

Nils Marc Joel Plähn

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Professional Experience

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

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

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⁺)

Würzburg, Germany

Apr 2021 - Jan 2022

Master of Science in Physics

University of Würzburg, Final Grade: A⁺

Würzburg, Germany

Apr 2019 - Jan 2022

Bachelor Thesis

The holographic Weyl semimetal (A⁺)

Würzburg, Germany

Sep 2018 - Mar 2019

Bachelor of Science in Physics

University of Würzburg, Final grade: B

Würzburg, Germany

Sep 2014 - Mar 2019

Awards

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

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

Conferences

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

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