Achim Schilling

Curriculum vitae

Personal Information

Birth **15. Mai 1989**, München

Personal status **unmarried**

Education

since 2014 **PhD student**, *Scientific researcher for systems neuroscience*, Experimental Otolaryngology, University Hospital Erlangen-Nürnberg
Research Topics: Cortical representation of auditory and somatosensory stimuli, sensory thresholds, tinnitus, neuropathic pain (member of IZKF and ICN graduate programs)

2011-2013 **Master of Science (physics)**, *Final grade: 1.16* ***(graduated with honors), (scale: best=1, worst=5)***, University of Erlangen-Nürnberg

2008-2011 **Bachelor of Science (physics)**, *Final grade: 1.58 (scale: best=1, worst=5)*, University or Erlangen-Nürnberg

1999-2008 **Academic High School Diploma (Abitur)**, *Final grade: 1.4 (scale: best=1, worst=6)*, Otto-Hahn-Gymnasium Marktredwitz

Research experiences

since 2016 **Systems and cognitive neuroscience**, *Research topic: Sleep*, Methods: EEG, MEG

since 2014 **Systems and behavioral neuroscience**, *Research topics: Cortical representation of sensory stimuli and phantom percepts*, Methods: in vivo electrophysiology, acoustic startle response, shuttle box, acoustic brainstem responses, multielectrode array recordings

Luitpoldstrasse 50 – 91052 Erlangen
+49 151/11623690 • *+49 9131/85-43853 (business)*
achim.schilling@uk-erlangen.de
www.uker.de/hno-neuroscience

2012-2013 **Biomechanics and biomaterials**, *Research topic: Cell adhesion on biodegradable magnesium*, Methods: live imaging spinning disk device for cell adhesion measurements (self constructed), electro-chemistry, cell staining

2011 **Molecular biology**, *Research topic: Effect of plectin deficiency on myoblasts*, Methods: cell staining, migration assays, magnetic tweezer, traction force microscopy

2011 **Biomechanics**, *Research topic: Dynamics of cell adhesions*, Methods: magnetic tweezer, cell cultivation, microscopy

Skills

Programming skills
Python, *advanced knowledge*, (simulation, evaluation software, hardware interfaces, statistics with SciPy)

MatLab, *advanced knowledge*, (evaluation software and hardware interfaces)

C for Arduino programming, *advanced knowledge*

SPSS, *basic knowledge*, (descriptive and inferential statistics)

User programs
Microsoft Office, LaTex, (text processing and presentation)

Graphical design
Illustrator, Inkscape, (vector drawing)

Soft skills
Rhetoric and Communication (certificate)

Scientific writing (certificate), (writing of specialist literature in English)

Basic electronics
Development of electronic circuits

Scientific skills
Felasa B (certificate, +3 years of practical experience), (supervision of animal studies)

Biostatistics (certificate), (statistical testing of measured samples)

Research interests
neuroscience of sleep, cognitive neuroscience, perception and cognition, computational neuroscience and artificial intelligence

Activities

since 2014 **Co-supervisor**, *for M.D., MSc, BSc theses*

2010-2014 **Tutor**, *classical mechanics, electrodynamics, nuclear and elementary particle physics, physical practical course*

Luitpoldstrasse 50 – 91052 Erlangen
+49 151/11623690 • *+49 9131/85-43853 (business)*
achim.schilling@uk-erlangen.de
www.uker.de/hno-neuroscience

Languages

German	native speaker
English	fluently
French	basic knowledge (Delf B1)
Japanese	basic knowledge

Theses

Master	**A novel live imaging spinning disk device for measuring cell adhesion strength on magnesium substrates**
Bachelor	**Dynamics of adhesion complexes of living cells (Dynamik des Bindungsverhaltens des Adhäsionsapparates lebender Zellen)**

Society Memberships

DPG	**Deutsche Physikalische Gesellschaft**
NWG	**Neurowissenschaftliche Gesellschaft**
CNS	**Cognitive Neuroscience Society**

References

Prof. Dr. H. Schulze	**Exp. Otolaryngology**, *holger.schulze@uk-erlangen.de*
Prof. Dr. W. Goldmann	**Biophysics**, *wgoldmann@biomed.uni-erlangen.de*
PD. Dr. C. Metzner	**Theoretical Physics**, *cmetzner@biomed.uni-erlangen.de*
Dr. N. Bonakdar	**Exp. Physics**, *navid.bonakdar@mpl.mpg.de* *(Max-Planck-Institute for physics of light)*

