

# IOANNIS ANGELOS GIAPITZAKIS

## Dip, M.Sc., DIC



### PERSONAL INFORMATION

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Work Address:	Max Planck Institute for Biological Cybernetics, Spemmanstrasse 41, Tübingen, 72046, Germany
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☎ office/ mobile:	+49 7071 601 918/ + 49 177 86 35 679
Birthday/ Birthplace:	28 <sup>th</sup> September 1988/ Athens, Hellenic Republic
Nationality	Hellenic/ Italian

### EDUCATION

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2012 Nov- Present (Expected October 2017)	<b>Ph.D. candidate</b> in Neurosciences Max Planck Institute for Biological Cybernetics & University of Tübingen, Tübingen, Germany
2011- 2012	<b>M.Sc., DIC</b> in Biomedical Engineering with Medical Physics, Imperial College London, London, U.K. ( <b>Grade: 75.9%</b> )
2006-2011	<b>Dip.</b> in Applied Mathematical and Physical Sciences (5-years degree), National Technical Uni. of Athens, Greece ( <b>Grade: 8.25/10; Top 5%</b> ) Majors: Nuclear Physics and Optoelectronics

## PROFESSIONAL EXPERIENCE

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2012- Present	<b>MR Physicist</b> Ultra High Field Magnetic Resonance Department, Max Planck Institute for Biological Cybernetics, Tübingen, Germany
2011 Jan- Sep	<b>Intern</b> Radiology department (MRI, CT, SPECT), Diagnostic Centre Euromedica “Encephalos,” Athens, Greece
2006-2009	<b>Data researcher</b> Statistics Company Kappa Research, Athens, Greece
2006-2011	<b>Private tutor</b> Teaching physics and mathematics to high school students

## LANGUAGES

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Greek (**Native**), English (**C2**), German (**A2**), Italian (**A2**)

## PROGRAMMING/IT SKILLS

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Programming Languages:	C/C++, Java, Fortran, Python, UNIX Shell
Computational Packages:	<b>MATLAB</b> , Mathematica
Operating Systems:	Windows, Linux
MR Sequence Programming:	<b>IDEA (SIEMENS)</b>
MRS, fMRI and DTI Tools:	<b>LCModel, jMRUI, FSL, SPM, TrackVis</b>
Other:	PsychoPy, PSpice, (Electrical circuit design), AutoCAD

## RESEARCH EXPERIENCE

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2012 Nov.-Present	<b>Ph.D. student/ MR Physicist</b> Max Planck Institute for Biological Cybernetics, Tübingen, Germany <b>Project title:</b> <i>Magnetic Resonance Spectroscopy in the human brain at Ultra High Field Strength): Methods and Applications.</i>
2012 April –Sep.	<b>Postgraduate research scientist</b> Radiological Sciences Unit, Charing Cross Hospital, Imperial College Healthcare, London and C3NL, Hammersmith Hospital, London, UK <b>Project title:</b> <i>Co-analysis of resting state functional magnetic resonance imaging and diffusion tensor imaging for correlation of default mode network and ultra-structural deficit in posterior cortical atrophy</i>
2011 April –Sep.	<b>Undergraduate research scientist</b> Diagnostic Centre Euromedica “Encephalos”, Athens, Greece <b>Project Title:</b> <i>The magnetic Tractography in the investigation of myelination in the human brain</i>

## SCHOLARSHIPS/GRANTS/AWARDS

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2017	<b>Summa Cum Laude</b> (Top 5%) & <b>Magna Cum Laude</b> (Top 10%) awards from the International Society for Magnetic Resonance in Medicine (ISMRM)
2016	<b>Magna Cum Laude</b> award (Top 10%) from ISMRM
2012-2016	<b>Grant</b> from Max Planck Institute Society for Doctoral studies
2012-2015	<b>Scholarship</b> from State Scholarships Foundation (Greece) and European Social Fund for Doctoral studies
2012-2013	Institute of Engineering and Physics in Medicine (IPEM) award for the <b>best M.Sc. project in Medical Physics</b>
2011-2012	M.Sc. from Imperial College London with honors ( <b>Merit</b> )
2011-2012	<b>Scholarship</b> from State Scholarships Foundation (Greece) and European Social Fund for Postgraduate studies

## SKILLS

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- Excellent **communication skills**.
- Experience to work in **multinational groups** with a **diverse scientific background** (engineers, clinicians, computer scientists, physicists).
- Ability to **initiate projects, synergies** and to **promote new ideas**.
- High ability to **work on new projects** and to **understand new methods, technologies, and concepts**.
- Ability to **work on complex projects** in which a **broad knowledge** of different topics is required.
- Extensive experience in **various programming languages** (OO programming, C/C++, FORTRAN, JAVA, MATLAB) and **shell scripting**.
- **Solid MR and spin physics background** with experience to **develop new techniques** for MR spectroscopy and **sequences** for MR applications (IDEA, SIEMENS).
- Strong **medical image processing skills** with high level of **understanding of MR hardware** and **QA procedures**, especially, for RF coils.
- Ability to **teach, to give presentations and lectures**

