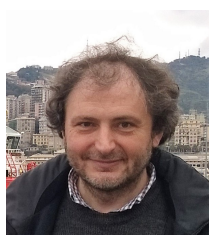


PERSONAL INFORMATION

Federico Giove



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<https://scholar.google.com/citations?user=P5Kz7kIAAAAJ&hl>

Gender M | Date of birth 10 November 1969 | Nationality Italian

CURRENT POSITION

9/2015–ongoing **Senior researcher, fixed term**

Museo storico della fisica e Centro studi e ricerche “Enrico Fermi”, Rome. As Senior Researcher (Primo Ricercatore) I head a group of medical physicists (4 postdocs, undergraduate and PhD students) devoted to the study of human brain structure and function, and to the development of the relevant MR methods. I am the PI of the interdisciplinary project “MRI Techniques for Brain Investigation”. Moreover, I coordinate some ongoing grants and their teams (see the section “Research projects and funds”). I come from the MRI School led by prof. Bruno Maraviglia, and I continue the tradition of human scale MRI development.

36 months, 32 months until now.

PAST POSITIONS

9/2012–8/2015 **Senior postdoc fellowship**

Assegno di ricerca senior at Museo storico della fisica e Centro studi e ricerche “Enrico Fermi” on “Investigation on Brain Energetics”.

36 months.

1/2011–6/2012 **Senior grant**

Senior postdoc fellowship at Museo storico della fisica e Centro studi e ricerche “Enrico Fermi”, on a project devoted to: “Investigation of human brain function by NMR”.

18 months.

1/2010–12/2010 **Postdoc fellowship**

Assegno di ricerca at Department of Physics, Sapienza Università di Roma, on a project devoted to: “Modeling of brain energetics”.

12 months.

11/2004–10/2009 **Postdoc fellowship**

Junior grant at Museo storico della fisica e Centro studi e ricerche “Enrico Fermi”, on a project devoted to: “Investigation of Brain Function by MRI”.

60 months.

RESEARCH EXPERIENCE

- Interests**
- Human brain metabolic dynamics, in healthy subjects and in some pathologies. My specific studies are focused on neurotransmitters and on energy-related compounds.
 - Biophysical modeling and computational approaches to the study of brain function and metabolism.
 - Quantitative MR approaches to brain structure and function.
 - Human brain function at rest and under sustained stimulation (resting state and steady state networks).
 - Brain function electrophysiology.
 - MR scanners technology.
 - MRI/PET and EEG/fMRI integration.
- Scientific production**
- Coauthor of about 55 papers on international journal with impact factor, 13 conference papers on international journal (some of them are full papers and are indexed as such), about 40 other items, including other conference papers and papers on national journals.
 - Some tenths of conference talks.
 - h-index: 18, 1137 total citations, 1022 citations without self-citations (source: Scopus).
 - h-index: 18, 1012 total citations, 907 citations without self-citations (source: ISI-Web of Science).
 - h-index: 21, 1476 total citations (source: Google Scholar).
- 2013** Visiting scientist, Center for Magnetic Resonance Research, Minneapolis, MN, USA.
- 2010–ongoing** Research on computational models of brain energetics.
- 2008–ongoing** Research on function and resting state networks of the human brain.
- 2006–ongoing** Research on human vision and perception.
- 2005–ongoing** Research on brain energetics, functions and structure with fMRI, fMRS and structural approaches (including DTI). Research on spinal cord fMRI. Development of methods for acquisition and processing of MRI and MRS data. Development of integration approaches (both instrumental and postprocessing) between MR and compatible techniques.
- 2001–2004** Research on brain energetics and function by fMRI and fMRS, as PhD student.
- 2000–2001** Research on brain energetics by fMRS, as undergraduate student.

ACADEMIC APPOINTMENTS
AND QUALIFICATIONS AND
CORRELATED EXPERIENCES

- 2013–ongoing** Qualified as associate professor of Applied Physics (02/B3, Fisica applicata, now Fisica applicata, didattica e storia della fisica, 02/D1, from 27/12/13 to 27/12/19), Experimental Physics of the Matter (02/B1, Fisica sperimentale della materia, from 13/10/14 to 13/10/20), Physiology (05/D1, Fisiologia, from 31/1/14 to 31/1/20), General Biochemistry (05/E1, Biochimica Generale, from 5/12/2017 to 5/12/2023). National Scientific Qualification (Abilitazione Scientifica Nazionale), Italy.
- 2017–ongoing** Qualified as full professor of Applied Physics (02/D1, Fisica applicata, didattica e storia della fisica, from 5/12/2017 to 5/12/2023), National Scientific Qualification (Abilitazione Scientifica Nazionale), Italy.

- 2017–ongoing Member of the Board (Collegio dei Docenti) of the PhD School in Morphogenesis and Tissue Engineering, from XXXIII cycle, Sapienza Università di Roma.
- 2013–2016 Repeatedly member of Commission or President of Commission for public selections for postdoc, researcher and administrative positions (Museo storico della fisica e Centro studi e ricerche “Enrico Fermi”).
- 2013–2015 Director of the Center for Advanced High Field Imaging, Pozzilli (IS), Italy. The Center was a partnership between Sapienza Università di Roma e IRCCS Neuromed. Missions of the Center were the development and use of High Field MR technologies for Neuroscience. My duties included the supervision of the commissioning of a 7 T MRI scanner and of the associated laboratories, that was aborted by partners for financial problems.
- 2009–ongoing Condirector of the International School on Magnetic Resonance and Brain Function, Erice, Italy.
- 2007–2008 President of the Local Organizing Committee of International Society for Magnetic Resonance in Medicine Workshop on Advances in High Field MR, Rome, 15–18 October.
- 2003–2009 Member of the Organizing Committee of the International School on Magnetic Resonance and Brain Function, