

Prof. Dr.-Ing. Niklas von der Aßen

(*02.08.1984, married, two children: 2015, 2017)

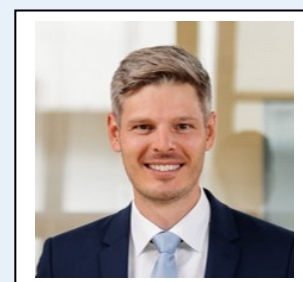
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<https://scholar.google.com/citations?user=FvPcKhcAAAAJ>

Working group vision and contribution to catalaix

Our vision is to design sustainable products embedded in sustainable energy and process systems by leveraging and developing novel thermodynamic tools across all scale and integrating systematic environmental assessments in the design process. With our multi-scale research, we contribute to catalaix by identifying value chains, recycling strategies and transition pathways for a sustainable open-loop circular carbon economy.

Current & Previous Positions

Since 2022	Full Professor and Head of the Institute of Technical Thermodynamics, RWTH Aachen University
Since 2021	Rector's Delegate for Sustainability, RWTH Aachen University
2019 – 2022	Junior Professor for Sustainable Life Cycles in Energy, Chemical and Process Engineering, RWTH Aachen University
2019	Entrepreneurship Program Manager (short-term assignment), Corporate Innovation, Bayer AG
2016 – 2019	Sustainability Consultant, Engineering & Technology, Bayer AG
2010 – 2016	Team and Group leader for Life Cycle Assessment and Energy Systems Engineering, Institute of Technical Thermodynamics, RWTH Aachen University

Education

2010 – 2015	PhD , “From life-cycle assessment towards life-cycle design of carbon dioxide capture and utilization”, RWTH Aachen University
2009 – 2010	Research stay with Prof. Castells, Universitat Rovira i Virgili, Tarragona, Spain
2007 – 2008	Study abroad, University of California, Davis, CA, USA
2006 – 2011	Diploma of Business Administration , RWTH Aachen University
2004 – 2010	Diploma of Mechanical Engineering , RWTH Aachen University

Fellowships and Awards

2023	FAMOS für Familie , award for supervisors who make a special commitment to promoting a good work-life balance, RWTH Aachen University
2019	MSE Young Researcher Award, Molecular Science & Engineering, RWTH Aachen University
2017	Borchers badge, Ph.D. thesis “with honors”, RWTH Aachen University
2011	Springorum medal, Diploma “with honors”, RWTH Aachen University

Contributions to the science system

2020 - 2021 Member of the "Commission for equal opportunities", Faculty of Mechanical Engineering, RWTH Aachen University

Selected Projects

Since 2022 Core PI of the national Cluster of Excellence "Fuel Science Center"
 Since 2021 Coordination lead of project "DAC-TALES" (Direct Air Capture)
 Since 2021 Project partner in "COSIMA - CO₂-neutral Saint-Gobain industrial site Herzogenrath" (glass production and energy supply)
 Since 2020 Project partner in "Carbon2Chem / Carbon2Polymers" (sector coupling and closed carbon cycles)
 2019 – 2022 Lead for LCA activities in the roadmapping process of "Kopernikus P2X" (sector coupling and CO₂-based polymers)

Most important scientific contributions

1. B. Nilges, C. Burghardt, C. Reinert, N. von der Assen. *Comparative Life Cycle Assessment of Industrial Demand-Side Management via Operational Optimization*, Comp. & Chem. Eng. **2023**, 177, 108323. DOI: 10.1016/j.compchemeng.2023.108323
2. J. Hense, M. Bachmann, L. Polte, N. von der Assen, A. Jupke. *Integrated Process Design and Life Cycle Assessment of Carbon Monoxide Provision from Basic Oxygen Furnace Gas*, Chemie Ingenieur Technik **2022** 94(10), 1524-1535. DOI: 10.1016/j.est.2022.105964
3. S. Völker, S. Deutz, J. Burre, D. Bongartz, A. Omari, B. Lehrheuer, A. Mitsos, S. Pischinger, A. Bardow, N. von der Assen. *Blend for all or pure for few? Well-to-wheel life cycle assessment of blending electricity-based OME₃₋₅ with fossil diesel*, Sust. Energy & Fuels **2022**, 6(8), 1959-1973. DOI: 10.1039/D1SE01758F
4. J. Wyndorps, H. Ostovari, N. von der Assen. *Is electrochemical CO₂ reduction the future technology for power-to-chemicals? An environmental comparison with H₂-based pathways*, Sust. Energy & Fuels **2021**, 5(22), 5748-5761. DOI: 10.1039/D1SE00975C
5. L.J. Müller, A. Kätelhön, S. Bringezu, S. McCoy, S. Suh, R. Edwards, V. Sick, S. Kaiser, R. Cuellar-Franca, A. El Khamlichi, J.H. Lee, N. von der Assen, A. Bardow, *The carbon footprint of the carbon feedstock CO₂*, Energy Environ Sci. **2020**, 13, 2979-2992. DOI: 10.1039/D0EE01530J
6. J. Kleinekorte, L. Fleitmann, M. Bachmann, A. Kätelhön, A. Barbosa-Póvoa, N. von der Assen, A. Bardow, *Life Cycle Assessment for the Design of Chemical Processes, Products, and Supply Chains*, Annu. Rev. Chem. Biomol. Eng. **2020**, 11, 203-233. DOI: 10.1146/annurev-chembioeng-011520-075844
7. N. von der Assen, L.J. Müller, A. Steingrube, P. Voll, A. Bardow. *Selecting CO₂ sources for CO₂ utilization by environmental-merit-order curves*, Environ. Sci. Technol. **2016**, 50(3), 1093-1101. DOI: 10.1021/acs.est.5b03474
8. N. von der Assen, A. Sternberg, A. Kätelhön, A. Bardow, *Environmental potential of carbon dioxide utilization in the polyurethane supply chain*, Faraday Disc. **2015**, 183, 291-307. DOI: 10.1039/C5FD00067J

9. N. von der Assen, A. Bardow, *Life cycle assessment of polyols for polyurethane production using CO₂ as feedstock: insights from an industrial case study*, Green Chem. **2014**, 16(6), 3272-3280. DOI: 10.1039/C4GC00513A
10. N. von der Assen, J. Jung, A. Bardow, *Life-cycle assessment of carbon dioxide capture and utilization: avoiding the pitfalls*, Energy Environ. Sci. **2013**, 6(9), 2721-2734. DOI: 10.1039/C3EE41151F