## PERSONAL INTEREST AND ACTIVITIES

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Traveling, Hiking, Sports, Music, Traditional Greek dances, Chess, History, and Philosophy

## RESEARCH INTERESTS

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Neurosciences, Medical Physics, Medical Imaging, Biomedical Engineering, Medical Technology, MRS Quantification, Development of MRS Sequences, Optimization of Adiabatic Pulses at UHF, f-MRS, MRS Macromolecules, MRS Post-processing, MR Coil Safety Procedures, MR Safety, MR Coils Quality Control, Brain Metabolism, DTI, f-MRI,

## PROFESSIONAL MEMBERSHIPS

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2013-Present | ISMRM and ESMRMB

## PUBLICATIONS\*

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- Articles: 10 (accepted, submitted and under preparation)
- Book chapters: 1
- Talks in international conferences: 12
- Conference Proceedings (Peer-Reviewed): 19

\*A full publication list follows at the end of the document

## REFERENCES

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**Prof. Dr. Anke Henning**

Ph.D. Supervisor, Group Leader, Max Planck Institute for Biological Cybernetics, Tübingen, Germany, [anke.henning@tuebingen.mpg.de](mailto:anke.henning@tuebingen.mpg.de)

**Prof. Dr. Roland Kreis**

Ph.D. co-supervisor, Associate Professor, Magnetic Resonance Spectroscopy and Methodology, Department of Clinical Research, University Bern, Switzerland. [roland.kreis@insel.ch](mailto:roland.kreis@insel.ch)

**Dr. Nikolai Avdievich**

RF Engineer, Senior Research Scientist, Department for Ultra-High Field MRI, Max Planck Institute for Biological Cybernetics, Tübingen, Germany. [nikolai.avdievitch@tuebingen.mpg.de](mailto:nikolai.avdievitch@tuebingen.mpg.de)

Tübingen, 5<sup>th</sup> August 2017



*I.A. Giapitzakis*

### Articles (10)

1. **Giapitzakis I.A**, Borbath T., Manohar M.S, Avdievich NI and Henning A (in preparation) Influence of tissue specific macromolecular baseline in human brain metabolites quantification at 9.4T.
2. **Giapitzakis I.A**, Avdievich NI, Henning A (under revision) Characterization of macromolecular baseline at 9.4 T. *Magnetic Resonance in Medicine*
3. Fichtner N\*,**Giapitzakis I.A\***, Avdievich NI, Mekle R, Zaldivar D, Henning A and Kreis R (under revision) In vivo characterization of the downfield part of 1H MR spectra of human brain at 9.4T: Magnetization exchange with water and relation to conventionally determined metabolite content *Magnetic Resonance in Medicine*. \***equal contribution**
4. Avdievich NI, **Giapitzakis IA** and Henning A (under revision) Combined Surface Loop/ ‘Vertical’ Loop Element Improve Receive Performance of a Human Head Transceiver Array at 9.4T: an Alternative to Surface Loop/ Dipole Antenna Combination *NMR in Biomedicine*
5. **Giapitzakis I.A**, Tingting S, Avdievich NI, Mekle R, Kreis R and Henning A (August-2017) Metabolite-cycled STEAM and semi-LASER localization for MR spectroscopy of the human brain at 9.4T *Magnetic Resonance in Medicine*. Epub ahead
6. Avdievich NI, Pfrommer A, **Giapitzakis IA** and Henning A (June-2017) Analytical Modeling Provides New Insight into Complex Mutual Coupling between Surface Loops at Ultra High Fields *NMR in Biomedicine*. Epub ahead
7. Avdievich NI, **Giapitzakis I.A**, Pfrommer A and Henning A (June-2017) Decoupling of a Tight-Fit Transceiver Phased Array for Human Brain Imaging at 9.4T: Loop Overlapping Rediscovered *Magnetic Resonance in Medicine*. Epub ahead
8. Avdievich NI, Hoffmann J, Shajan G, Pfrommer A, **Giapitzakis IA**, Scheffler K and Henning A (February-2017) Evaluation of transmit efficiency and SAR for a tight fit transceiver human head phased array at 9.4 T *NMR in Biomedicine* 30(2) 1-12.
9. Avdievich NI, **Giapitzakis IA** and Henning A (November-2016) Novel splittable N-Tx/2N-Rx transceiver phased array to optimize both signal-to-noise ratio and transmit efficiency at 9.4T *Magnetic Resonance in Medicine* 76(5) 1621-1628.
10. Hoffmann J, Henning A, **Giapitzakis IA**, Scheffler K, Shajan G, Pohmann R and Avdievich NI (September-2016) Safety testing and operational procedures for self-developed radiofrequency coils *NMR in Biomedicine* 29(9) 1131–1144

