
Dr. SANDY SCHMIDT, Asst. Prof.

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RESEARCH INTERESTS / VISION

It is my ambition to unlock the full potential of enzyme catalysis for applications that benefit humanity and to contribute to a sustainable future. To achieve this, my work revolves around biocatalysts that can ensure a greener, sustainable, and resource-saving production of compounds with a wide range of applications. I have thus established myself as an interdisciplinary scientist at the intersection of synthetic biology, enzymology, and biocatalysis. Throughout my career, my research has been driven by the desire to understand the complex, molecular processes underlying enzyme catalysis and to exploit them for sustainable synthesis. For instance, I am striving to elucidate the tightly controlled mechanisms in redox enzymes, and to engineer these processes to increase applicability. I am particularly intrigued by how protein engineering accesses novel enzyme chemistry to harness the unique enzymology encoded in nature for synthetic applications.

Keywords: Biocatalysis, photocatalysis, oxidoreductases, (chemo)enzymatic synthesis, protein engineering, synthetic biology, strain engineering, pharmaceutical biotechnology.

CURRENT POSITION

Tenure-track Assistant Professor (Rosalind Franklin Fellow), Department of Chemical and Pharmaceutical Biology, Groningen Research Institute of Pharmacy Institute, University of Groningen, NL

EDUCATION

- 2015 **Ph.D.** in Biocatalysis (*Dr. rer. nat, summa cum laude*)
University of Greifswald, Institute of Biochemistry, Germany
- 2012 **Diploma in Biochemistry** (*Diplom-Biochemikerin, equiv. M. Sc.*)
University of Greifswald, Institute of Biochemistry, Germany

PAST POSITIONS

- Feb 2017 – **Senior Scientist** (*Universitätsassistentin mit Doktorat*)
Mar 2020 Graz University of Technology, Austria
- Dec 2015 – **Postdoctoral Researcher**
Jan 2017 Delft University of Technology, The Netherlands

HONORS AND AWARDS

- 2022 **International Biocat Award**, category 'Academic Research'
- 2020 **Rosalind Franklin Fellowship** (awarded competitively)
- 2018 & 2015 **Awards for best poster** at the internationally renowned Gordon Research Conference on Biocatalysis (2018, USA) and the 12th Biotrans Research Conference (2015, Austria)
- 2018 **Max Buchner Research Fellowship**, Max Buchner Research Foundation, Dechema (Germany)
- 2015 **German Academic Exchange Service fellowship** and **fellowships** from the **Gesellschaft Deutscher Chemiker** and the **promotion program for women** (University of Greifswald, Germany) for international conference participation

THIRD-PARTY FUNDED PROJECTS

- ERC Starting Grant 'ReCNNSTRCT' (GA no. 101075934), 1.5 M€ (2022)
- Netherlands Organization of Scientific Research VIDI grant (VI.Vidi.213.025), 800,000 € (2022)
- Netherlands Organization of Scientific Research ENW-XS grant (OCENW.XS22.1.044), 50,000 € (2022)
- Coordinator of Horizon-MSCA Doctoral Network [BiodeCCodiNNG](#) (GA no. 101073065), total 2.6 M€ (548 k€ to my group) (2022)
- Coordinator of MSCA-ITN-EJD [ConCO₂rde](#) (GA no. 955740), total 2.9 M€ (531 k€ to my group) (2020)
- Principal Investigator in MSCA-ITN-EJD [PhotoBioCat](#) (GA no. 764920), 255 k€ to my group) (2017)
- Initial funding, Graz University of Technology, 6,000 € (2019)
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ACTIVITIES WITHIN THE SCIENTIFIC COMMUNITY

Conference organization

- 2023 Co-chair and co-organizer of the '**Carbon Tech Symposium**', one-day symposium for researchers from academia and industry working on biological and chemical CO₂ utilization, on-site in Groningen (NL) in spring 2023 (approx. 100 participants)
- 2022 Co-chair and co-organizer of the '**Amine Biocatalysis 5.0**' conference, three-day conference for established and emerging researchers to share research on biocatalytic amine synthesis, on-site in Groningen (NL) in autumn 2022 (approx. 100 participants)
- Since 2021 Co-chair and co-organizer of the annual '**NextGenBiocat - An International Young Investigator Symposium**', two-day conference to promote early-career researchers, organized online in 2021 (192 participants), and on-site in Delft (NL) in spring 2022 (approx. 120 participants), and on-site in Graz (AT) in spring 2023 (approx. 120 participants).
- 2018 **BiotechCareers - Gender equality in a fast moving industry**. In 2018, I co-initiated and organized a yearly event series on career challenges and opportunities for women in academia. The invited female Professors gave talks about their research, followed by a panel discussion with students and researchers as audience.

Selected conference talks (*incl. upcoming*)

- 2023 Beilstein Enzymology Symposium, Rüdeshheim, Germany, **invited oral presentation**
- 2023 Biotrans - 16th International Symposium on Biocatalysis & Biotransformations, La Rochelle, France, **invited oral presentation**
- 2023 Novel Enzymes 2023, Greifswald, Germany, **invited oral presentation (Keynote)**
- 2022 NWO Chemistry of Life Day, Utrecht, NL, **invited oral presentation**
- 2022 Institute of Organic Chemistry's Biocatalysis Symposium, Aachen, Germany, **invited oral presentation**
- 2022 10th International Congress on Biocatalysis, Hamburg, Germany, **invited oral presentation**
- 2022 ComBioCat Symposium 2022, Rostock, Germany, **invited oral presentation**
- 2020 Dutch Biocatalysis Symposium 2020, online, **invited oral presentation**
- 2019 Japan-Germany-Switzerland Workshop for Enzyme Technology and Bioprocess Development, Toyama, Japan, oral presentation
- 2018 Gordon Research Conference on Biocatalysis, Biddeford, USA, Poster award with selected oral presentation
- 2016 8th International Congress on Biocatalysis, Hamburg, Germany, oral presentation

