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**Scientific education**

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| 1987-1995 | Undergraduate studies in Physics, University of Freiburg / University of Sussex        |
| 1995      | Diplom in Physics, University of Freiburg  |
| 1995-1999 | Doctoral studies, University of Konstanz   |
| 1999      | Dr. rer. nat. in Biology with Prof. W. Welte, University of Konstanz (summa cum laude) |

**Academic positions**

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| 2000       | Postdoctoral Fellow, University Hospital Freiburg, Germany, AG Baumstark                                  |
| 2000-2002  | Postdoctoral Fellow, MPI for Medical Research, Heidelberg, Germany, AG Madden (with independent projects) |
| 2002-2008  | Assistant Professor (W1), Protein Crystallography, Ruhr-University Bochum, Germany                        |
| Since 2008 | Associate Professor (W2), Protein Crystallography, Ruhr-University Bochum, Germany                        |

**Fellowships and awards**

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| 1996 | Schloebmann Fellowship der Max Planck Society               |
| 2000 | Byk-Prize of the Herbert Quandt-Foundation of the Altana AG |

**Other professional activities (selection)**

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| 2004-2009 | Board member of the collaborative research center "Molecular Biology of Complex Functions in Botanical Systems", SFB480 |
| 2009-2015 | Chairman of the advisory board of the RUB computing center  |
| 2014-2022 | Vice speaker GBM study section "Biomembranes"   |
| 2016-2019 | Chairman of the user council of RUB IT.Services   |

2018-2022	Dean of Studies, Faculty of Biology and Biotechnology, Ruhr University Bochum
2022-2024	Speaker GBM study section "Biomembranes"

### Peer reviewing activities (selection)

Nature Communications, PNAS, JBC, Biol.Chemistry, BBA-Bioenergetics, Front. Plant Sci., Photosynth. Res., Vibrational Spectroscopy, Plant. Phys., Acta Cryst. D, ACS Omega, Phys.-Chem.Lett.