### Book Chapters (1)

1. **Giapitzakis IA** and Henning A: MRS Sequences and Protocols, -. In: *Clinical MR Spectroscopy*, (Ed) J. McNulty, Springer International Publishing, Cham, Switzerland, (February-2018). in press

### Talks (12)

1. **Giapitzakis I-A**, Shao T, Avdievitsch N, Fichtner N, Merkle R, Kreis R and Henning A (April-27-2017) Abstract Talk: Metabolite cycled semi-LASER and STEAM at 9.4T: Comparison and in vivo results, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA(1061).
2. Martínez-Maestro M, Labadie C, **Giapitzakis I** and Möller H (April-25-2017) Abstract Talk: Dynamic changes of glutamate detected by functional MR spectroscopy in human visual cortex in regions with

positive and negative BOLD response, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA(0404).

3. **Giapitzakis IA**, Avdievitch N, Manohar SM, Fichtner N, Kreis R and Henning A (April-25-2017) Abstract Talk: Functional Magnetic Resonance Spectroscopy (fMRS) using metabolite cycled semi-LASER at 9.4T: a pilot study, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA(0402).
4. Fichtner ND, **Giapitzakis I-A**, Avdievich N, Merkle R, Zaldivar D, Henning A and Kreis R (February-2-2017) Abstract Talk: Measuring Exchange Between Brain Metabolites and Water Using Ultra-High Field Magnetic Resonance Spectroscopy, GCB Symposium 2017: Graduate School for Cellular and Biomedical Sciences, Bern, Switzerland.
5. **Giapitzakis I-A** (August-16-2016) Abstract Talk: Metabolite Cycled Semi-LASER in Human Brain at 9.4T: In-Vivo Results, ISMRM Workshop on MR Spectroscopy: From Current Best Practice to Latest Frontiers, Allensbach-Hegne, Germany.
6. **Giapitzakis IA**, Kreis R and Henning A (May-9-2016) Abstract Talk: Characterization of the macromolecular baseline with a metabolite-cycled double-inversion recovery sequence in the human brain at 9.4T, 24th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2016), Singapore(0016)
7. Avdievich NI, **Giapitzakis IA**, Pfrommer A and Henning A (May-9-2016) Abstract Talk: Optimization of the Transceiver Phased Array for Human Brain Imaging at 9.4T: Loop Overlapping Rediscovered, 24th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2016), Singapore (0169).
8. **Giapitzakis IA**, Nassirpour S, Avdievich NI, Kreis R and Henning A (October-2015) Abstract Talk: 1H single voxel spectroscopy at occipital lobe of human brain at 9.4 T, 32nd Annual Scientific Meeting ESMRMB 2015, Edinburgh, UK, Magnetic Resonance Materials in Physics, Biology and Medicine, 28(1 Supplement) S208-S209.
9. Avdievich NI, **Giapitzakis IA** and Henning A (October-2015) Abstract Talk: Novel Splittable N-Tx/2N-Rx Transceiver Phased Array to Optimize both SNR and Transmit Efficiency at 9.4T, 32nd Annual Scientific Meeting ESMRMB 2015, Edinburgh, UK, Magnetic Resonance Materials in Physics, Biology and Medicine, 28(1 Supplement) S57.
10. **Giapitzakis IA**, Nassirpour S and Henning A (October-2015) Abstract Talk: Short duration water suppression using optimised flip angles (SODA) at ultra high fields, 32nd Annual Scientific Meeting ESMRMB 2015, Edinburgh, UK, Magnetic Resonance Materials in Physics, Biology and Medicine, 28(1 Supplement) S401-S402.
11. Scheidegger M, Fuchs A, Ametamey S, Kuhn F, **Giapitzakis IA**, Johayem A, Buck A, Seifritz E and Henning A (March-20-2015) Abstract Talk: Observation of synaptic plasticity in the healthy human brain upon Ketamine infusion by 11C-ABP688-PET and 2D J-resolved 1H MRS, 10th Annual Meeting of the European Society for Molecular Imaging (EMIM 2015), Tübingen, Germany(300).
12. **Giapitzakis I** (September-13-2013) Invited Lecture: Functional magnetic resonance spectroscopy at ultra-high field strength, Networks! 2013: 4th German Neurophysiology PhD Meeting, Tübingen, Germany.

