

Publications – Mathias Penkuhn

Book Chapters

- [1] Penkuhn, M. and Tsatsaronis, G. "Energetische Grundlagen der chemischen Reaktionstechnik". In: *Handbuch der chemischen Reaktionstechnik*. Ed. by W. Reschetelowski. Springer, 2019. Chap. 8, pp. 220–250. DOI: 10.1007/978-3-662-56444-8_7-1.

Journals

- [1] Penkuhn, M. and Tsatsaronis, G. "A decomposition method for the evaluation of component interactions in energy conversion systems for application to advanced exergy-based analyses". In: *Energy* 133 (2017), pp. 388–403. DOI: 10.1016/j.energy.2017.03.144.
- [2] Penkuhn, M. and Tsatsaronis, G. "Application of advanced exergetic analysis for the improvement of chemical processes". In: *Chemie Ingenieur Technik* 89.5 (2017), pp. 607–619. DOI: 10.1002/cite.201600113.
- [3] Penkuhn, M. and Tsatsaronis, G. "Comparison of different ammonia synthesis loop configurations with the aid of advanced exergy analysis". In: *Energy* 137 (2017), pp. 854–864. DOI: 10.1016/j.energy.2017.02.175.
- [4] Hauptmeier, K., Penkuhn, M., and Tsatsaronis, G. "Economic assessment of a solid oxide fuel cell system for biogas utilization in sewage plants". In: *Energy* 117-2 (2016), pp. 361–368. DOI: 10.1016/j.energy.2016.05.072.
- [5] Penkuhn, M., Spieker, C., Spitta, C., and Tsatsaronis, G. "Exergoeconomic assessment of a small-scale PEM fuel cell system". In: *International Journal of Hydrogen Energy* 40.38 (2015), pp. 13050–13060. DOI: 10.1016/j.ijhydene.2015.07.119.

Conferences

- [1] Penkuhn, M. and Tsatsaronis, G. "Anwendung der exergoökonomischen Analyse und dimensionsloser Kennzahlen bei der Analyse chemischer Prozesse". In: *Jahrestreffen ProcessNet-Fachgemeinschaft PAAT 2019*. DECHEMA. Dortmund, Germany, 2019.
- [2] Penkuhn, M. and Tsatsaronis, G. "Systematic evaluation of efficiency improvement options for sCO₂ Brayton cycles". In: *ORC 2019, 5th International Seminar on ORC Power Systems*. Ed. by S. Karellas and E. Kakaras. 77. KCORC. Athens, Greece, 2019.
- [3] Penkuhn, M. and Tsatsaronis, G. "Thermoeconomic modeling and analysis of sCO₂ Brayton cycles". In: *3rd European Conference on Supercritical CO₂ (sCO₂) Power Systems 2019*. 139. Paris, France, 2019, pp. 310–318. DOI: 10.17185/dupublico/48909.
- [4] Penkuhn, M. and Tsatsaronis, G. "Anwendung der Exergieanalyse im frühen konzeptionellen Prozessdesign energieintensiver chemischer Prozesse". In: *Jahrestreffen ProcessNet-Fachgemeinschaft PAAT 2018*. DECHEMA. Cologne, Germany, 2018.
- [5] Penkuhn, M. and Tsatsaronis, G. "Application of exergy analysis for evaluating chemical reactor concepts". In: *ECOS 2018 (International Conference on Efficiency, Cost, Optimisation, Simulation and Environmental Impact of Energy Systems)*. Guimarães, Portugal, 2018.
- [6] Penkuhn, M. and Tsatsaronis, G. "Exergoeconomic analyses of different sCO₂ cycle configurations". In: *6th International sCO₂ Power Cycles Symposium*. Pittsburgh, USA, 2018.

- [7] Penkuhn, M. and Tsatsaronis, G. "Vergleich verschiedener Methoden zur Kostenaufteilung in verfahrenstechnischen Prozessen". In: *Jahrestreffen ProcessNet-Fachgemeinschaft PAAT 2017*. DECHEMA. Würzburg, Germany, 2017.
- [8] Penkuhn, M. and Tsatsaronis, G. "Analyse und Identifikation von Verbesserungspotentialen in chemischen Prozessen mit Hilfe einer erweiterten exergoökonomischen Analyse". In: *Jahrestreffen ProcessNet-Fachgemeinschaft PAAT 2016*. DECHEMA. Karlsruhe, Germany, 2016.
- [9] Penkuhn, M. and Tsatsaronis, G. "Comparison of different ammonia synthesis train configurations with the aid of advanced exergy analysis". In: *ECOS 2016 (International Conference on Efficiency, Cost, Optimisation, Simulation and Environmental Impact of Energy Systems)*. PAP-260. Portorož, Slovenia, 2016.
- [10] Penkuhn, M. and Tsatsaronis, G. "Design analysis of the Allam cycle". In: *1st European Seminar on sCO₂ Power Systems*. Eurotherm Seminar No. 110. Vienna, Austria, 2016.
- [11] Penkuhn, M. and Tsatsaronis, G. "Exergy analysis of the Allam cycle". In: *5th International sCO₂ Power Cycles Symposium*. San Antonio, USA, 2016.
- [12] Hauptmeier, K., Penkuhn, M., and Tsatsaronis, G. "Economic assessment of a solid oxide fuel cell system for biogas utilization in sewage plants". In: *ECOS 2015 (International Conference on Efficiency, Cost, Optimisation, Simulation and Environmental Impact of Energy Systems)*. ECOS2015-51251. Pau, France, 2015.
- [13] Penkuhn, M. and Tsatsaronis, G. "Vergleich von Anlagenkonzepten durch Exergoökonomie am Beispiel der Ammoniaksynthese". In: *Jahrestreffen ProcessNet-Fachgemeinschaft PAAT 2015*. DECHEMA. Bruchsal, Germany, 2015.
- [14] Sorgenfrei, M., Penkuhn, M., and Tsatsaronis, G. "Understanding the inefficiencies of an IGCC concept with carbon capture based on an advanced exergy analysis". In: *ECOS 2015 (International Conference on Efficiency, Cost, Optimisation, Simulation and Environmental Impact of Energy Systems)*. ECOS2015-51246. Pau, France, 2015.
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- [16] Penkuhn, M. and Tsatsaronis, G. "Schnelle Identifikation von Optimierungspotentialen von Prozessen mithilfe der Erweiterten Exergieanalyse". In: *Jahrestreffen ProcessNet-Fachgemeinschaft PAAT2014*. DECHEMA. Lüneburg, Germany, 2014.