Ingo Hilschenz

Curriculum Vitae

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Dormitory, Room 324 Daejeon, 34113, South Korea
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Career & Education

15th May 2016 – present

Post Doctor, *Korean Research Institute for Standards and Science (KRISS) - South Korea*,
Advanced Instrumentation Institute, Professor Kiwoong Kim.
Overhauser enhanced Dynamic Nuclear Polarisation with SQUID sensors and Atomic Magnetometers, Dewar building

acquired expertise: System architecture; designing, building and tuning of quadrature driven RF coils (Birdcages); implementation of commercial Atomic Magnetometers into an NMR system

16th December 2012 – 11th May 2016

Post Doctor, *Kyoto University - Japan*,
Department of Electrical Engineering, Professor Tetsuo Kobayashi.
Magnetic Resonance Imaging by using an optically pumped Atomic Magnetometer

acquired expertise: System architecture, basic atomic magnetometers sensors and laser technology, building special electronic switches incl. PCB and enclosures, designing a liquid cooled coil

19th November 2012

Doctor of Physics, *certificated by Univeristy of Leipzig.*
supervised by Prof. Dr. P. J.Haase at University of Leipzig and Dr. M. Burghoff at Physikalisch Technische Bundesanstalt Berlin

Thesis title: *Design of a Low Field Magnetic Resonance Imaging Measurement System working below one Kilohertz*

5th May 2008 – 31st December 2011

PhD. student, *Physikalisch Technische Bundesanstalt Berlin*,
Messtechnik fuer Biosignale.

acquired expertise: System architecture - Ultra Low Field MRI, basic SQUID technology, physics background of NMR/MRI, simulation of coils system, background in magnetic shielded chambers, more insight in current source and general electronic design

1st January 2008 – 30th April 2008

Research assistant, *University of Leipzig*,
Division of Superconductivity and Magnetism.

11th October 2002 – 21st December 2008	**Diplom of Physics**, *University Leipzig*, Division of Superconductivity and Magnetism. supervised by Prof. Dr. P. Esquinazi
Thesis title	*Characterization of Al-doped MgB2*
acquired expertise	Superconductivity, low temperature measurements (4 K), susceptibility measurements, contacting microscopic particles for low temperature measurements (<10 µm) using a dual beam microscope (ion and electron beam), basic electron lithography, building low temperature probes

Computer skills

OS	Windows, Linux(basic), DOS	programming	Matlab, Labview, Delphi, C++(basic), Python(basics)
typography	LaTeX, Open Office, Word	other	Photoshop, Illustrator, Inventor, Powerpoint, Eagle

Academic Background

Computing expertise	hardware programming, numerical simulation, data analysis Nuclear Magnetic Resonance (MR) and MR Imaging, SQUID technology (basic), basic knowledge of atomic magnetometers and needed optical setups, low temperature measurements (down to 4 K)
others	basic machining (milling, lathe), circuit board layout (Eagle),

Languages

German	Fluent	*My native language.*
English	Fluent	*Speaking, reading and writing.*
Korean	very basic	*I can read the characters, but very limited vocabulary*

Interests

PCs, gaming, photography & editing, music, reading and cooking.

References

PTB - departement leader	Lutz Trahms - +49(0)30-3481-7213 - lutz.trahms@ptb.de
PTB - sub departement leader	Rainer Koerber - +49(0)30-3481-7576 - rainer.koerber@ptb.de
University Leipzig - doctoral adviser	Juergen Haase - +49(0)34197-32601 - j.haase@physik.uni-leipzig.de

University Kyoto - professor | Tetsuo Kobayashi - tetsuo@kuee.kyoto-u.ac.jp

KRISS - departement leader | Kiwoong Kim - KRISS - +82(0)42-868-5676 - kiwoong@gmail.com

Papers

in preparation — ***Millimetre in-plane resolution Overhauser-enhanced MRI at one microtesla using circularly polarised RF***, Ingo Hilschenz, Sangwon Oh, Seong-Joo Lee, Kwon Kyu Yu, Seong-min Hwang, Kiwoong Kim and Jeong Hyun Shim

AIP 2018 — ***Toward a magnetic resonance electrical impedance tomography in ultra-low field: A direct magnetic resonance imaging method by an external alternating current***, Seong-Joo Lee, Jeong Hyun Shim, Kwon Kyu Yu, Seong-min Hwang, Sangwon Oh, Ingo Hilschenz, and Kiwoong Kim

US patent 2018 — ***Fluid-cooled electromagnets***, Seong-Min Hwang, Jeong-hyun Shim, Ingo Hilschenz, Seong-Joo Lee, Kiwoong Kim

JMR 2016 — ***Remote detected Low-Field MRI using an optically pumped atomic magnetometer combined with a liquid cooled pre-polarization coil***, Ingo Hilschenz, Yosuke Ito, Hiroaki Natsukawa, Takenori Oida, Tetsuya Yamamoto and Tetsuo Kobayashi

Magn. Reson. Imaging. 2012 — ***Magnetic resonance imaging at frequencies below 1 kHz***,I. Hilschenz, R. Koerber, H.-J. Scheer, T. Fedele, H.-H. Albrecht, A. M. Cassare, S. Hartwig, L. Trahms, J. Haase, M. Burghoff

Magn. Reson. Imaging. 2011 — ***Are brain currents detectable by means of low-field NMR? A phantom study.***,N. Hoefner, H.H. Albrecht, A. Cassare G. Curio, S. Hartwig, J. Haueisen, I. Hilschenz, R. Koerber, S. Martens, H.J. Scheer, J. Voigt, L. Trahms, M. Burghoff

Biomed. Tech. 2011 — ***Simultaneous measurements of somatosensory evoked AC and near-DC MEG signals***, R. Koerber, G. Curio, S. Hartwig, I. Hilschenz, N. Hoefner,H.J. Scheer, L. Trahms, J. Voigt, M. Burghoff

BMT 2010 — ***Coil system for Low Field MRI and neuronal current detection***, I. Hilschenz, D.Gutkelch, S. Hartwig, N. Hoefner, R. Koerber, H.J. Scheer, J. Voigt, M. Burghoff, L. Trahms

Applied Physics Letters 2010 — ***On the feasibility of neurocurrent imaging by low-field nuclear magnetic resonance*** , M. Burghoff, H.H. Albrecht, S. Hartwig, I. Hilschenz, R. Koerber, N. Hoefner, H.J. Scheer, J. Voigt, L. Trahms, G. Curio

Biomag 2010 — ***Status of neuronal current (NC) detection by means of low-field magnetic resonance***,M. Burghoff, R. Koerber, G. Curio, S. Hartwig, N. Hoefner, I. Hilschenz, J. Voigt and L. Trahms

Metrol. Meas. Syst., 2009 ***Squid System for MEG and Low Field Magnetic Resonance***, M. Burghoff, H.H. Albrecht, S. Hartwig, I. Hilschenz, R. Koerber, T. Sander Thoemmes, H.J. Scheer, J. Voigt, L. Trahms