

Personal and Contact Details

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Publications

Peer-Reviewed Articles

- Fusca`, M.; Siebenhühner, F.; Wang, S. H.; Myrov, V.; Arnulfo, G.; Nobili, L.; Palva, J. M.; Palva, S. (2023) Brain criticality predicts individual levels of inter-areal synchronization in human electrophysiological data. *Nature Communications*, 14(1), 4736. [DOI](#)
- Sanchez, G.; Hartmann, T.; Fusca`, M.; Demarchi, G.; Weisz, N. (2020) Decoding across sensory modalities reveals common supramodal signatures of conscious perception. *Proceedings of the National Academy of Sciences*, 117(13). [DOI](#)
- Rassi, E.; Fusca`, M.; Weisz, N.; Demarchi, G. (2019) Detecting Pre-Stimulus Source-Level Effects on Object Perception with Magnetoencephalography. *Journal of visualized experiments*, 149. [DOI](#)
- Fusca`, M.; Neuling, T.; Ruhnau, P.; Weisz, N. (2018) Local network-level integration mediates effects of transcranial Alternating Current Stimulation. *Brain Connectivity*, 8(4). [DOI](#)
- Ruhnau, P.; Neuling, T.; Fusca`, M.; Herrmann, C.S.; Demarchi, G.; Weisz, N. (2016) Eyes wide shut: Transcranial alternating current stimulation drives alpha rhythm in a state dependent manner. *Scientific Reports*, 6. [DOI](#)
- Gregory, S.; Fusca`, M.; Rees, G.; Schwarzkopf, D.S.; Barnes, G. (2016) Gamma frequency and the spatial tuning of primary visual cortex. *Plos One*, 11(6). [DOI](#)
- Neuling, T.; Ruhnau, P.; Fusca`, M.; Demarchi, G.; Herrmann, C.S.; Weisz, N. (2015) Friends, not foes: MEG as a tool to uncover brain dynamics during tACS. *NeuroImage*, 118. [DOI](#)

Conference Proceedings

- Ruhnau, P.; Neuling, T.; Fusca`, M.; Herrmann, C. S.; Demarchi, G.; Weisz, N. (2017) P166. Evidence for state dependent direct effects of alpha band transcranial alternating current stimulation. *Clinical Neurophysiology*, 128(3). [DOI](#)
- Neuling, T.; Ruhnau, P.; Fusca`, M.; Demarchi, G.; Herrmann, C. S.; Weisz, N. (2015) Shed light on the black box: Using MEG to recover brain activity during tACS. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 8(2). [DOI](#)
- Fusca`, M.; Ruhnau, P.; Demarchi, G.; Weisz, N.; Neuling, T. (2015) Brain Modulation during transcranial Alternating Current Stimulation recorded with MEG. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 8(2). [DOI](#)

Research Experience

- PostGraduate Research, HiLIFE - NC, University of Helsinki 08/2021 - 08/2023
 INP - CCNi, University of Glasgow 08/2019 - 07/2021
[Critical Oscillations lab](#); research advisors: S. Palva, M. Palva
 - MEG and sEEG oscillatory criticality, connectivity and hierarchy
- PostGraduate Research, CCNS, University of Salzburg 03/2014 - 03/2019
[Salzburg Brain Dynamics lab](#); research advisor: N. Weisz
 - M-EEG with concurrent TMS/tACS, causal inference of ERC-founded project WIN2CON
- Graduate Research, Dartmouth College 07/2014 - 09/2016
[Haxby lab](#); project partners: M. Visconti di Oleggio Castello, N. Oosterhof, I. Gobbini
 - Collaboration on a familiarity decoding multimodal fMRI and MEG study
- Graduate Research, CIMEC, University of Trento 10/2011 - 10/2014
[Perception and Attention lab](#); research advisor: J.V. Schwarzbach
 - MEG and fMRI in a perceptual decision-making project
 - Eyetracking/fMRI in the ITPAR project (India-Trento Program for Advanced Research)
- Graduate Research, FIL - UCL 01 - 07/2013
[Schwarzkopf lab](#); research advisors: S. D. Schwarzkopf, G.R. Barnes, G. Rees
 - Multimodal fMRI and MEG project relating retinotopic maps to perceptual function

