

## CURRICULUM VITAE

### PERSONAL INFORMATION

Family name, First name: Senger, Moritz

Date of birth: 16.08.1985

Nationality: German

[google scholar](#)

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[www.uu.se/en/department/chemistry-bmc/research/biochemistry/senger-group](http://www.uu.se/en/department/chemistry-bmc/research/biochemistry/senger-group)

[Web of Science ResearcherID O-1086-2017](#)

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[Bluesky](#)



Moritz Senger's fundamental research centres on bio-catalysis in enzymes. He leads a research group at the intersection of physics, chemistry and biology at Uppsala University.

His PhD work at Freie Universität Berlin led to a complete re-evaluation of the catalytic mechanism of [FeFe]-hydrogenases. During his time as *Marie Skłodowska-Curie postdoctoral fellow* at Uppsala University he specialised in driving catalytic processes by light, a process with high potential for bio-tech applications. Funded by the two *Swedish Starting Grants (VR, FORMAS)* and a *NovoNordisk fellowship* his research group investigates the molecular mechanisms of enzymatic catalysis for sustainable energy solutions.

### • EDUCATION

- 2018 PhD in Physics (Supervisor: Prof. Joachim Heberle)  
Molecular Biophysics, Department of Physics, Freie Universität Berlin, Germany
- 2013 Diploma in Physics (equivalent of M.Sc., Supervisor: Prof. Joachim Heberle)  
Molecular Biophysics, Department of Physics, Freie Universität Berlin, Germany

### • CURRENT POSITION

- 2024 – 2028 Principal Investigator  
Biochemistry, Department of Chemistry, Bio Medical Centre (BMC), Uppsala Universitet, Sweden

### • PREVIOUS POSITIONS

- 2022 – 2024 Postdoctoral Researcher  
Biophysical and Bioinorganic Chemistry, Molecular Biomimetics, Department of Chemistry, Ångström Laboratory, Uppsala Universitet, Sweden
- 2020 – 2022 Postdoctoral Researcher  
Physical Chemistry, Department of Chemistry, Ångström, Uppsala Universitet, Sweden
- 2018 – 2019 Postdoctoral Researcher  
Molecular Biophysics, Department of Physics, Freie Universität Berlin, Germany

### • FELLOWSHIPS AND AWARDS (ca. 16 MSEK, 1.4 million EURO)

- 2025 Interview in Copenhagen for the “*NOVO NORDISK Emerging Investigator Grant – Industrial and Environmental Biotechnology*” (11.2 Million DDK ca. 15 MSEK) (Decision pending).
- 2025 - 2029 *FORMAS Career grant for early-career researchers* (4.463.000 SEK, ca. 385.000 EURO)
- 2025 – 2027 *Carl-Trygger-Stiftelse Research Fellowship*  
Postdoc stipend (860.700 SEK, ca. 75.000 EURO)
- 2024-2028 *Vetenskapsrådet Starting Grant* (4.000.000 SEK, ca. 360.000 EURO)
- 2024 - 2027 *NovoNordisk Postdoc Fellowship – Industrial and Environmental Biotechnology* (2.363.500 DDK ca. 317.000 EURO)
- 2023 Interview “*Assistant Professor in Integrative Structural Biology with Focus on Structural Dynamics at the Department of Biochemistry and Biophysics Stockholm University (SU FV-3836-22)*” (listed third).

- 2022 – 2024 *Olle-Engkvist-Stiftelse Research Fellowship* to Prof. Gustav Berggren  
I wrote the grant but for formal reasons could only be a co-applicant  
Postdoc stipend (67.000 EURO)
- 2023 *Wenner-Gren Travel Fellowship*  
(18.000 SEK, ca. 1800 EURO)
- 2023 *ÅForsk Travel Fellowship*  
(30.000 SEK, ca. 3000 EURO)
- 2020 – 2022 *Marie Skłodowska-Curie Actions Individual Fellowship (H2020-MSCA-IF)*  
Natures Hydrogen Evolution Catalyst (Nat-HEC 897555)  
(191.852 EURO)
- 2021 Lab Sustainability Initiative Biophysical and Bioinorganic Chemistry Uppsala University  
Co-applicant with three other initiative members  
Lab Sustainability Grant (6000 EURO)
- 2020 *Cleve-Gahn-Svanberg Grant* for joined projects within the Department of Chemistry (UU)  
Co-applicant with four other department members  
Research infrastructure Grant (44.350 EURO ca. 50% to my project)

