

# Nils Marc Joeal Plähn

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## Professional Experience

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### PhD candidate in Biomedical Sciences

*Quantitative MRI, Department of Radiology, University Bern*

Swiss National Science Foundation (SNF) (grant number: PCEFP2 194296)

**Bern, Switzerland**

*Feb 2022 – Present*

### Supervisor of Masterstudent

*AI driven MRI image segmentation and classification using bSSFP data*

**Bern, Switzerland**

*Mar 2024 – Dec 2024*

### Teaching Assistant

*Introduction to Medical Imaging (Master module)*

**Bern, Switzerland**

*Sep 2024 – Jan 2025*

### Teaching Assistant

*Tutor in Physics of Complex Systems (Master module)*

**Würzburg, Germany**

*Sep 2020 – Feb 2021*

### Teaching Assistant

*Supervisor in Physics Laboratory Course (Bachelor module)*

**Würzburg, Germany**

*Aug 2017 – Feb 2021*

## Key Skills

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**Analytical & Strategic Problem-Solving:** Proven ability to analyze abstract and complex problems, extract key insights, and develop data-driven solutions in interdisciplinary contexts.

**Quantitative & Data Analysis:** Experience in applying mathematical modeling, statistical analysis, and computational methods to solve real-world challenges.

**Collaborative Leadership & Project management:** Coordinated multi-disciplinary research projects with diverse teams.

**Intellectual Property & Innovation:** Experienced in scientific innovation and intellectual property development, bridging research and legal frameworks to secure a patent.

**Programming:** Proficient in Python, MATLAB, C/C++, and LaTeX

**Effective Communication:** Delivered presentations at national and international conferences, engaging multidisciplinary audiences.

**Languages & Cross-Cultural Competence:** English (Fluent), German (Native), French (Basic); accustomed to working in international environments.

## Education

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### PhD candidate in Biomedical Sciences

*Quantitative MRI, Department of Radiology, University Bern*

*Title: Development of simultaneous and robust multi-parameter quantification in magnetic resonance imaging*

Swiss National Science Foundation (SNF) (grant number: PCEFP2 194296)

**Bern, Switzerland**

*Feb 2022 – Present*

### Master Thesis

*Development of Novel Methods for Exchange Rate Quantification (A<sup>+</sup>)*

**Würzburg, Germany**

*Apr 2021 - Jan 2022*

### Master of Science in Physics

*University of Würzburg, Final Grade: A<sup>+</sup>*

**Würzburg, Germany**

*Apr 2019 - Jan 2022*

### Bachelor Thesis

*The holographic Weyl semimetal (A<sup>+</sup>)*

**Würzburg, Germany**

*Sep 2018 - Mar 2019*

### Bachelor of Science in Physics

*University of Würzburg, Final grade: B*

**Würzburg, Germany**

*Sep 2014 - Mar 2019*

## Awards

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**2022:** Wilhelm-Conrad-Röntgen Studienpreis, Würzburg, Germany

**2024:** ISMRM trainee stipend for conference attendance, Singapore

**2023:** ISMRM trainee stipend for conference attendance, Toronto, Canada

**2022:** ISMRM trainee stipend for conference attendance, London, United Kingdom

## Patents

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**Nov 2024:** Off-resonant encoded analytical parameter quantification using multi-dimensional linearised equations, Publication Number: WO2024/231819

## Conferences

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**May 2024:** Analytical T1, T2, proton density, and magnetic field inhomogeneity quantification in the brain using phase-cycled bSSFP

ISMRM 2024, Poster Presentation

*Singapore*

**June 2024:** Single Shot Exchange Rate Quantification using Turbo PS-WEX

International CEST workshop 2024, Oral presentation

*Nürnberg, Germany*

**June 2023:** Decoding the phase-cycled BSSFP signal for maximized parameter quantification-T1, T2, proton density and magnetic field inhomogeneity

ISMRM 2023, Oral presentation

*Toronto, Canada*

**June 2023:** Decoding of 3T and 7T BSSFP profile asymmetries for T1, T2, and fraction quantification in two-compartment systems

