A. G. Machoke, A. M. Arias, G. Baracchini, M. Rubin, H. Baser, T. Weissenberger, R. Dittmeyer, A. Weber, M. Hartmann und W. Schwieger. „MFI Type Zeolite Aggregates with Nanosized Particles via a Combination of Spray Drying and Steam-Assisted Crystallization (SAC) Techniques“. *Catalysts* 13 (2023), S. 536. DOI: [10.3390/catal13030536](#)
- 28** T. Engl, M. R. Langer, H. Freund, M. Rubin und R. Dittmeyer. „Tap reactor for temporally and spatially resolved analysis of the CO₂ methanation reaction“. *Chemie Ingenieur Technik* 95 (2023), S. 658–667. DOI: [10.1002/cite.202200204](#)
- 27** P. Kant, L. Trinkies, N. Gensior, D. Fischer, M. Rubin, G. A. Ozin und R. Dittmeyer. „Isophotonic reactor for the precise determination of quantum yields in gas, liquid, and multi-phase photoreactions“. *Chemical Engineering Journal* 452 (2023), S. 139204. DOI: [10.1016/j.cej.2022.139204](#)
- 26** E. Hadjixenophontos, M. Mahmoudizadeh, M. Rubin, D. Ullmer, F. Razmjooei, A. C. Hanf, J. Brien, R. Dittmeyer und A. Ansar. „Palladium Membrane with High Density of Large-Angle Grain Boundaries to Promote Hydrogen Diffusivity“. *Membranes* 12 (2022), S. 617. DOI: [10.3390/membranes12060617](#)
- 25** B. Emonts, M. Müller, M. Hehemann, H. Janßen, R. Keller, M. Stähler, A. Stähler, V. Hagenmeyer, R. Dittmeyer, P. Pfeifer, S. Waczowicz, M. Rubin, N. Munzke und S. Kasselmann. „A Holistic Consideration of Megawatt Electrolysis as a Key Component of Sector Coupling“. *Energies* 15 (2022), S. 3656. DOI: [10.3390/en15103656](#)
- 24** S. Banivaheb, S. Pitter, K. H. Delgado, M. Rubin, J. Sauer und R. Dittmeyer. „Recent Progress in Direct DME Synthesis and Potential of Bifunctional Catalysts“. *Chemie Ingenieur Technik* 94 (2022), S. 240–255. DOI: [10.1002/cite.202100167](#)

