

Prof. Dr. Regina Palkovits

(*29.05.1980, married, two children: 2011, 2013)

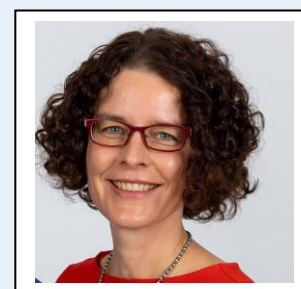
RWTH Aachen University

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@PalkovitsLab; [Regina Palkovits - Google Scholar](#)

Working group vision and contribution to catalaix

With heterogeneous catalysis and material design as core expertise, we tackle global challenges via the development of sustainable chemo- and electro-catalytic transformations and processes. At the interface of chemistry, chemical engineering and material sciences, we focus on valorizing biomass, CO₂ and plastics in novel value cycles together with the necessary production and usage of hydrogen provided from renewable sources. Interdisciplinary work is an indispensable part of our research. In catalaix, we will contribute all our catalysis knowhow in the joined design of disruptive and feasible technologies for value-added recycling and design of plastics towards an impact on future industry.

Current & Previous Positions

Since 2023	Director of the Institute of Sustainable Hydrogen Economy (INW-2) at Forschungszentrum Jülich (50% Jülich, 50% RWTH)
Since 2019	Max Planck Fellow at Max-Planck-Institute for Chemical Energy Conversion
2015 - 2020	Acting Director of the Institute of Chemical Technology & Makromolekulare Chemistry (ITMC), RWTH Aachen University/ Germany
Since 2013	Full Professor for Heterogeneous Catalysis & Chemical Technology, ITMC, RWTH Aachen University/ Germany
2010 – 2013	Associate Professor for Nanostructured Catalysts, ITMC, RWTH/ Germany
2008 – 2010	Group Leader , Max-Planck-Institut für Kohlenforschung, Mülheim/ Germany
2007	PostDoc with Prof. Bert Weckhuysen, Utrecht University/ The Netherlands

Education

2003 – 2006	PhD with Prof. Schüth at Max-Planck-Institut für Kohlenforschung, Mülheim/ Germany
1998 – 2003	Diploma of Chemical Engineering , Technical University Dortmund/ Germany
2002	Exchange Semester , Chemical Engineering of Lehigh University, Pennsylvania/USA

Fellowships and Awards

2023	Werner Siemens Foundation Research Award
2021	Eastman Foundation Distinguished Lecturer in Catalysis
2020	Member of North Rhine-Westphalian Academy of Sciences, Humanities and the Arts
2019	Max Planck Fellow at the Max-Planck Institute of Chemical Energy Conversion
2019	EFCATS Young Researcher Award
2019	Exxon Mobil Science & Engineering Award
2017	DECHEMA Award for outstanding scientific contributions, Dechema/Germany
2015	FAMOS for family (award for family-friendliness of RWTH Aachen University)
2011	Selected for the Capital-Project Young Elite "Four time forty below forty"

2011	Award „ 100 Women of tomorrow “ of the initiative „Germany – Country of Ideas“
2010	Innovation Award of North-Rhine-Westphalian Academy of Science/ Germany
2010	Robert Bosch Junior Professorship of Robert Bosch Foundation/ Germany
2010	Jochen-Block Award of the German Catalysis Society/ Germany
2010 – 2015	Member of the Young Academy (Berlin-Brandenburg Academy/ Leopoldina)
2009	Award for „ Comprehensible Science “ of GKSS, Helmholtz Society/ Germany
2008	„ Fast-Track Fellowship “ of Robert Bosch Foundation/ Germany
2006	Hendrik Casimir – Karl Ziegler Research Award of Royal Netherlands Academy of Arts and Science and North Rhine-Westphalia Academy of Science and Arts