1. **Giapitzakis I-A** and Henning A (April-27-2017): Basis set optimization for quantification of semi-LASER at 9.4T under consideration of CP effect and relaxation, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
2. Borbáth T, **Giapitzakis IA**, Murali Manohar SV and Henning A (April-27-2017): Fitting comparison for 9.4T 1D semi-LASER and 2D-J-resolved semi-LASER data, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
3. Fichtner N, **Giapitzakis I-A**, Avdievich N, Mekle R, Zaldivar D, Henning A and Kreis R (April-27-2017): Magnetization exchange between water and downfield metabolites in human brain at 9.4T, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
4. Murali Manohar SV, **Giapitzakis IA**, Borbáth T, Gaertner M and Henning A (April-27-2017): Qualitative Comparison between In Vivo J-Resolved Semi-LASER at 3 T and 9.4 T, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
5. Fillmer A, **Giapitzakis I**, Mekle R, Aydin S, Henning A, Ittermann B and Schubert R (April-27-2017): Very Short Echo Time MRS for Single Voxel Spectroscopy in Small Voxels, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
6. Avdievich N, **Giapitzakis I** and Henning A (April-26-2017): Double-Row 16-element Tight-Fit Transceiver Phased Array with High Transmit Performance for Whole Human Brain Imaging at 9.4T, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
7. Avdievich N, **Giapitzakis I** and Henning A (April-25-2017): Effect of Mismatching on the Transmit and Receive Performance of a Human Head 9.4T Tight-Fit Transceiver Phased Array, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
8. Avdievich N, **Giapitzakis I** and Henning A (April-25-2017): Optimization of the Receive Performance of a Tight-Fit Transceiver Phased Array for Human Brain Imaging at 9.4T, 25th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2017), Honolulu, HI, USA.
9. Fichtner ND, **Giapitzakis IA**, Avdievich N, Henning A and Kreis R (May-11-2016): Downfield spectra of human brain obtained with and without water suppression at 9.4T, 24th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2016), Singapore.
10. Avdievich NI, Pfrommer A, **Giapitzakis IA** and Henning A (May-10-2016): Analytical Modeling of the Coupling within a Human Head Surface Loop Transmit Phased Array at Ultra-High Fields, 24th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2016), Singapore.
11. Fichtner N, Henning A, **Giapitzakis I**, Zoelch N, Avdievich N, Boesch C and Kreis R (March-31-2016): Downfield MR Spectroscopy at Ultrahigh Magnetic Fields, 11th Annual Meeting Brain Connectivity, Bern, Switzerland.

12. Nassirpour S, Kirchner T, **Giapitzakis IA** and Henning A (June-4-2015): Accelerated Multi-slice 1H FID-MRSI in the human brain at 9.4 T, 23rd Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.
13. **Giapitzakis IA**, Nassirpour S, Avdievich N, Kreis R and Henning A (June-4-2015): Metabolite cycled single voxel 1H spectroscopy at 9.4T, 23rd Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.
14. **Giapitzakis IA** and Henning A (June-3-2015): Comparison of different methods for combination of multichannel spectroscopy data, 23rd Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.
15. Avdievich NI, **Giapitzakis IA** and Henning A (June-2-2015): Novel Splittable N-Tx/2N-Rx Transceiver Phased Array to Optimize both SNR and Transmit Efficiency at 9.4 T, 23rd Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.
16. Avdievich NI, **Giapitzakis IA** and Henning A (June-1-2015): Asymmetric Transceiver Phased Array for Functional Imaging and Spectroscopy of the Visual Cortex at 9.4 T, 23rd Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM 2015), Toronto, Canada.
17. **Giapitzakis IA**, Nassirpour S, Kreis R, Avdievich NI and Henning A (March-19-2015): Metabolite cycled proton magnetic resonance spectroscopy at 9.4T, 10th Annual Meeting of the European Society for Molecular Imaging (EMIM 2015), Tübingen, Germany.
18. **Giapitzakis IA**, Shao T, Avdievich N, Kreis R and Henning A (May-15-2014): Optimisation of Asymmetric Adiabatic Pulses for Single Voxel Metabolite Cycled 1H-MRS in the Human Brain at 9.4 Tesla, Joint Annual Meeting ISMRM-ESMRMB 2014, Milano, Italy.
19. **Giapitzakis I**, Quest RA and Waldman AD (October-3-2013): Co-analysis of resting state functional magnetic resonance imaging and diffusion tensor imaging for correlation of default mode network and ultra-structural deficit in posterior cortical atrophy, 30th Annual Scientific Meeting ESMRMB 2013, Toulouse, France, Magnetic Resonance Materials in Physics, Biology and Medicine, 19(Supplement 1) 84-85.