### • TEACHING ACTIVITIES

#### **Uppsala Universitet, Sweden (ca. 245 hours in total)**

- 2025 Forskning i kemi - teori och praktik I, 5 hp VT2025-1KB046 – Course responsible  
76 hours, Master level, ca. 30 students
- 2025 Forskning i kemi - teori och praktik II, 5 hp VT2025-1KB047 – Course responsible  
43 hours, Master level, 4 students
- 2025 Utveckling av biologiska läkemedel, 7.5 hp VT2025-1KB429 – Lecturer  
12 hours, Master levels, ca. 55 students
- 2025 Biokemi II, 15 hp VT2025-1KB421 – Seminar supervision  
20 hours, Bachelor level, ca. 50 students
- 2024 Enzymologi o bioorganisk katalys, 15 hp HT2024-1KB424 – Lecturer  
16 hours, Master level, ca. 25 students
- 2024 Biokemisk teknik, 10 hp HT2024-1KB428 – Lecturer  
64 hours, Bachelor level, ca. 25 students
- 2024 Biochemistry II, 15 hp VT2024 – Seminar supervision  
2 hours, ca. 40 students
- 2024 Examensarbete C i kemi 1KB010 VT2024 –Topic specialist  
4 hours, Bachelor level
- 2023 Fysikalisk Kemi för K2 –VT2023-1KB308 - Project supervisor  
4 hours

#### **Freie Universität Berlin, Germany (1493 hours in total)**

- 2018 – 2019 Seminar supervision for Production and biophysical analysis of selected membrane proteins,  
(4.4 h total, 0.4 h per week, ca. 15 students, English)
- 2017 Tutoring for the lecture Physics for non-physicists,  
(22 h total, 2 h per week, ca. 20 students, German)
- 2015 – 2016 Tutoring for the lecture Introduction into Structure of Matter (for teachers)  
(16.5 h total, 1.5 h per week, ca. 20 students, German)
- 2015 Lab internship care for Advanced Biophysics  
(11 h total, 1 h per week, groups of 2-3 students, 10 ECTS, English/German)
- 2010 – 2013 Student assistant for the Basic Physics Experiments Course for physicists and non-physicists  
(1440 h total, 240 h per semester ca. 40 h per month, groups of 6-10 students, English, German)

### • PEDAGOGIC COURSES

- 2025 Supervising Doctoral Students (10 days) – to be finished on the 4<sup>th</sup> of June 2025  
Uppsala University
- 2025 Assessment, grading and feedback Course (5 days)  
Uppsala University
- 2025 Academic Teacher Training Course (25 days)

Uppsala University  
2024 Physical Chemistry Education Conference (1 day)  
Fysikalisk kemididaktik workshoppen (Goteborg)  
2022 Curious about Leadership Course 2022 (2 days)  
Uppsala University (Unit for Career and Leadership in Academia)

#### • PUBLIC OUTREACH ACTIVITIES

##### Uppsala University

2024 Presented the Biochemistry Program to high school classes  
2021 Forskar Fredag (Talk and experiment)  
European Researchers Night (Talk and experiment)

##### Freie Universität Berlin, Germany

2015-2019 Lange Nacht der Wissenschaften (Talk + Lab Tours)  
2016-2019 Freshman Lab Tours

#### • ORGANISATION OF SCIENTIFIC MEETINGS

2024 Invited talk about scientific career development to the COLOTAN PhD network (Marie Skłodowska-Curie Grant Agreement No. 956851.)  
2022/12/15 Chair of the 3<sup>rd</sup> session of the Hydrogenases and Metalloenzymes Christmas Symposium 2022  
2018/06/28 Co-organisation of 1. Hydrogenase Minisymposium in Berlin  
One-day symposium on a PI level focused on Hydrogenase research (ca. 30 participants)