- 23** X. Zhan, C. Yan, Y. Zhang, G. Rinke, G. Rabsch, M. Klumpp, A. I. Schäfer und R. Dittmeyer. „Investigation of the reaction kinetics of photocatalytic pollutant degradation under defined conditions with inkjet-printed TiO₂ films – from batch to a novel continuous-flow microreactor“. *Reaction Chemistry & Engineering* 5 (2020), S. 1658–1670. DOI: [10.1039/d0re00238k](https://doi.org/10.1039/d0re00238k)
- 22** E. P. V. Sánchez, A. Knebel, L. I. Sánchez, M. Klumpp, C. Wöll und R. Dittmeyer. „Studying ZIF-8 SURMOF Thin Films with a Langatate Crystal Microbalance: Single-Component Gas Adsorption Isotherms Measured at Elevated Temperatures and Pressures“. *Langmuir* 36 (2020), S. 8444–8450. DOI: [10.1021/acs.langmuir.0c00875](https://doi.org/10.1021/acs.langmuir.0c00875)
- 21** G. Barrachini, M. Klumpp, P. Arnold und R. Dittmeyer. „Direct synthesis of Dimethyl Ether: a simulation study on the influence of the catalyst configuration“. *Chemical Engineering Journal* 396 (2020), S. 125155. DOI: [10.1016/j.cej.2020.125155](https://doi.org/10.1016/j.cej.2020.125155)
- 20** F. Grinschek, D. Xie, M. Klumpp, M. Kraut, E. Hansjosten und R. Dittmeyer. „Regular Microstructured Elements for Intensification of GasLiquid Contacting Made by Selective Laser Melting“. *Industrial & Engineering Chemistry Research* 59 (2020), S. 3736–3743. DOI: [10.1021/acs.iecr.9b04548](https://doi.org/10.1021/acs.iecr.9b04548)
- 19** H. Kirsch, L. Brübach, M. Loewert, M. Riedinger, A. Gräfenhahn, T. Böltken, M. Klumpp, P. Pfeifer und R. Dittmeyer. „CO₂-neutrale Fischer-Tropsch Kraftstoffe aus dezentralen modularen Anlagen: Status und Perspektiven“. *Chemie Ingenieur Technik* 92 (2020), S. 91–99. DOI: [10.1002/cite.201900120](https://doi.org/10.1002/cite.201900120)
- 18** G. Baracchini, A. G. Machoke, M. Klumpp, R. Wen, P. Arnold, W. Schwieger und R. Dittmeyer. „Structured catalysts for the direct synthesis of dimethyl ether from synthesis gas: a comparison of core@shell versus hybrid catalyst configuration“. *Catalysis Today* 342 (2020), S. 46–58. DOI: [10.1016/j.cattod.2019.07.016](https://doi.org/10.1016/j.cattod.2019.07.016)
- 17** R. Dittmeyer, M. Klumpp, P. Kant und G. Ozin. „Crowd oil not crude oil“. *Nature Communications* 10 (2019), S. 1818. DOI: [10.1038/s41467-019-09685-x](https://doi.org/10.1038/s41467-019-09685-x)
- 16** E. Hansjosten, A. Wenka, A. Hensel, W. Benzinger, M. Klumpp und R. Dittmeyer. „Custom-designed 3D-printed metallic fluid guiding elements for enhanced heat transfer at low pressure drop“. *Chemical Engineering & Processing: Process Intensification* 130 (2018), S. 119–126. DOI: [10.1016/j.cep.2018.05.022](https://doi.org/10.1016/j.cep.2018.05.022)
- 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 CoreShell 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 corezeolite shell catalyst for DME synthesis under redox conditions studied by ETEM and in situ ptychography“. *Microscopy and Microanalysis* 23 (2017), S. 501–512. DOI: [10.1017/S1431927617000332](https://doi.org/10.1017/S1431927617000332)
- 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)

Proceedings and non-peer reviewed Publications

- 4 B. de Haart, U. Fantz, A. Hecimovic, A. Schulz, A. N. Munoz und M. Klumpp. „Trendbericht Technische Chemie 2021“. *Nachrichten aus der Chemie* 69 (2021), S. 52–59. DOI: [10.1002/nadc.20214110510](https://doi.org/10.1002/nadc.20214110510)
- 3 M. Klumpp, T. Böltken, A. Gräfenhahn, M. Riedinger, P. Pfeifer und R. Dittmeyer. „CO₂-neutrale Kraftstoffe aus dezentralen Syntheseeinrichtungen – Ansatz, Status Quo und der Blick nach Vorne“. *Journal für Mobilität und Verkehr* Ausgabe 3 (2019). Available online: www.dvvg.de/fileadmin/user_upload/Bundesgeschaeftsstelle_DVVG/Journal/ISSN-Band_2_Mai_2019.pdf. ISSN: ISSN 2628-4154
- 2 *Erneuerbare Kraftstoffe aus Kohlendioxid und regenerativer Energie – Spinnerei, Vision oder schon fast Realität?* die ZEIT / Forschungswelten. November 9th, 2018
- 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

Patents

- 3 P. Kant, M. Rubin, G. A. Ozin und R. Dittmeyer. „Kostengünstige und effiziente Fotoreaktoren für Fotosynthesen mit Sonnenlicht“. Pat. WO 2024/056575 A1
- 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) / EP 3433014 A1 / US 20190 185330 A1 / WO 2017 162575 A1 / CN 109475858 A / JP 2019 509968 A

- 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) – erloschen

Bookchapters

- 2 D. Dhamo, D. Heß, M. Rubin und R. Dittmeyer. „SOEC-based production of e-fuels via the Fischer–Tropsch route“. In: *High-Temperature Electrolysis - From fundamentals to applications*. Hrsg. von W. Sitte und R. Merkle. IOP Publishing Ltd, 2023, S. 18–1 –18–26. DOI: [10.1088/978-0-7503-3951-3ch18](https://doi.org/10.1088/978-0-7503-3951-3ch18)
- 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 und internationalen conferences