ISMRM 2023, Poster presentation  
*Toronto, Canada*

**June 2022: An Alternative to WEX: T1-Independent Exchange Rate Quantification using  
Phase Sensitive Water Exchange Spectroscopy**

ISMRM 2024, Oral Presentation  
*London, United Kingdom*

**June 2022: T1 and T2 to be filled**  
german ISMRM 2022, Oral presentation  
*Aachen, Germany*

## Publications

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**2024: ORACLE: An analytical approach for T1, T2, proton density, and off-resonance mapping with phase-cycled balanced steady-state free precession**

N. M. J. Plähn, Y. Safarkhanlo, B. C. Açıkgoz, A. L. C. Mackowiak, P. Radojewski, et al.  
*Magnetic Resonance in Medicine*, DOI: 10.1002/mrm.30388

**2024: Getting the phase consistent: The importance of phase description in balanced steady-state free precession MRI of multi-compartment systems**

N. M. J. Plähn, S. Poli, E. S. Peper, B. C. Açıkgoz, R. Kreis, C. Ganter, et al.  
*Magnetic Resonance in Medicine*, DOI: 10.1002/mrm.30033

**2022: T1-independent exchange rate quantification using saturation-or phase sensitive-water exchange spectroscopy**

N. M. J. Plähn, S. Mayer, P. M. Jakob, F. T. Gutjahr.  
*Journal of Magnetic Resonance*, DOI: 10.1016/j.jmr.2021.107141

**2024: Analytical T1, T2, proton density, and magnetic field inhomogeneity quantification in the brain using phase-cycled bSSFP**

N. M. J. Plähn, Y. Safarkhanlo, G. Bonanno, A. Mackowiak, B. Açıkgoz, E. Peper, et al.,  
*Abstract #2172, ISMRM2024, Singapore*

**2023: Decoding the phase-cycled BSSFP signal for maximized parameter quantification-T1, T2, proton density and magnetic field inhomogeneity**

N. M. J. Plähn, A. Mackowiak, B. C. Açıkgoz, E. S. Peper, G. Rossi, J. Bastiaansen.,  
*Abstract #1349, ISMRM2023, Toronto*

**2023: Decoding of 3T and 7T BSSFP profile asymmetries for T1, T2, and fraction quantification in two-compartment systems**

N. M. J. Plähn, A. Mackowiak, B. C. Açıkgoz, J. Bastiaansen.,  
*Abstract #2200, ISMRM2023, Toronto*

**2023: Rapid T1, T2 and fraction quantification in two-compartment systems using bSSFP profile asymmetries**

N. Plähn, B. Açıkgoz, J. Bastiaansen, A. Mackowiak.,  
*Abstract #4768, ISMRM2024, Toronto*

**2022: An Alternative to WEX: T1-Independent Exchange Rate Quantification using Phase Sensitive Water Exchange Spectroscopy**

N. M. J. Plähn, S. Mayer, P. Albertová, P. M. Jakob, F. T. Gutjahr.,  
*Abstract #0292, ISMRM2022, London*

**2024: Simultaneous brain susceptibility, T1, and T2 quantification at 7T with phase-cycled balanced steady-state free precession**

B. C. Acikgoz, C. S. Martinez, A. L. C. Mackowiak, N. M. J. Plähn, Y. Safarkhanlo, et al., *Abstract #3715, ISMRM2024, Singapore*

**2023: Cluster Based Sparse Variational Minimization for Multi-Compartment Dictionary Fitting to BSSFP Signal Profiles**

B. C. Açıkgoz, A. L. C. Mackowiak, N. M. J. Plähn, Y. Safarkhanloo, E. S. Peper, et al.,  
*Abstract #4613, ISMRM2023, Toronto*

**2023: Low Rank Subspace-Constrained Compressed Sensing Reconstruction of Highly Accelerated Phase-Cycled BSSFP MRI for Fat Fraction Quantification**

E. S. Peper, A. L. C. Mackowiak, B. C. Açıkgoz, N. Plähn, Y. Safarkhanlo, L. Feng, et al.,  
*Abstract #4963, ISMRM2023, Toronto*