Reviewer for journals and funding organizations

- Netherlands Organization of Scientific Research: grant reviewer, member assessment committees, since 2022
- Grant reviewer for BMBF, 2023
- Grant reviewer for Technical University of Munich, 2023
- Grant reviewer at EURONORM, since 2021
- In addition: Ad-hoc journal reviewer for e.g. *Nature*, *Science*, *Nature Communications*, *Angewandte Chemie*, *ACS Catalysis*, *Trends in Biotechnology*, *Chem Catalysis*, *ChemCatchem*, *ChemBioChem* etc.

Board and editorial activities (*most recent*)

- 2023 Guest Editor for Communications Chemistry Special Collection on '**Chemoenzymatic Synthesis**'
- Since 2021 Editorial Board member of the *RÖMPP's Chemistry Lexicon*, Georg Thieme Verlag, Germany
- 2021 Guest Editor for the *ChemBioChem/ChemCatChem* Special Issue '**PhotoBioCat**', and *ChemBioChem* Special Issue '**NextGenBiocat**', Chemistry Europe, John Wiley & Sons
- 2021 Catalysts special issue '**Biocatalytic Cascade Reactions**', MDPI (Switzerland)
- 2021 Topic Editor for 'Research Topic' in *Frontiers in Catalysis*, Frontiers Media SA (Switzerland)

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2021 Editor of textbook *The autotrophic biorefinery*, DeGruyter (Germany)
Since 2020 Editorial board member of *Frontiers in Catalysis*, Frontiers Media SA (Switzerland)

Institutional responsibilities

2022 Member of the Curriculum commission Pharmacy, University of Groningen, NL
Since 2021 Member of Supervisor Advisory Board of the Graduate School of Science and Engineering, University of Groningen (NL)
Since 2021 Member of 'Van Meenen middelen' committee, University of Groningen (NL)
Since 2020 Member of PhD examining committees at University of Groningen (NL), and external examiner of examining committees
2017 – 2020 Member of the Molecular and Technical Biosciences academic committee, Graz University of Technology (Austria)

Memberships & Scientific societies

Since 2021 Royal Netherlands Chemical Society (Koninklijke Nederlandse Chemische Vereniging, NL)
Since 2020 Dutch Biotechnology Association (Nederlandse Biotechnologie Vereniging, NL)
Since 2014 German Chemical Society (Gesellschaft Deutscher Chemiker e. V., Germany)
Since 2017 German Society for Chemical Engineering and Biotechnology (Gesellschaft für Chemische Technik und Biotechnologie e.V., Germany)

TEACHING ACTIVITIES

Since 2020 Lecturer and coordinator of several BSc/MSc courses at University of Groningen (NL), namely 'Proteins for Biopharmaceuticals and Drug Discovery', 'Applied Biotechnology', 'Pharmaceutical Biotechnology', 'Green Chemistry', 'Academic communication skills I & II'
Since 2020 Lecturer in Advanced course on biocatalysis and protein engineering, [BioTech Delft](#)
2019 – 2020 Lecturer and coordinator of several BSc/MSc courses at Graz University of Technology (Austria), namely 'Genetic engineering', 'Molecular biology', 'Presentation techniques'
2017 – 2020 Two four-week practical courses per year, seminar and lectures on 'Molecular Biotechnology' for several BSc/MSc students at Graz University of Technology (Austria)
2016 Lecturer – seminar and lectures on 'Bioinformatics' in independently conceptualized course for PhD students at Delft University of Technology (NL)

SUPERVISION & PUBLIC OUTREACH

Beyond my drive for scientific discovery, I consider it one of my greatest responsibilities and pleasures to nurture the next generation of young scientists and to convey my curiosity and enthusiasm for science to them. During my career, I have supervised 29 students, 11 undergraduates, 10 graduates, and currently eight PhD students. In addition, I am mentoring one postdoctoral fellow at the moment. To be an effective teacher and group leader, I continuously develop my skills by participating in workshops and courses related to scientific leadership, PhD coaching, teaching and outreach. To actively engage myself in the development of sustainable PhD supervision, I am a member of the Supervisor Advisory Board of our Graduate School, which develops new ideas and policies to support both PhD candidates and supervisors.

I value giving early career researchers a platform for developing a powerful network, which is why I co-organize the annual NextGenBiocat - An International Young Investigator Symposium, where junior researchers can share their ideas and knowledge to raise their profiles and confidence. To inspire enthusiasm for science as an attractive career option at high-school level, I am developing a program together with the outreach office ScienceLinX of the UG to share my research with young people. I am, for instance, participating in the annual "keuzecolleges", classes which target 14- to 16-year-olds. In this program, I organize experiments for pupils (e.g. isolating DNA from strawberries), aimed at sparking their scientific curiosity and encouraging them to become scientists.

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PUBLICATIONS SUMMARY

OUTPUT	NUMBER
publications	37
book chapters, edited textbooks	5, 1
non peer-reviewed publications (e.g. news type)	4
first author	5
corresponding author	15 (incl. book chapters)
citations in total	1867 (May 2023)
h-index	including self-citations: 27; excluding: 24
patent applications	1

FOR FULL LIST OF PUBLICATIONS PLEASE SEE:

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PURE: <https://research.rug.nl/en/persons/sandy-schmidt/publications/>

Researcher-ID: [ABD-5910-2020](https://www.researcherid.org/ABD-5910-2020)