Publications

Peer-reviewed publications

A new statistical approach for the evaluation of gap-prepulse inhibition of the acoustic startle reflex (GPIAS) for tinnitus assessment
Schilling, Achim; Krauss, Patrick, Gerum, Richard; Metzner, Claus; Tziridis, Konstantin; Schulze, Holger
Frontiers in Behavioral Neuroscience (2017 in press)

Decoding spatiotemporal cortical activity patterns
Krauss, Patrick; Metzner, Claus, **Schilling, Achim**; Tziridis, Konstantin; Traxdorf, Maximilian; Wollbrink, Andreas; Rampp, Stefan; Pantev, Christo; Schulze, Holger
(2017 submitted)

Adaptive stochastic resonance for unknown and variable input signals
Krauss Patrick; Metzner Claus; **Schilling Achim**; Schütz Christian; Tziridis Konstantin; Fabry Ben; Schulze Holger
Scientific Reports (2017)

Analysis of audiometric differences of patients with and without tinnitus in a large clinical database
Gollnast Dominik; Tziridis Konstantin; Krauss Patrick; **Schilling Achim**; Hoppe Ulrich; Schulze Holger
Frontiers in Neurology (2017)

Stochastic resonance controlled upregulation of internal noise after hearing loss as a putative cause of tinnitus-related neuronal hyperactivity
Krauss Patrick; Tziridis Konstantin; Metzner Claus; **Schilling Achim**; Hoppe Ulrich; Schulze Holger
Frontiers in Neuroscience (2016)

Therapeutic Value of Ginkgo biloba Extract EGb 7611 in an Animal Model (Meriones unguiculatus) for Noise Trauma Induced Hearing Loss and Tinnitus
Krauss, Patrick; Tziridis, Konstantin; Buerbank Stefanie; **Schilling, Achim**; Schulze Holger
Plos ONE (2016)

Cell Adhesion on Surface-Functionalized Magnesium
Wagener, Victoria*; **Schilling, Achim***; Mainka, Astrid; Hennig, Diana; Gerum, Richard; Kelch Marie-Luise; Keim, Simon F.; Fabry, Ben*; Virtanen, Sannakaisa* (*contributed equally)
ACS Applied Materials & Interfaces (2016)

Innovations in Measuring Cellular Mechanics
Bonakdar, Navid; **Schilling, Achim**; Gerum, Richard; Alonso, José Luis; Goldmann, Wolfgang
Vascular Engineering (bookchapter 2016)

Migration in Confined 3D Environments Is Determined by a Combination of Adhesiveness, Nuclear Volume, Contractility, and Cell Stiffness
Lautscham,Lena A.; Kämmerer, Christoph; Lange, Janina R.; Kolb, Thorsten; Mark, Christoph; **Schilling, Achim**; Strissel, Pamela L., Strick, Reiner; Gluth, Caroline; Rowat, Amy C.; Metzner, Claus; Fabry, Ben
Biophysical Journal (2015)

Measuring mechanical properties in cells: three easy methods for biologists
Bonakdar, Navid*; **Schilling, Achim***; Lennert, Pablo; Spörrer, Marina; Alonso, José Luis ; Goldmann, Wolfgang (*contributed equally)
Cell Biology International (2014)

Determining the Mechanical Properties of Plectin in Mouse Myoblasts and Keratinocytes
Bonakdar, Navid*; **Schilling, Achim***; Spörrer Marina ; Lennert Pablo; Mainka Astrid; Winter Lilli; Walko Gernot; Wiche Gerhard; Fabry Ben; Goldmann Wolfgang H. (*contributed equally)
Experimental Cell Research (2014)

ArXiv articles

Stochastic resonance controlled upregulation of internal noise after hearing loss as a putative correlate of tinnitus-related neuronal hyperactivity
Krauss, Patrick; Tziridis, Konstantin; **Schilling, Achim**; Metzner, Claus; Schulze Holger
arXiv (2016)

A statistical method for analyzing and comparing spatiotemporal cortical activation patterns
Krauss Patrick, Metzner Claus, **Schilling Achim**, Tziridis Konstantin, Traxdorf Maximilian, Schulze Holger
arXiv (2016)

Erlangen, October 9, 2017

Luitpoldstrasse 50 – 91052 Erlangen
+49 151/11623690 • *+49 9131/85-43853 (business)*
achim.schilling@uk-erlangen.de
www.uker.de/hno-neuroscience