### Peer reviewed publications

**GoogleScholar: 4739 citations, h-index 36**

**ResearchGate: 4185 citations, h-index 31**

- (1) Duan, J.; Hemschemeier, A.; Burr, D. J.; Stripp, S. T.; Hofmann, E.; Happe, T. Cyanide Binding to [FeFe]-Hydrogenase Stabilizes the Alternative Configuration of the Proton Transfer Pathway. *Angewandte Chemie International Edition* 2023, 62 (7), e202216903. <https://doi.org/10.1002/anie.202216903>.
- (2) Yayci, A.; Bachmann, N.; Dirks, T.; Hofmann, E.; Bandow, J. E. Characterization of Three Novel DYP -type Peroxidases from *Streptomyces Chartreusis* NRRL 3882. *J of Applied Microbiology* 2022, jam.15707. <https://doi.org/10.1111/jam.15707>.
- (3) Varatnitskaya, M.; Fasel, J.; Müller, A.; Lupilov, N.; Shi, Y.; Fuchs, K.; Krewing, M.; Jung, C.; Jacob, T.; Sitek, B.; Bandow, J. E.; Carroll, K. S.; Hofmann, E.; Leichert, L. I. An Increase in Surface Hydrophobicity Mediates Chaperone Activity in N-Chlorinated RidA. *Redox Biology* 2022, 53, 102332. <https://doi.org/10.1016/j.redox.2022.102332>.
- (4) Tumbarello, F.; Marcolin, G.; Fresch, E.; Hofmann, E.; Carbonera, D.; Collini, E. The Energy Transfer Yield between Carotenoids and Chlorophylls in Peridinin Chlorophyll a Protein Is Robust against Mutations. *International Journal of Molecular Sciences* 2022, 23 (9), 5067. <https://doi.org/10.3390/ijms23095067>.
- (5) Rutz, A.; Duan, J.; Felbek, C.; Fourmond, V.; Hofmann, E.; Léger, C.; Happe, T. Structural Basis for the O<sub>2</sub> Protection Mechanism of the [FeFe]-Hydrogenase CbA5H from *Clostridium Beijerinckii*. *Biochimica et Biophysica Acta (BBA) - Bioenergetics* 2022, 1863, 148760. <https://doi.org/10.1016/j.bbabi.2022.148760>.
- (6) Winkler, M.; Duan, J.; Rutz, A.; Felbek, C.; Scholtysek, L.; Lampret, O.; Jaenecke, J.; Apfel, U.-P.; Gilardi, G.; Valetti, F.; Fourmond, V.; Hofmann, E.; Léger, C.; Happe, T. A Safety Cap Protects Hydrogenase from Oxygen Attack. *Nature Communications* 2021, 12 (1), 756. <https://doi.org/10.1038/s41467-020-20861-2>.
- (7) Tomazic, N.; Overkamp, K. E.; Wegner, H.; Gu, B.; Mahler, F.; Aras, M.; Keller, S.; Pierik, A. J.; Hofmann, E.; Frankenberg-Dinkel, N. Exchange of a Single Amino Acid Residue in the Cryptophyte Phycobiliprotein Lyase GtCPES Expands Its Substrate Specificity. *Biochimica et Biophysica Acta (BBA) - Bioenergetics* 2021, 148493. <https://doi.org/10.1016/j.bbabi.2021.148493>.
- (8) Lienkamp, A. C.; Burnik, J.; Heine, T.; Hofmann, E.; Tischler, D. Characterization of the Glutathione S -Transferases Involved in Styrene Degradation in *Gordonia Rubripertincta* CWB2. *Microbiol Spectr* 2021, 9 (1), e00474-21. <https://doi.org/10.1128/Spectrum.00474-21>.
- (9) Ackermann, B.; Dünschede, B.; Pietzenuk, B.; Justesen, B. H.; Krämer, U.; Hofmann, E.; Günther Pomorski, T.; Schünemann, D. Chloroplast Ribosomes Interact With the