Contributions to the science system

Since 2018	Member of National Committee on Research Buildings / Germany
Since 2018	Member of the GeCats Commission (German Catalysis Society)
Since 2017	Selection Committee of the Wöhler Award of GDCh
Since 2016	Selection Committee of PhD program of German Environment Foundation (DBU)
Since 2016	Selection Committee of the Green & Sustainable Chemistry Challenge (Elsevier)
Since 2015	Advisory Board of the <i>International Sustainable Chemistry Collaboration Centre ISC3</i>
2015-2023	Associate Editor of <i>Catalysis Science & Technology</i> (RSC Journal)
Since 2015	Intern. Advisory Board of <i>Green Chemistry</i> , <i>ChemSusChem</i> and <i>ChemCatChem</i>
2014-2022	Managing Board (Vice Chair and 2018-2022 Chair) of “Sustainable Chemistry” division of the German Chemical Society (GDCh)
2014-2021	Scientific Advisory Board (2018-2021 Vice Chair) , Leibniz Institute for Catalysis (LiKat), Rostock, Germany
Since 2012	International Advisory Board of <i>ChemSusChem</i> . (Wiley journal)
Since 2012	Referee for German Research Foundation, Alexander von Humboldt Foundation etc.
2010	Scientific Advisory Board of the „Energy-Exhibition“ on Isle Mainau in 2010 the frame of the Lindauer Nobel Laureat Meeting, Germany
2010	Ambassador of the Year of Energy 2010 , an initiative of the German Federal Ministry of Education and Research (BMBF)

Selected Projects

Since 2022	PI of <i>Bio4MatPro</i> (Competence Center for the Biological Transformation of Materials Science and Production Engineering)
Since 2021	PI of the national Hydrogen Lead Project <i>H2Giga</i>
Since 2021	PI of the <i>Hydrogen Cluster4Future</i>
Since 2021	Core PI of <i>NFDI4Cat</i> (NFDI for Catalysis-Related Sciences)
Since 2019	Core PI of the national Cluster of Excellence “ <i>Fuel Science Center</i> ”
2019-2022	Coordination Committee and cluster coordinator of <i>Kopernikus Project P2X</i>
2017-2018	PI of the national Cluster of Excellence “ <i>Tailor-made fuels from biomass</i> ”
2008-2012	PI of NRW Research Cluster “ <i>NETZ - Nano Energy Technology Centre</i> ”
Since 2012	PI of the European Erasmus Mundus Graduate School <i>SinChem</i>
2010-2015	PI of NRW Research Cluster <i>SusChemSys</i>
2014-2020	Member, FPS COST Action FP1306
Since 2014	Member of the Strategic Partnerships <i>ACalNet</i> (DAAD and BMBF)

Most important scientific contributions

>230 Publikationen, >15000 Zitationen (Google Scholar), H-Index: 58 (Google Scholar)

1. S. Mürtz, J. Simböck, F. Zeng, M. Ghiasi, S. Schönebaum, U. Simon, F. M.F. de Groot, **R. Palkovits***, *EES Catal.* **2023**; Elucidating the validity of electronic characteristics of transition metal perovskites as descriptors bridging electro- and chemocatalysis. <https://doi.org/10.1039/D3EY00206C>
Report of an electronic descriptor rationalizing chemo- and electrocatalytic activity of perovskites

