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Scientific Career

- Since 2020 Assistant Professor at the JGU Mainz (DE)*
*Took a six-month parental leave from September 2023 to February 2024
- 2019 – 2020 Junior Research Group Leader at the Münster University (DE)
- 2017 – 2019 Postdoctoral Fellow at Indiana University (USA, Prof. M. K. Brown)
- 2013 – 2016 PhD at the TU München (DE, Prof. T. Bach)
- 2012 – 2013 Novartis Basel (CH), 6-month Research Internship
- 2011 – 2012 Master of Science from the Universität Basel and The Scripps Research Institute (CH/USA, Prof. A. Pfaltz/ Prof. D. G. Blackmond)
- 2008 – 2011 Bachelor Studies at the Universität Basel (CH)

Scientific Awards, Appointments, and Professional Recognition

- 2024 ERC Starting Grant
- 2024 Exploration Grant of the Boehringer Ingelheim Stiftung
- 2020 Thieme Chemistry Journals Award
- 2019 Liebig Fellowship of the Verband der Chemischen Industrie (VCI)
- 2017 Postdoctoral Fellowship of the Deutsche Forschungsgemeinschaft (DFG)
- 2014 Kekulé Fellowship (VCI)
- 2011 Top-up fellowship from the Universität Basel

Grant Support

- 4) Co-PI of a Breakthrough Program from the Carl-Zeiss-Stiftung (MAINCE)
- 3) Co-PI of a Collaborative Research Center (CRC) of the DFG (SFB 1552)
- 2) Lead PI for an NMR Renewal Grant from the DFG (INST 247/1108-1, 2022)
- 1) Research Grant from the DFG (WA 5301/5-1, 2022)

Publications

- 19) H. Maag, M. Schmitz, A. Sandvoß, D. Mundil, A. Pedada, F. Glaser, C. Kerzig, J. M. Wahl,* „Photocyclization of Fluorinated Acetophenones Unlocks an Efficient Way to Solar Energy Storage“, *ChemRxiv*, **2024**, doi:10.26434/chemrxiv-2024-2cp8z.
- 18) H. Maag, D. J. Lemcke, J. M. Wahl,* „Ring opening of photogenerated azetidins as a strategy for the synthesis of aminodioxolanes“ *Beilstein J. Org. Chem.* **2024**, *20*, 1671-1676.
- 17) M. Ong, M. Arnold, J. M. Wahl,* “Synthesis of 4-Phenylpyrrolidin-2-one via an Aza-Baeyer-Villiger Rearrangement”, *Org. Synth.* **2023**, *100*, 347-360.
- 16) A. Sandvoß, J. M. Wahl,* “From cycloalkanols to heterocycles via nitrogen insertion” *Org. Lett.* **2023**, *25*, 5795–5799.
- 15) J. Sietmann, M. Tenberge, J. M. Wahl,* „Wacker oxidation of methylenecyclobutanes: scope and selectivity in an unusual Setting“, *Angew. Chem. Int. Ed.* **2023**, *62*, e202215381.
- 14) M. Tenberge, J. M. Wahl,* “Lewis acid catalysed asymmetric one-carbon ring-expansion of

prochiral cyclobutanones”, *Synthesis* **2022**, *55*, 892-898.

13) M. Ong, M. Arnold, A. W. Walz, J. M. Wahl,* “Stereospecific Nitrogen Insertion Using Amino Diphenylphosphinates: An Aza-Baeyer-Villiger Rearrangement”, *Org. Lett.* **2022**, *24*, 6171-6175.

12) A. Sandvoß, H. Maag, C. G. Daniliuc, D. Schollmeyer, J. M. Wahl,* „Dynamic kinetic resolution of transient hemiketals: a strategy for the desymmetrisation of prochiral oxetanols“, *Chem. Sci.* **2022**, *13*, 6297-6302.

11) J. Sietmann,[#] M. Ong,[#] C. Mück-Lichtenfeld, C. G. Daniliuc, J. M. Wahl,* “Desymmetrization of Prochiral Cyclobutanones via Nitrogen Insertion: A Concise Route to Chiral γ -Lactams”, *Angew. Chem. Int. Ed.* **2021**, *60*, 9719-9723.

10) A. Sandvoß, J. M. Wahl,* “Recent Advances in Enantioselective Desymmetrizations of Prochiral Oxetanes”, *Chem. Eur. J.* **2021**, *27*, 5871-5879.

9) T. Dünnebacke, K. K. Kartha, J. M. Wahl, R. Q. Albuquerque, G. Fernández, “Solvent-controlled E/Z isomerization vs [2+2] photocycloaddition mediated by supramolecular polymerization” *Chem. Sci.* **2020**, *11*, 10405-10413.

8) J. Sietmann, J. M. Wahl,* “Enantioselective Desymmetrization of Cyclobutanones: A Speedway to Molecular Complexity”, *Angew. Chem. Int. Ed.* **2020**, *59*, 6964-6974.

7) M. L. Conner, J. M. Wahl, M. K. Brown, “Thioallenoates in catalytic enantioselective [2+2]-cycloadditions with unactivated alkenes” *Tetrahedron* **2019**, *75*, 3265-3271. (Special issue to honor Professor Ryan Shenvi’s receipt of the Tetrahedron Young Investigator Award)

6) E. N. Hancock, J. M. Wahl, M. K. Brown, “Recent advances in the synthesis of gem-dimethylcyclobutane natural products” *Nat. Prod. Rep.* **2019**, *36*, 1383-1393.