- 20 D. Dhamo, S. Lüttin, M. Rubin und R. Dittmeyer. *SSustainable Aviation Gasoline via Power to Liquid Route: Coupling of High Temperature Fischer Tropsch Synthesis and Isomerization Reaction*“. Annual Meeting on Reaction Engineering. 2023
- 19 M. Klumpp. *Hierarchy in process intensification: Spotlights on structured catalysts and catalyst supports*. Annual Meeting on Reaction Engineering, web-conference. **Invited: Lecture of the Winner of the Hanns-Hofmann-Prize 2020**. 2021
- 18 X. Zhan, C. Yan, Y. Zhang, G. Rabsch, G. Rinke, F. Kirrschhöfer, G. Brenner-Weiß, M. Klumpp, A. Schäfer und R. Dittmeyer. *Degradation of Micropollutant in a Novel Microstructured Photocatalytic Membrane Reactor*. International Conference on Catalysis in Membrane Reactors ICCMR, Eindhoven, The Netherlands. **Awarded: Best oral presentation**. 2019
- 17 X. Zhan, Y. Zhang, M. Klumpp, A. Schäfer und R. Dittmeyer. *Degradation of micropollutant in a novel microstructured photocatalytic membrane reactor*. International Conference on Micro Reaction Technology, Karlsruhe, Germany. 2018
- 16 E. Behraves, K. Eränen, N. Kumar, X. Zhan, M. Klumpp, D. Murzin, R. Dittmeyer und T. Salmi. *Au-based Catalyst Coatings in Microstructured Reactor for Partial Oxidation of Ethanol*. International Conference on Micro Reaction Technology, Karlsruhe, Germany. 2018
- 15 M. Klumpp, G. Baracchini, H. Kirsch, S. Farsi, M. Loewert, P. Pfeifer und R. Dittmeyer. *Power-to-molecules – Converting renewable electricity and CO₂ into valuables for the successful implementation of the energy transition*. Annual Conference of the Chinese-German Chemical Association (CGCA), Karlsruhe, Germany. 2018

- 14 M. Klumpp, S. Bajohr, C. Düpmeier, J. Geisbuesch, J. Isele, U. Kühnapfel, N. Lemmertz, M. Müller, P. Pfeifer, B. Zimmerlin, T. Zornek, S. Zunft, V. Hagenmeyer und R. Dittmeyer. *The Energy Lab 2.0 - Real-life laboratory and simulation platform contributing to the successful implementation of the energy transition*. Integration of Sustainable Energy Conference and Expo, Nuremberg, Germany. 2018
- 13 X. Zhan, Y. Zhang, C. Yan, M. Klumpp, A. Schäfer und R. Dittmeyer. *Degradation of micropollutant in a novel microstructured photocatalytic membrane reactor*. 27th PhotoIUPAC, Dublin, Ireland. 2018
- 12 G. Baracchini, M. Klumpp, A. Machoke, W. Schwieger und R. Dittmeyer. *Direct DME synthesis over bifunctional catalysts: preparation and characterization of a core@shell system*. 3rd Syngas Convention 2018, Cape Town, South Africa. 2018
- 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. *Bi-functional core/shell catalysts for the DME synthesis: catalyst preparation and simulation experiments*. 25. Deutsche Zeolittagung, Hamburg, Germany. 2013

