Personal Information

Dr. rer. nat. Tommaso Fedele

Born 23.07.1981 in Rome, Italy

Italian citizen, married

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Education

26.06.2014	PhD rer. nat., Technische Universität, Berlin, Germany.
	PhD thesis: "High-frequency electroencephalography (hf-EEG): Non-invasive detection of spike-related brain activity". PhD advisors: Prof. Klaus Robert Müller, Prof. Dr. Gabriel Curio
2000 – 2006	Master Degree in Biomedical Engineering., Universita' degli Studi di Roma, Tor Vergata, Rome, Italy.
	Diploma Thesis: "A contactless passive sensor to monitor infant apnoea in real time"
2000	High School diploma, Liceo Classico Statale Aristofane, Rome, Italy.

Professional Employment

10.2018 – now	Assistant professor at the Institute for Cognitive Neuroscience of the Higher School of Economics (HSE), Moscow, Russia. Scientific director of the HSE MEG lab
01.2018 – 09.2018	Postdoctoral researcher, University Hospital of Zurich, Neurosurgery Department. Switzerland. Project: "Scalp High Frequency Oscillations".
01.2015 – 12.2017	Postdoctoral researcher, University Hospital of Zurich, Neurosurgery Department. Switzerland. Project: "High Frequency Oscillations (HFOs) as biomarkers for epileptogenicity in patients with tumors and epilepsy".
09.2014 – 12.2014	Postdoctoral researcher, Center of High Cognition and Decision Making, Higher School of Economics (HSE), Moscow, Russia. Project: analysis of TMS-EEG dataset.
04.2009 – 02.2014	Research associate, Bernstein Focus for Neurotechnology Berlin (BFNT-B). Germany. Project: 'High – frequency electroencephalography (hf-EEG): An emerging neurotechnology for noninvasive detection of spike related brain activity.'
01.2008 – 04.2009	Research associate Motor Neurophysiology Department, Santa Lucia Foundation, Rome, Italy. Investigation of gravitational visuomotor processing using TMS and EEG.
01.2007 – 12.2007	Research associate, Mechanical Engineer Department, University of Tor Vergata, Rome, Italy. Project: "Energy Management". Activity: development of an innovative software for the energy optimization in industrial environment.
07.2006 – 09.2006	Software Engineer at Atmel, Rome, Italy. DSP embedded application. Project: "Porting of coding and decoding audio algorithms on board ARM 9".

Grants and stipends

2015	Mach-Gaenisslen Stiftung (co-applicant)	192,463 CHF
2017	Forschungskredit der Universität Zürich	94.469 CHF

Teaching and Student Mentoring

2013	Introduction to Matlab for Medical Neuroscience, Berlin, Germany
2014	Introduction to Matlab for the Department of Decision Making of Higher School of Economics, Moscow, Russia
2015 – 2018	Mentor of Master Thesis of the following students at the Medical Faculty, University of Zurich: Anina Mäder; Lucrezia Bollinger; Pamela Märzendorfer; Christian von Mitzlaff; Claudio Schönenberger; Tabea Albert

Memberships

Zentrum für Neurowissenschaften Zürich (ZNZ)

Awards

2012	awarded poster prize at the Brain to Computer Interface Workshop, Berlin, Germany
2016	awarded poster prize at 12th European Congress on Epileptology, Prague, Czech Republic

Peer-reviewed publications (2019-2011)

Complete list at https://scholar.google.ch/citations?user=F9xZ2tEAAAAJ&hl=en&oi=ao

citations	201
h-index	9
i10-index	8

1. E. Krugliakova, V. Klucharev, **T. Fedele**, A. Gorin, A. Kuznetsova, and A. Shestakova (2017)
Correlation of cue-locked FRN and feedback-locked FRN in the auditory monetary incentive delay task
Exp Brain Res. 2018 Jan;236(1):141-151

2. **T. Fedele***, S. Burnos*, N. Krayenbühl, T. Grunwald, and J. Sarnthein (2017)
Resection of high frequency oscillations predicts seizure outcome in the individual patient
Sci Rep. 2017 Oct 23;7(1):13836

3. **T. Fedele**, G. Ramantani, S. Burnos, P. Hilfiker, G. Curio, T. Grunwald, N. Krayenbühl, and J. Sarnthein (2017)
Prediction of seizure outcome improved by fast ripples detected in low-noise intraoperative corticogram
Clin. Neurophysiol., vol. 128, no. 7, pp. 1220–1226