#### • INSTITUTIONAL RESPONSIBILITIES

##### Supervision Uppsala University, Sweden

2024-2029 PhD student Ivan Voloshyn (Main supervisor)  
2024-2025 PhD students Sadat Chowdhury, Kendra Njo (Co-supervisor)  
2024-2025 M.Sc. student Viktor Åkerfeldt, Sofie Berglund, Evelina Andersson (Main supervisor)  
2025 B.Sc. student Carl Björkman (Main supervisor)  
2020-2024 PhD students Bregitta Nemeth, Holly J. Redman, Marco Lorenzi, Afridi Zamander, Larissa Kurth, Princess R. Cabotaje, Conrad Schumann (Informal supervisor)  
2020-2022 M.Sc. Student Larissa Kurth, 3x Guest students (M.Sc. level) Maximilian Böhm (2020), Leopold Fichet (2021), Tobias Kernmayr (2021) (Co-supervisor)  
Since 2020 Contact person, mentor and responsible of the Quantum Cascade Laser (QCL) setup  
Department of Chemistry, Ångström Laboratory, Uppsala Universitet, Sweden

##### Supervision Freie Universität Berlin, Germany

2016-2018 2x M.Sc. students Konstantin Laun (2018), Viktor Eichmann (2017), 1x B.Sc. student Konstantin Laun (2016) (Co-supervisor)  
2x Guest students (M.Sc. level) Olga Shulenina (2017), Iuliia Baranova (2018) (Co-supervisor)  
2010 - 2019 Oral examiner (second) on a B.Sc. and M.Sc. level, Prof. Heberle, Freie Universität Berlin, Germany  
2018/06/01 Member of the PhD thesis defence committee of Nils Schuth, Freie Universität Berlin, Germany

#### • REVIEWING ACTIVITIES (Verified reviews on ORCID)

Nature Catalysis (1), Nature Communications (1) ACS Catalysis (2), Sustainable energy & fuels. (1), Inorganic chemistry. (1), Analytical Methods (4), Journal of Inorganic Chemistry (1), Scientific Reports (1), Sensors (4), Applied Sciences (5), International Journal of Molecular Sciences (2)

#### • MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Since 2020 Member of the Research Network “*Swedish Consortium for artificial Photosynthesis*” CAP  
Since 2020 Associated Member, *SUNERGY* Initiative  
2018 – 2019 Member of the Cluster of Excellence: Unifying Systems in Catalysis (*UniSysCat*)  
2013 – 2016 Member International Max-Planck Research School (*IMPRES*) Multiscale Bio-Systems

#### • MAJOR COLLABORATIONS

-Groups of Prof. Chris Greening and Prof. Rhys Grinter, Australia

Melbourne/Monash University

Novel Hydrogenases

*Two recent joint publications in Cell and Nature*

-Groups of Prof. Johannes Messinger/ Leif Hammarström/ Gustav Berggren, Sweden

Department of Chemistry, Ångström Laboratory, Uppsala University

Physical Chemistry/ Biomimetics of Hydrogenases

*14 joined publications*

-Groups of Prof. Thomas Happe and Prof. Ulf-Peter Apfel, Germany

Ruhr-Universität-Bochum and Fraunhofer-Umsicht Oberhausen

[FeFe]-Hydrogenases and their Mimics

*12 joined publications*

-Group of Prof. Ross Milton,

Department of Inorganic and Analytical Chemistry, University of Geneva, Switzerland