Posters presented at nationalen and internationalen conferences

- 30 T. Engl, D. Kellermann, M. Langer, H. Freund, M. Rubin und R. Dittmeyer. *"Methanation catalysts under dynamic reaction conditions: Spatially and temporally resolved reaction data and modelling"*. European Congress on Catalysis – EuropaCat. 2023
- 29 D. Dhamo, J. Jühn, S. Lüttin, M. Rubin und R. Dittmeyer. *"Sustainable aviation gasoline: Process design based on simulation and experiment"*. International Symposia on Chemical Reaction Engineering – ISCRE 27. 2023
- 28 T. Engl, D. Weber, T. Franken, M. Rubin und R. Dittmeyer. *"Spatially and temporally resolved operando investigations on CO₂ methanation under dynamic reaction conditions"*. Annual Meeting on Reaction Engineering. 2023
- 27 T. Engl, M. Rubin und R. Dittmeyer. *"Model reactor for investigations on CO₂ methanation under dynamic reaction conditions"*. Annual Meeting on Reaction Engineering. 2022
- 26 D. Dhamo, J. Kühn, M. Rubin und R. Dittmeyer. *"Defossilizing the Aviation Sector with Synthetic Fuels: High-Temperature Fischer-Tropsch Synthesis"*. Annual Meeting on Reaction Engineering. 2022
- 25 P. Kant, M. Klumpp, G. Ozin und R. Dittmeyer. *"Contributions to Photochemical Engineering: photo reactor design"*. Annual Meeting on Reaction Engineering, Webconference. 2021
- 24 M. Langer, B. Berzl, M. Klumpp und H. Freund. *"Design of a novel micro structured reactor with optical access for the operando investigation of CO₂ methanation under transient conditions"*. 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020, Webconference. 2020
- 23 Paul Kant, M. Klumpp, G. Ozin und R. Dittmeyer. *"Crowd Oil"– building-integrated CO₂ capture and conversion*. International Conference on Carbon Capture and Utilization, Aachen, Germany. 2019

- 22 Dongxu Xie, E. Hansjosten, M. Hofheinz, M. Klumpp und R. Dittmeyer. *Bridging the gap by printing a gap: Metallic porous-dense composites by selective laser melting*. Jahrestreffen Reaktionstechnik, Würzburg, Germany. 2019
- 21 E. Hansjosten, A. Wenka, A. Hensel, W. Benzinger, M. Klumpp und R. Dittmeyer. *Tailored 3D Printed Fluid Guiding Elements for Process Intensification*. International Conference on Micro Reaction Technology, Karlsruhe, Germany. **Awarded: Best poster**. 2018
- 20 G. Baracchini, M. Klumpp, A. Machoke, W. Schwieger und R. Dittmeyer. *Direct DME synthesis over bifunctional catalysts: preparation and characterization of a core@shell system*. International Symposium on Chemical Reaction Engineering, Florence, Italy. 2018
- 19 X. Zhan, C. Yan, M. Klumpp, A. Schäfer und R. Dittmeyer. *Inkjet printing of photocatalyst on inorganic membranes for photocatalytic degradation of micropollutants*. 51. Jahrestreffen Deutscher Katalytiker, Weimar, Germany. 2018
- 18 G. Baracchini, W. Ding, S. Lee, M. Klumpp, A. Machoke, W. Schwieger und R. Dittmeyer. *Hierarchically layered bifunctional catalysts for efficient one stage synthesis of DME from synthesis gas in micro structured reactors: Part II: Modelling and catalytic testing*. Jahrestreffen Reaktionstechnik, Würzburg, Germany. 2018
- 17 M. Klumpp, G. Baracchini, S. Lee, S. Reuß, A. Machoke, J. Thormann, W. Ding, R. Dittmeyer und W. Schwieger. *Hierarchically layered bifunctional catalysts for efficient one stage synthesis of DME from synthesis gas in micro structured reactors: Part I: Project overview and preparation of core@shell catalysts*. Jahrestreffen Reaktionstechnik, Würzburg, Germany. 2018
- 16 T.L. Sheppard, S. 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*. GeCatS Infoday: Synchrotron Radiation and Neutrons for Catalysis, Materials Research and Development, Frankfurt, Germany. 2017
- 15 G. Baracchini, M. Klumpp, S. Lee, A. Machoke, W. Schieger und R. Dittmeyer. *Core-shell catalysts for the one-stage synthesis of DME: Preparation of spherical and mechanical resistant Cu/ZnO/Al₂O₃ core by flame spray pyrolysis and spray drying*. 50. Jahrestreffen Deutscher Katalytiker, Weimar, Germany. 2017
- 14 M. Klumpp, T. Sheppard, S. Baier, F. Benzi, R. Dittmeyer, J.-D. Grunwaldt und W. Schwieger. *Core@shell catalyst for the one-stage synthesis of DME: Shell formation kinetics and comprehensive in situ characterization under different conditions*. Jahrestreffen Reaktionstechnik, Würzburg, Germany. 2017
- 13 S. Baier, C. Damsgaard, J. Reinhardt, M. Klumpp, F. Benzi, M. Scholz, T. Sheppard, Z. Balogh, T. Kasama, J. B. Wagner, W. Schwieger, C. G. Schroer und J.-D. Grunwaldt. *In Situ Ptychography and ETEM Study: Activation of a Cu-ZnO@ZSM-5 Core-Shell Catalyst*. International Conference X-Ray Microscopy, Oxford, United Kingdom. 2016