- Insertase Alb3 in the Thylakoid Membrane. *Frontiers in Plant Science* 2021, 12, 2666. <https://doi.org/10.3389/fpls.2021.781857>.
- (10) Lampret, O.; Duan, J.; Hofmann, E.; Winkler, M.; Armstrong, F. A.; Happe, T. The Roles of Long-Range Proton-Coupled Electron Transfer in the Directionality and Efficiency of [FeFe]-Hydrogenases. *Proc Natl Acad Sci USA* 2020, 202007090. <https://doi.org/10.1073/pnas.2007090117>.
- (11) Huwald, D.; Duda, S.; Gasper, R.; Olieric, V.; Hofmann, E.; Hemschemeier, A. Distinctive Structural Properties of THB11, a Pentacoordinate Chlamydomonas Reinhardtii Truncated Hemoglobin with N- and C-Terminal Extensions. *J Biol Inorg Chem* 2020, 25, 267–283. <https://doi.org/10.1007/s00775-020-01759-2>.
- (12) Della Corte, D.; van Beek, H. L.; Syberg, F.; Schallmeyer, M.; Tobola, F.; Cormann, K. U.; Schlicker, C.; Baumann, P. T.; Krumbach, K.; Sokolowsky, S.; Morris, C. J.; Grünberger, A.; Hofmann, E.; Schröder, G. F.; Marienhagen, J. Engineering and Application of a Biosensor with Focused Ligand Specificity. *Nature Communications* 2020, 11 (1), 4851. <https://doi.org/10.1038/s41467-020-18400-0>.
- (13) Sommerkamp, J. A.; Frankenberg-Dinkel, N.; Hofmann, E. Crystal Structure of the First Eukaryotic Bilin Reductase GtPEBB Reveals a Flipped Binding Mode of Dihydrobilverdin. *J. Biol. Chem.* 2019, 294 (38), 13889–13901. <https://doi.org/10.1074/jbc.c.RA119.009306>.
- (14) Rodríguez-Maciá, P.; Kertess, L.; Burnik, J.; Birrell, J. A.; Hofmann, E.; Lubitz, W.; Happe, T.; Rüdiger, O. His-Ligation to the [4Fe–4S] Subcluster Tunes the Catalytic Bias of [FeFe] Hydrogenase. *J. Am. Chem. Soc.* 2019, 141 (1), 472–481. <https://doi.org/10.1021/jacs.8b11149>.
- (15) Rehic, E.; Hoenig, D.; Kamba, B. E.; Goehring, A.; Hofmann, E.; Gasper, R.; Matena, A.; Bayer, P. Structural Analysis of the 42 KDa Parvulin of Trypanosoma Brucei. *Bio-molecules* 2019, 9 (3), 93. <https://doi.org/10.3390/biom9030093>.
- (16) Esselborn, J.; Kertess, L.; Apfel, U.-P.; Hofmann, E.; Happe, T. Loss of Specific Active-Site Iron Atoms in Oxygen-Exposed [FeFe]-Hydrogenase Determined by Detailed X-Ray Structure Analyses. *J. Am. Chem. Soc.* 2019, 141 (44), 17721–17728. <https://doi.org/10.1021/jacs.9b07808>.
- (17) Duan, J.; Mebs, S.; Laun, K.; Wittkamp, F.; Heberle, J.; Happe, T.; Hofmann, E.; Apfel, U.-P.; Winkler, M.; Senger, M.; Haumann, M.; Stripp, S. T. Geometry of the Catalytic Active Site in [FeFe]-Hydrogenase Is Determined by Hydrogen Bonding and Proton Transfer. *ACS Catal.* 2019, 9, 9140–9149. <https://doi.org/10.1021/acscatal.9b02203>.
- (18) Vinklársek, I. S.; Bornemann, T. L. V.; Lokstein, H.; Hofmann, E.; Alster, J.; Pšenčík, J. Temperature Dependence of Chlorophyll Triplet Quenching in Two Photosynthetic Light-Harvesting Complexes from Higher Plants and Dinoflagellates. *J. Phys. Chem. B* 2018, 122 (38), 8834–8845. <https://doi.org/10.1021/acs.jpcc.8b06751>.
- (19) Mhaindarkar, D.; Gasper, R.; Lupilov, N.; Hofmann, E.; Leichert, L. I. Loss of a Conserved Salt Bridge in Bacterial Glycosyl Hydrolase BgIM-G1 Improves Substrate Binding in Temperate Environments. *Communications Biology* 2018, 1 (1), 171. <https://doi.org/10.1038/s42003-018-0167-7>.
- (20) Ledermann, B.; Schwan, M.; Sommerkamp, J. A.; Hofmann, E.; Béjà, O.; Frankenberg-Dinkel, N. Evolution and Molecular Mechanism of Four-Electron Reducing Ferredoxin-Dependent Bilin Reductases from Oceanic Phages. *The FEBS Journal* 2018, 285 (2), 339–356. <https://doi.org/10.1111/febs.14341>.
- (21) Duan, J.; Senger, M.; Esselborn, J.; Engelbrecht, V.; Wittkamp, F.; Apfel, U.-P.; Hofmann, E.; Stripp, S. T.; Happe, T.; Winkler, M. Crystallographic and Spectroscopic Assignment of the Proton Transfer Pathway in [FeFe]-Hydrogenases. *Nature Communications* 2018, 9 (1), 4726. <https://doi.org/10.1038/s41467-018-07140-x>.