4. **T. Fedele**, C. Schönenberger, G. Curio, C. Serra, N. Krayenbühl, and J. Sarnthein (2017)
Intraoperative subdural low-noise EEG recording of the high frequency oscillation in the somatosensory evoked potential.
Clin. Neurophysiol., vol. 128, no. 10, pp. 1851–1857

5. **T. Fedele**, M. van 't Klooster, S. Burnos, W. Zweiphenning, N. van Klink, F. Leijten, M. Zijlmans, and J. Sarnthein (2016)
Automatic detection of high frequency oscillations during epilepsy surgery predicts seizure outcome
Clin. Neurophysiol., vol. 127, no. 9, pp. 3066–3074

6. **T. Fedele**, E. Blagovechtchenski, M. Nazarova, Z. Iscan, V. Moiseeva, and V. V. Nikulin (2016)
Long-Range Temporal Correlations in the amplitude of alpha oscillations predict and reflect strength of intracortical facilitation: Combined TMS and EEG study
Neuroscience, vol. 331, pp. 109–119

7. S. Burnos*, **T. Fedele***, O. Schmid, N. Krayenbühl, and J. Sarnthein (2016)
Detectability of the somatosensory evoked high frequency oscillation (HFO) co-recorded by scalp EEG and ECoG under propofol
NeuroImage Clin., vol. 10, pp. 318–325

8. Z. Iscan, M. Nazarova, **T. Fedele**, E. Blagovechtchenski, and V. V. Nikulin (2016)
Pre-stimulus Alpha Oscillations and Inter-subject Variability of Motor Evoked Potentials in Single- and Paired-Pulse TMS Paradigms
Front. Hum. Neurosci., vol. 10

9. G. Waterstraat*, **T. Fedele***, M. Burghoff, H. J. Scheer, and G. Curio (2015)
Recording human cortical population spikes non-invasively--An EEG tutorial
J. Neurosci. Methods, vol. 250, pp. 74–84

10. **T. Fedele**, H. J. Scheer, M. Burghoff, G. Curio, and R. Körber (2015)
Ultra-low-noise EEG/MEG systems enable bimodal non-invasive detection of spike-like human somatosensory evoked responses at 1 kHz.
Physiol. Meas., vol. 36, no. 2, pp. 357–68

11. G. Waterstraat, M. Burghoff, **T. Fedele**, V. Nikulin, H. J. Scheer, and G. Curio (2015)
Non-invasive single-trial EEG detection of evoked human neocortical population spikes
Neuroimage, vol. 105, pp. 13–20

12. V. V. Nikulin*, **T. Fedele***, J. Mehnert, A. Lipp, C. Noack, J. Steinbrink, and G. Curio (2014)
Monochromatic Ultra-Slow (~0.1Hz) Oscillations in the human electroencephalogram and their relation to hemodynamics
Neuroimage, vol. 97, pp. 71–80

13. **T. Fedele**, H. J. Scheer, M. Burghoff, G. Waterstraat, V. Nikulin, and G. Curio (2013)
Distinction between added-energy and phase-resetting mechanisms in non-invasively detected somatosensory evoked responses
Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS, 2013, pp. 1688–1691.

14. I. Hilschenz, R. Körber, H.-J. Scheer, **T. Fedele,** H.-H. Albrecht, A. Mario Cassará, S. Hartwig, L. Trahms, J. Haase, and M. Burghoff (2013)
Magnetic resonance imaging at frequencies below 1 kHz.
Magn. Reson. Imaging, vol. 31, no. 2, pp. 171–7

15. **T. Fedele**, H. J. Scheer, G. Waterstraat, B. Telenczuk, M. Burghoff, and G. Curio (2012)
Towards non-invasive multi-unit spike recordings: Mapping 1kHz EEG signals over human somatosensory cortex
Clin. Neurophysiol., vol. 123, no. 12, pp. 2370–2376

16. G. Waterstraat, B. Telenczuk, M. Burghoff, **T. Fedele**, H. J. Scheer, and G. Curio (2012)
Are high-frequency (600Hz) oscillations in human somatosensory evoked potentials due to phase-resetting phenomena?
Clin. Neurophysiol., vol. 123, no. 10, pp. 2064–2073

17. H. J. Scheer, **T. Fedele**, G. Curio, and M. Burghoff (2011)
Extension of non-invasive EEG into the kHz range for evoked thalamocortical activity by means of very low noise amplifiers
Physiol. Meas., vol. 32, no. 12, pp. N73–N79

* The authors equally contributed to the paper