Nitrogenases

-Group of Prof. Sebastian Westenhoff

Biochemistry, Department of Chemistry, BMC, Uppsala University, Sweden

Time-resolved crystallography

<b>Collaborator</b>	<b>Research field</b>	<b>Institution</b>
Prof. Chris Greening	Novel hydrogenases	Department of Microbiology, Monash University, Australia
Prof. Ross Milton	Nitrogenases	Department of Inorganic and Analytical Chemistry, University of Geneva, Switzerland
Prof. Thomas Happe	[FeFe]-Hydrogenases, Biochemistry	Photobiotechnology, Ruhr-Universität-Bochum, Germany
Prof. Ulf-Peter Apfel	Inorganic Chemistry/ Electrochemistry	Ruhr-Universität Bochum & Fraunhofer UMSICHT, Oberhausen
Prof. Eckhard Hofmann	Crystallography	Ruhr-Universität-Bochum, Germany
Prof. Sebastian Westenhoff	Time-resolved crystallography	Biochemistry, Department of Chemistry, BMC, Uppsala University, Sweden
Prof. Leif Hammarström	Photoredox Catalysis, Proton-coupled electron transfer (PCET)	Physical Chemistry, Department of Chemistry, Ångström Laboratory, Uppsala University, Sweden
Prof. Haining Tian	3D Organic Polymer Nano-Photocatalysts	Physical Chemistry, Department of Chemistry, Ångström Laboratory, Uppsala University, Sweden
Prof. Johannes Messinger	Energy converting enzymes	Biomimetics Program, Department of Chemistry, Ångström Laboratory, Uppsala University, Sweden
Prof. Gustav Berggren	Semi artificial photosynthesis, EPR spectroscopy	Biomimetics Program, Department of Chemistry, Ångström Laboratory, Uppsala University, Sweden
Dr. Henrik Land	CO-dehydrogenases and New [FeFe]-hydrogenases	Biomimetics Program, Department of Chemistry, Ångström Laboratory, Uppsala University, Sweden
Prof. Günther Knör	Inorganic Chemistry, Redox Dyes	Johannes-Kepler-Universität Linz, Austria
Prof. Sven Stripp	IR spectroscopy of Metalloenzymes	Technische Universität Berlin, Germany
Prof. Joachim Heberle	Near field IR spectroscopy on cells	Freie Universität Berlin, Germany
Dr. Michael Haumann	Biophysics of Metalloenzymes	Freie Universität Berlin, Germany
Dr. Basem Soboh	<i>In-vitro</i> maturation of [NiFe] hydrogenases	Freie Universität Berlin, Germany

- **CONFERENCES**

**Gordon Research Conference on Metallocofactors** (2024, Boston, USA)

**Optical Spectroscopy in Sweden** (2024, Goteborg)

“Probing the Dark Side of Enzymatic Activity: Light Induced in Situ ATR-FTIR Spectroscopy Unravels Biocatalytic Reactions in Non-Light Active Enzymes” (talk)

**13th International Conference on Hydrogenases** (2023, Walla Walla, USA)

“[FeFe]-Hydrogenases activated by light” (talk)

**4th International Conference on Proton-Coupled Electron Transfer (PCET4)** (2023, Tarragona, Spain)

“PCET reactions triggered by light” (talk)

**Consortium of Artificial Photosynthesis March (CAP)** (2022):

“News from the catalytic cycle of [FeFe]-Hydrogenases” (invited talk)

**International Solar Fuels Conference** (2021):

“The catalytic proton transfer pathway of [FeFe]-Hydrogenase” (online)

**Chemical Science Symposium (RSC): Biohybrid Approaches to Sustainable Energy Conversion** (2021): (online)

**ICH2019** (2019, Lisboa, PRT):

“Proton transfer Pathways in [FeFe]-Hydrogenases” (poster)

**Klosters Winter Seminar** (2019, Klosters, CH)

“Proton Transfer Pathways in [FeFe]-Hydrogenases” (invited talk)

**EUROBIC 14** (2018, Birmingham, UK):

“Active Site Geometry for Reduced States in [FeFe]-Hydrogenases” (poster)

**Hydrogenase 16** (2016, Marseilles, FR):

“Stepwise Isotope Editing of [FeFe]-Hydrogenases” (poster)

**ECSBM 15** (2015, Bochum):

“Isotope Labeling Reveals Insight in Catalytic Mechanism of [FeFe]-Hydrogenase” (poster)

**ISF1** (2015, Uppsala, SWE):

“Isotope Labeling Reveals Insight in Catalytic Mechanism of [FeFe]-Hydrogenase” (poster)

**PCET** (2014 Skokloster, SWE):

“Proton-coupled Electron Transfer in Hydrogenases” (poster)

**German Biophysical Society Meeting** (2012, Göttingen):

“Light-driven Hydrogen Production by a Hybrid Complex of Photosystem I and [NiFe]-Hydrogenase” (poster)

**IMPRS on Multiscale Bio-Systems** (annually: 2013-2016, Potsdam): (poster + talk)

**Klosters Winter Seminar** (annually: 2012-2017, Klosters, CH) (poster)

- **PARENTAL LEAVE**

2023 - 2024 78 days