2. J. Kümper, J. Meyers, R. Sebers, N. Kurig, **R. Palkovits***, *Green Chem.* **2023**; Electrochemical transformation of D,L-glutamic acid into acrylonitrile. <https://doi.org/10.1039/D3GC01045G>
First proof of an electrochemical route to the otherwise fossil-derived monomer acrylnitrile
3. M. O. Haus, B. Winter, L. Fleitmann, **R. Palkovits***, A. Bardow*, *Green Chem.* **2022**; Making more from Bio-Based Platforms: Life Cycle Assessment and Techno-Economic Analysis of N Vinyl-2 Pyrrolidone from Succinic Acid. <https://doi.org/10.1039/D2GC01219G>
LCA & techno-economic analysis of a catalytic route from biomass to the monomer N-vinyl-pyrrolidone
4. M. S. Lehnertz, J. B. Mensah, **R. Palkovits***, *Green Chem.* **2022**; Chemical recycling of polyhydroxy butyrate and polylactic acid over ruthenium supported on ceria. <https://doi.org/10.1039/D2GC00216G>
Efficient strategy for the catalytic recycling of PLA and PHB
5. J. Simböck, M. Ghiashi, S. Schönebaum, U. Simon, F. M. F. de Groot, **R. Palkovits***, *Nat. Commun.* **2020**; Electronic parameters in cobalt-based perovskite-type oxides as descriptors for chemocatalytic reactions. <https://doi.org/10.1038/s41467-020-14305-0>
Establishing electronic descriptors of cobalt-based perovskites for prediction of catalytic activity
6. J. Burre, D. Bongarth, S. Deutz, C. Mebrahtu, O. Osterthun, R. Sun, S. Völker, A. Bardow, J. Klankermayer, **R. Palkovits**, A. Mitsos, *Energy Environ. Sci.* **2021**; Comparing pathways for electricity-based production of dimethoxymethane as a sustainable fuel. <https://doi.org/10.1039/D1EE00689D>
Early-stage technology assessment of hydrogen-efficient catalytic conversions of CO₂ into sustainable fuel
7. J. Meyers, J. B. Mensah, F. J. Holzhäuser, A. Omari, C. C. Blesken, T. Tiso, S. Palkovits, L. M. Blank, S. Pischinger, **R. Palkovits**, *Energy Environ. Sci.* **2019**; Electrochemical conversion of a bio-derivable hydroxy-acid to a drop-in oxygenate diesel fuel. <https://doi.org/10.1039/C9EE01485C>
Demonstrating a novel bio- and electrochemical route from biomass to sustainable fuels
8. **R. Palkovits**, S. Palkovits*, *ACS Catal.* **2019**; Using artificial intelligence to forecast water oxidation catalysts. <https://pubs.acs.org/doi/abs/10.1021/acscatal.9b01985>
Examples of the potential of machine-learning in forecasting of promising electrocatalysts
9. P. J. C. Hausoul*, C. Broicher, R. Vegliante, C. Göb, **R. Palkovits***, *Angew. Chem. Int. Ed.* **2016**; Solid Molecular Phosphine Catalysts for Formic acid Decomposition in the Biorefinery. <https://doi.org/10.1002/anie.201510681>
Novel single-site catalyst concept for efficient conversions in the biorefinery
10. I. Delidovich, P. J. C. Hausoul, L. Deng, R. Pfützenreuter, M. Rose, **R. Palkovits***, *Chem. Rev.* **2016**; Alternative Monomers from lignocellulose and their application for polymer production. <https://doi.org/10.1021/acs.chemrev.5b00354>
Review on novel monomers from lignocellulosic biomass and the related sustainable polymers

Patents

- > 30 Patent applications; following some examples on catalyst development and novel biomass routes:
- M. Rose, R. Pfützenreuter, R. Palkovits, Patent (2014) PCT/EP2014/065556: Verfahren zur Aminierung von Isosorbid
 - R. Palkovits, M. Rose, K. Schute, Patent DE102015001407.2; WO2016/124170: Isolation of organic dicarboxylic acids by adsorption on hydrophobic porous materials
 - C. Glotzbach, S. Schirrmeister, K. Beine, P. Hausoul, R. Palkovits, Patent (2017) DE 102017204322: Verfahren zur chemischen Umsetzung von Zuckern oder Zuckeralkoholen zu Glykolen
 - K. Schute, P. J.C. Hausoul, R. Palkovits; Patent (2017) EP3415500B1: Verfahren zur Herstellung von Methylpyrrolidonen
 - X. Wang, P. J. C. Hausoul, R. Palkovits, Patent (2019) DE102019105105A1 Verfahren zur Herstellung von 1,2-Propanediol
 - M. Muertz, M. Lehnertz, J. Kuemper, S. Palkovits, R. Palkovits, Patent application (2023) DE 10 2023 124 897.9