5) J. M. Wahl, M. L. Conner, M. K. Brown, “Allenoates in Enantioselective [2+2] Cycloadditions: From a Mechanistic Curiosity to a Stereospecific Transformation”, *J. Am. Chem. Soc.* **2018**, *140*, 15943-15949.

4) J. M. Wahl, M. L. Conner, M. K. Brown “Synthesis of (-)-Hebelophyllene E: An Entry to Geminal Dimethylcyclobutanes by [2+2] Cycloaddition of Alkenes and Allenoates”, *Angew. Chem. Int. Ed.* **2018**, *57*, 4647-4651.

3) J. M. Wahl, T. Bach, “A Route to 2-Substituted 3-Cyanopyrroles: Synthesis of Danaidal and Suffrutine A” *J. Org. Chem.* **2016**, *81*, 6149-6156.

2) J. M. Wahl, A. Pöthig, T. Bach, “Pyrrole as a Directing Group: Regioselective Pd(II)-Catalyzed Alkylation and Benzylolation at the Benzene Core of 2-Phenylpyrroles”, *Org. Lett.* **2016**, *18*, 852-855.

1) J. Duschmalé, J. M. Wahl, M. Wiesner, H. Wennemers, “Effects of Internal and External Carboxylic Acids on the Reaction Pathway of Organocatalytic 1,4-Addition Reactions between Aldehydes and Nitroolefins” *Chem. Sci.* **2012**, *4*, 1312-1318.

Patents

1) H. Maag, A. Sandvoß, J. M. Wahl, 2024, EP 24190855.7.

Conferences and Invited Lectures

- 24) Albert-Ludwigs-Universität Freiburg (12/2024)
- 23) Ruprecht-Karls-Universität Heidelberg (11/2024)
- 22) Universität Münster (11/2024)
- 21) EPFL Lausanne (8/2024)
- 20) BioOrganic Conference, MPI Dortmund (8/2024)
- 19) Universität Rostock (6/2024)
- 18) Universität Hamburg (6/2024)
- 17) Bayer, Wuppertal (6/2024)

- 16) Workshop on small cyclic compounds at Lorentz Center, Leiden (5/2024)
- 15) University of Alicante (5/2024)
- 14) TU München, Garching (2/2024)
- 13) BioOrganic Conference, LMU München (9/2023)
- 12) European Symposium on Organic Chemistry (ESOC, 7/2023)
- 11) Georg-August Universität Göttingen (5/2023)
- 10) Chemiedozententagung, Universität Dresden (3/2023)
- 9) Eberhard Karls Universität Tübingen (2/2023)
- 8) Gordon Research Conference on Stereochemistry (7/2022)
- 7) Philipps Universität Marburg (6/2022)
- 6) Merck Darmstadt (6/2022)
- 5) Steinheimer Gespräche Mainz-Finthen (5/2022)
- 4) TU Darmstadt (4/2022)
- 3) Dozententagung Saarbrücken (3/2022)
- 2) Max-Planck Institute of Colloids and Interfaces, Potsdam (2/2022, virtual)
- 1) Indiana University (12/2021, virtual)

Academic Activities

Departmental and University:

- Supervised 5 PhD, 9 Master, and 8 Bachelor students (since 2019)
- Member of the Executive Committee of the Department of Chemistry at JGU (since 2023)
- Organization of the Synthetic Chemistry Colloquium (since 2021)
- Co-organization of the Seminar Series on Organic Chemistry at Münster University (2020)

Professional:

- Co-chair of the 9th HongKong-Shanghai-Münster Joint Trilateral Symposium on Organometallic Chemistry (2019)

Manuscript and Grant Reviewer:

- Regular reviewer for DFG, Swiss National Science Foundation (SNF), Alexander von Humboldt foundation (AvH), and Studienstiftung des deutschen Volkes (since 2023)
- Regular referee for Springer, AAAS, ACS, Wiley, Thieme, and RSC scientific journals (since 2019)

Teaching

Courses taught:

- 6) Nachhaltige Chemie (Sustainable Chemistry, B.Sc., since 2024)
- 5) Mechanismen der organischen Chemie (Mechanisms in Organic Chemistry, B.Sc., since 2023)
- 4) Molecular Photochemistry (M.Sc., since 2022)
- 3) Alltags- und Umweltchemie (Chemistry Around Us, B.Ed., 2022)
- 2) Organische Chemie 2 (Organic Chemistry 2, B.Sc., 2021-2023)
- 1) Heterocyclic Chemistry (M.Sc. 2020-2021)

Research Profile

Strained molecules are fascinating for many reasons. In a very simplistic way, they allow to store energy within their geometrical shape. The Wahl laboratory is devoted to exploring and understanding the reactivity of such highly energetic compounds. Our current activities in this field can be roughly divided into three areas covering enantioselective desymmetrization, nitrogen insertion, and light-enabled synthesis. Overall, we thrive to apply the potential of strained molecules to tackle unsolved chemical problems.