- 12 M. Klumpp, G. Baracchini, A. Machoke, W. Ding, S. Lee, P. Pfeifer, R. Dittmeyer und W. Schwieger. *Bifunctional core-shell catalysts for direct conversion of synthesis gas to dimethyl ether (DME)*. 16th International Congress on Catalysis, Beijing, China. 2016
- 11 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*. 30th International Conference on Surface Modification Technologies, Milan, Italy. 2016
- 10 W. Schwieger, A. Machoke, A. Inayat, T. Selvam, A. Inayat, M. Klumpp und H. Freund. *Cellular supports for catalytic reactors: design of hierarchical zeolites for catalytically active composites*. European Symposium on Chemical Reaction Engineering (ESCRE), Fürstentfeldbruck, Germany. 2015
- 9 H. Freund, A. Inayat, M. Klumpp, T. Heidig, E. Bianchi und W. Schwieger. *Cellular supports for catalytic reactors: interaction of structuring and transport processes*. European Symposium on Chemical Reaction Engineering (ESCRE), Fürstentfeldbruck, Germany. 2015
- 8 A. Inayat, M. Klumpp, M. Lämmermann, H. Freund und W. Schwieger. *Pressure drop modeling in open-cell foams: The role of geometric tortuosity*. 9th International Conference on Porous Media and Metallic Foams (Metfoam), Barcelona, Spain. 2015
- 7 W. Ding, S. Lee, M. Klumpp, S. Reuß, P. Pfeifer, W. Schwieger und R. Dittmeyer. *Crystallite-pore network model applied to dimethyl ether production from synthesis gas in bifunctional core-shell catalysts*. 6th International FEZA Conference, Leipzig, Germany. 2014
- 6 A. Inayat, M. Klumpp, H. Freund und W. Schwieger. *Properties of Open-Cell Foams: Effect of Cell Geometry, Periodicity and Strut Shape on the Pressure Drop*. ProcessNet Jahrestagung und 31. DECHEMA-Jahrestagung der Biotechnologen, Aachen, Germany. 2014
- 5 M. Klumpp, A. Inayat, 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*. ProcessNet Jahrestagung und 31. DECHEMA-Jahrestagung der Biotechnologen, Aachen, Germany. 2014
- 4 W. Ding, M. Klumpp, S. Lee, S. Reuß, P. Pfeifer, R. Dittmeyer und W. Schwieger. *Hierarchical bifunctional catalysts for single-stage synthesis of DME in microreactors – Modeling and simulation of the catalyst*. 26. Deutsche Zeolithtagung, Paderborn, Germany. 2014
- 3 M. Klumpp, S. Reuß, S. Lee, W. Ding, P. Pfeifer, R. Dittmeyer und W. Schwieger. *Hierarchical bifunctional catalysts for single-stage synthesis of DME in microreactors – Synthesis and preparation of the catalysts*. 26. Deutsche Zeolithtagung, Paderborn, Germany. 2014
- 2 M. Klumpp, A. Inayat, J. Schwerdtfeger, C. Körner, R. Singer, H. Freund und W. Schwieger. *Periodic open-cellular structures: Effect of porosity and cell orientation on pressure drop behaviour*. Jahrestreffen Reaktionstechnik, Würzburg, Germany. 2013

- 1 M. Klumpp, J. Welscher, A. Machoke, S. Reuß und W. Schwieger. *Core-shell catalysts with zeolite shell – nano, micro and millimeter scale*. 25. Deutsche Zeolithtagung, Hamburg, Germany. 2013