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- (22) Agostini, A.; Niklas, J.; Schulte, T.; Di Valentin, M.; Bortolus, M.; Hofmann, E.; Lubitz, W.; Carbonera, D. Changing the Site Energy of Per-614 in the Peridinin-Chlorophyll a-Protein Does Not Alter Its Capability of Chlorophyll Triplet Quenching. *Biochimica et Biophysica Acta (BBA) - Bioenergetics* 2018, *1859* (8), 612–618. <https://doi.org/10.1016/j.bbabi.2018.05.008>.
- (23) Winkler, M.; Senger, M.; Duan, J.; Esselborn, J.; Wittkamp, F.; Hofmann, E.; Apfel, U.-P.; Stripp, S. T.; Happe, T. Accumulating the Hydride State in the Catalytic Cycle of [FeFe]-Hydrogenases. *Nature Communications* 2017, *8*, 16115. <https://doi.org/10.1038/ncomms16115>.
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- (25) Gasper, R.; Schwach, J.; Hartmann, J.; Holtkamp, A.; Wiethaus, J.; Riedel, N.; Hofmann, E.; Frankenberg-Dinkel, N. Distinct Features of Cyanophage-Encoded T-Type Phycobiliprotein Lyase  $\Phi$ CpeT THE ROLE OF AUXILIARY METABOLIC GENES. *J. Biol. Chem.* 2017, *292* (8), 3089–3098. <https://doi.org/10.1074/jbc.M116.769703>.
- (26) Yip, K. T.; Zhong, X. Y.; Seibel, N.; Pütz, S.; Autzen, J.; Gasper, R.; Hofmann, E.; Scherkenbeck, J.; Stoll, R. Small Molecules Antagonise the MIA-Fibronectin Interaction in Malignant Melanoma. *Scientific Reports* 2016, *6*, 25119. <https://doi.org/10.1038/srep25119>.
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- (28) Kvičalová, Z.; Alster, J.; Hofmann, E.; Khoroshyy, P.; Litvín, R.; Bína, D.; Polívka, T.; Pšenčík, J. Triplet–Triplet Energy Transfer from Chlorophylls to Carotenoids in Two Antenna Complexes from Dinoflagellate *Amphidinium Carterae*. *Biochimica et Biophysica Acta (BBA) - Bioenergetics* 2016, *1857* (4), 341–349. <https://doi.org/10.1016/j.bbabi.2016.01.008>.
- (29) Gasper, R.; Effenberger, I.; Kolesinski, P.; Terlecka, B.; Hofmann, E.; Schaller, A. Dirigent Protein Mode of Action Revealed by the Crystal Structure of AtDIR6. *Plant Physiology*. 2016, *172* (4), 2165–2175. <https://doi.org/10.1104/pp.16.01281>.
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- (31) Di Valentin, M.; Dal Farra, M. G.; Galazzo, L.; Albertini, M.; Schulte, T.; Hofmann, E.; Carbonera, D. Distance Measurements in Peridinin-Chlorophyll a-Protein by Light-Induced PELDOR Spectroscopy. Analysis of Triplet State Localization. *Biochimica et Biophysica Acta (BBA) - Bioenergetics* 2016, *1857* (12), 1909–1916. <https://doi.org/10.1016/j.bbabi.2016.09.008>.
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- (35) Šlouf, V.; Fuciman, M.; Johanning, S.; Hofmann, E.; Frank, H. A.; Polívka, T. Low-Temperature Time-Resolved Spectroscopic Study of the Major Light-Harvesting Complex of *Amphidinium Carterae*. *Photosynth Res* 2013, *117* (1–3), 257–265. <https://doi.org/10.1007/s11120-013-9900-8>.
- (36) Olejnik, M.; Krajnik, B.; Kowalska, D.; Twardowska, M.; Czechowski, N.; Hofmann, E.; Mackowski, S. Imaging of Fluorescence Enhancement in Photosynthetic Complexes Coupled to Silver Nanowires. *Applied Physics Letters* 2013, *102* (8), 083703–083705. <https://doi.org/doi:10.1063/1.4794171>.
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