Teaching Experience

- Lecturer**, Dept. of Psychology, University of Salzburg 10/2018 - 03/2019
Empirical Seminar; Bachelor's Programme in Psychology
 - MEG, Predictive Coding, MVPA Decoding, Conducting and Analysing an MEG study
- Teaching Assistant**, CCNS, University of Salzburg 04/2017
 Open University Course; Lecturer: *G. Sanchez*
 - Bayesian Inference, Free energy, SPM12 DCM
- Teaching Assistant**, CCNS, University of Salzburg 04 - 05/2016
 Open University Course; Lecturers: *G. Sanchez, C. Lithari*
 - Connectivity, Granger Causality, Graph Mapping, Fieldtrip Analyses Pipeline
- Workshop Assistant**, FIL - UCL 05/2013
SPM for EEG/MEG; Workshop Organizer: *G. Barnes*
 - SPM8 Analyses Pipeline, Preprocessing, ERP/Fs, TFRs, Source Reconstruction, DCM

Education

- Doctoral Degree**, Cognitive Neuroscience, University of Trento, Italy 10/2014 – 03/2018
 Three-year PhD program in CIMeC (Center for Mind/Brain Sciences)
 Supervisor: *Weisz, N.*
 Thesis: *Predispositions of Conscious Perception: from Correlation to Causation*
 Overall class grade: *cum laude*
- Master Degree**, Cognitive Neuroscience, University of Trento, Italy 09/2011 - 12/2013
 Two-year research-focused Master's course in Cognitive Neuroscience in CIMeC
 Supervisor: *Schwarzbach, J.V.*
 Thesis: *Abstract Auditory Categorical Representations and Domain-General Decision Making*
 Overall class grade: *110 (out of 110) cum laude* (Best CIMeC Graduate 2013)
- Bachelor's Degree**, Cognitive Psychology, University "La Sapienza", Italy 09/2008 - 07/2011
 Three-year Laurea in "Psychological sciences and techniques for the analysis and the clinical evaluation of cognitive processes" at the Faculty of Medicine and Psychology
 Supervisor: *Rossi-Arnaud, C.*
 Thesis: *Processing Central and Peripheral Details: How Emotional Content Influences Memory*
 Overall class grade: *110 (out of 110) cum laude*

Conferences and Posters

First author poster presentations

- 10 years of CIMeC, 2017 Poster Presentation, Rovereto, Italy 10/2017
 Conference for 10th anniversary of CIMeC. Poster: *What happens in the brain during tACS?*
- BioMag 2016 Poster Presentation, Seoul, South Korea 10/2016
 20th International Conference. Poster: *Online State-Dependent Effects of tACS*
- Model-Based Neuroscience Summer School / Poster Presentation, Amsterdam, NL 07/2016
 3rd Workshop and Conference. Poster: *Rapid Auditory Categorization in the right Parietal lobe*
- International Brain Stimulation Conference Poster Presentation, Singapore 03/2015
 1st International Elsevier Conference. Poster: *Brain Modulation during tACS recorded with MEG*
- BioMag 2014 Poster Presentation, Halifax, NS, Canada 08/2014
 19th International Conference on Biomagnetism. Poster: *Abstract Auditory Categorical Representations and Domain-General Decision Making: a Multivariate MEG study*

Conferences attended

Cognitive Science Arena, 2015, 2017; Tübingen MEG Symposium, 2015; RAW, 2015; CAOs, 2014, 2015, 2017; SAMBA Meeting, 2017, 2018, 2019 (Organizer).

Workshops attended

SPM MEG course, 2013 (Organizer); Donders Tool-kit on tBS, 2014; The Brain and Ideas, 2014; Model-Based Neuroscience, 2016; Motivation, Selection, and Information, 2017.

Honours and Awards

<u>Best CIMeC MSc Graduate 2013 Prize</u> , University of Trento, Trento, Italy	13/11/2014
<u>Scholarship</u> , Opera Universitaria, University of Trento, Trento, Italy	10/2011 - 12/2013
<u>Fellowship</u> , College of Merit "Bernardo Clesio", University of Trento	07/2012- 12/2013

Languages

Mother tongue **Italian**

Second Language **English (C2)**

Other Languages Spanish (B2); French (A2); German (A2)

Other Skills and Competences

<i>Informatic</i>	MATLAB (Fieldtrip, SPM, PTB3), Python (MNE, CrossPy), VB, HTML, SPSS. Windows and Linux computer environments, bash scripting, services and policies. Word processing programs, spreadsheets, databases, browsers, web design, network management, multimedia, image and audio processing.
<i>Social</i>	Relational and orientation skills, managing projects and teams. High ability to adapt to different environments, frequent relocation for studies and work.
<i>Technical</i>	Basic competence in electronics, electrical circuits and signal processing.