

Curriculum Vitae

Personal Data

Title	Prof. Dr. med.
First name	Frank
Name	Wacker
Current position	W3 Professor of Radiology
Current institution(s)/site(s), country	Hannover Medical School (MHH), Department of Diagnostic and Interventional Radiology, Hannover, Germany
Identifiers/ORCID	0000-0002-6285-8403

Qualifications and Career

Stages	Periods and Details
Degree programme	1984-1990 Medicine, University of Tübingen
Doctorate	1991 Prof. Dr. Dr. h.c. W. Frommhold / MRI – A non-invasive tool to diagnose meniscal tears; University of Tübingen
Stages of academic/professional career	Since 2014 Head of the Imaging Unit, Clinical Research Center Hannover Since 2010 W3 Professor & Chairman, Department of Diagnostic and Interventional Radiology, MHH 2015-2019 Medical Executive Director, Radiology Center, MHH 2008-2010 Director of Vascular Interventional Radiology, Interventional Radiology Center, Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins Hospital, Baltimore, Maryland, USA 2004-2008 C3 Professor of Radiology, Vice Chairman, Section Head of Interventional Radiology, Charité – Universitätsmedizin Berlin, Campus Benjamin Franklin 2003 Medical Consultant, Siemens Medical Solutions, Erlangen 2001-2003 Attending Physician, University Hospitals Health System, Cleveland, Ohio, USA 1999-2001 Head, Section of Angiography and Interventional Radiology, UKBF, Free University, Berlin 1999 Berlin Board Certification Diagnostic Radiology 1992-1999 Residency, Radiology and Nuclear Medicine, Neurology, Universitätsklinikum Benjamin Franklin, Berlin

Activities in the Research System

Frank Wacker is a clinician scientist specialized in Diagnostic Radiology and Image-guided Therapy. His laboratory is focused on developing toolboxes of clinical imaging biomarkers (e.g. perfusion, ventilation, tumor viability) for early detection and reliable follow-up in oncology, transplant medicine and infectious disease. He is also developing image guided minimally invasive therapies, his second research focus. His activities also focus on the mentoring and

empowerment of junior researchers. He has supervised and co-supervised more than 100 research fellows, clinical fellows, Radiology residents, and doctorates. During his tenure at MHH he supervised 15 “Habilitationen”, 7 in male and 8 in female researchers and clinicians.

His scientific Work and Service Activities include:

- Since 2022 Member, MHH University Council
- Since 2020 Member, Steering committee, Comprehensive Cancer Center – Lower Saxony (CCC-N)
- Since 2020 Member, Advisory committee, Medical Scientist Kolleg “Digital Transformation in Medicine – MD-Program (funded by Else Kröner-Fresenius-Stiftung)
- Since 2018 Co-Investigator, Young Academy - Program of Hannover medical school for clinician scientists (PRACTIS): funded by the DFG
- Since 2018 External advisor, promotion committee quality assurance board, Friedrich-Alexander-Universität Erlangen-Nürnberg
- Since 2014 PI & Member, Board of Directors, Research Campus Solution Centre for Image-guided Local Therapies (STIMULATE) Magdeburg, funded by the BMBF
- 2024 – 2027 PI, IMAGINE – network for image guided precision therapy in Lower Saxony; funded by the BMBF
- 2022 – 2025 PI, KMU-innovativ – Joint project neonatal MRI of the lungs: radiation-free diagnostics for premature babies and infants(NeoLungMRI); Sub-project: clinical specification and validation of a demonstrator for a pediatric MRI lung application; funded by the BMBF
- 2016 – 2022 Cooperation partner, research grant: Improving Spatial Perception for Medical Augmented Reality with Interactable Depth Layers; funded by DFG
- 2012-2017 PI, Cluster of Excellence From Regenerative Biology to Reconstructive Therapy (REBIRTH 2), Unit 8.2 Cell tracking and organ imaging; funded by the DFG
- Since 2011 PI, German Centre for Lung Research (DZL), Biomedical Research in Endstage and Obstructive Lung Disease Hannover (BREATH); funded by the BMBF.

Scientific Results

Category A

- [01] Kern AL, Pink I, Bonifacius A, Kaireit T, Speth M, Behrendt L, Klimeš F, Voskrebenezv A, Hohlfeld JM, Hoeper MM, Welte T, Wacker F, Eiz-Vesper B, Vogel-Claussen J. Alveolar membrane and capillary function in COVID-19 convalescents: insights from chest MRI. *Eur Radiol.* 2024 Mar 9. doi: 10.1007/s00330-024-10669-9. Epub ahead of print. PMID: 38460013.
- [02] Dohna M, Voskrebenezv A, Klimeš F, Kaireit TF, Glandorf J, Pallenberg ST, Ringshausen FC, Hansen G, Renz DM, Wacker F, Dittrich AM, Vogel-Claussen J. PREFUL MRI for Monitoring Perfusion and Ventilation Changes after Elexacaftor-Tezacaftor-Ivacaftor Therapy for Cystic Fibrosis: A Feasibility Study. *Radiol Cardiothorac Imaging.* 2024 Apr;6(2):e230104. doi: 10.1148/ryct.230104. PMID: 38573129.
- [03] Werncke T, Becker LS, Maschke SK, Hinrichs JB, Meine TCH, Dewald CLA, Brüschi I, Rumpel R, Wacker FK, Meyer BC. Image Quality and Radiation Exposure in Abdominal Angiography: A Head-to-Head Comparison of Conventional Detector-Dose-Driven Versus Contrast-to-Noise Ratio-Driven Exposure Control at Various Source-to-Image Receptor Distances and

- Collimations in a Pilot Phantom and Animal Study. *Invest Radiol.* 2024 Mar 27. doi: 10.1097/RLI.0000000000001079. Epub ahead of print. PMID: 38529924.
- [04] Klimeš F, Obert AJ, Scheller J, Wernz MM, Voskrebenezv A, Gutberlet M, Grimm R, Suhling H, Müller RA, Kaireit TF, Glandorf J, Moher Alsady T, Wacker F, Vogel-Claussen J. Comparison of Free-Breathing 3D Phase-Resolved Functional Lung (PREFUL) MRI With Dynamic ¹⁹F Ventilation MRI in Patients With Obstructive Lung Disease and Healthy Volunteers. *J Magn Reson Imaging.* 2024 Jan 12. doi: 10.1002/jmri.29221. Epub ahead of print. PMID: 38214459.
- [05] Dettmer S, Werncke T, Mitkovska VN, Brod T, Joean O, Vogel-Claussen J, Wacker F, Welte T, Rademacher J. Photon Counting Computed Tomography with the Radiation Dose of a Chest X-Ray: Feasibility and Diagnostic Yield. *Respiration.* 2024 Jan 25:1-7. doi: 10.1159/000536065. PMID: 38272004..
- [06] Haseljić H, Chatterjee S, Frysck R, Kulvait V, Semshchikov V, Hensen B, Wacker F, Brusch I, Werncke T, Speck O, Nürnberger A, Rose G. Liver segmentation using Turbolift learning for CT and cone-beam C-arm perfusion imaging. *Comput Biol Med.* 2023 Mar;154:106539. doi: 10.1016/j.compbimed.2023.106539. Epub 2023 Jan 14. PMID: 36689856.
- [07] Kern AL, Gutberlet M, Rumpel R, Bruesch I, Hohlfeld JM, Wacker F, Hensen B. Compartment-specific ¹²⁹Xe HyperCEST z spectroscopy and chemical shift imaging of cucurbit[6]uril in spontaneously breathing rats. *Z Med Phys.* 2023 Sep 1:S0939-3889(23)00094-6. doi: 10.1016/j.zemedi.2023.08.005. Epub ahead of print. PMID: 37661475.
- [08] Cvitkovic T, Bobylev D, Horke A, Avsar M, Beerbaum P, Martens A, Böthig D, Petenà E, Gutberlet M, Beyer FH, Wacker F, Cebotari S, Haverich A, Vogel-Claussen J, Sarikouch S, Czerner C. 4D-flow cardiac magnetic resonance imaging after aortic root replacement with long-valved decellularized aortic homografts: comparison to valve-sparing aortic root replacement and healthy controls. *Eur J Cardiothorac Surg.* 2022 May 27;61(6):1307-1315. doi: 10.1093/ejcts/ezac016. PMID: 35079774.
- [09] Fu Y, Weiss CR, Kedziorek DA, Xie Y, Tully E, Shea SM, Solaiyappan M, Ehtiati T, Gabrielson K, Wacker FH, Bulte JWM, Kraitchman DL. Noninvasive Monitoring of Allogeneic Stem Cell Delivery with Dual-Modality Imaging-Visible Microcapsules in a Rabbit Model of Peripheral Arterial Disease. *Stem Cells Int.* 2019 Mar 14;2019:9732319. doi: 10.1155/2019/9732319. PMID: 31001343; PMCID: PMC6437732..
- [10] Sonnow L, Gilson WD, Raithel E, Nittka M, Wacker F, Fritz J. Instrument visualization using conventional and compressed sensing SEMAC for interventional MRI at 3T. *J Magn Reson Imaging.* 2018 May;47(5):1306-1315. doi: 10.1002/jmri.25858. Epub 2017 Sep 21. PMID: 28940951.

Category B

Patents (selected from 10 patents):

- [11] US020050261576A1: Method and Aparatus for determining the azimuthal orientation of a medical instrument from MR signals. Inventors: Peter Speier, Frank Wacker. Publication date: 2006-02-02
- [12] WO2008031853A1: Diffusor tip for the homogenous light distribution of low energy x-rays in a medium Inventors: Hansjörg Albrecht; Hans-Joachim Cappius,

Tilmann Häupl, Michael Haschke, Frank Wacker, Jürgen Beuthan. Publication date: 2008-03-20

[13] US20230000382A1: Accessory kit for interventional procedures using magnetic resonance imaging. Inventors: Daniel D. Coppens, Enrico Pannicke, Oliver Speck, Frank Wacker, Bennet Hensen; Publication Date 2021-06-10

[14] DE 10 2021 123 863 B4: Verfahren und Auswertevorrichtung zur Auswertung von Erfassungsdaten eines MRT-Systems sowie Computerprogramm. Schröder, Hensen, Alpers, Pannicke, Gutberlet, Wacker, Hansen. Publication date: 04.07.2024.

Academic Distinctions

From 2001 to 2003 I was a Visiting Professor at the Case Western Reserve University in Cleveland, Ohio, USA

From 2008 to 2016 I was first a Visiting and subsequently an Adjunct Professor at the Johns Hopkins School of Medicine, Baltimore, Maryland, USA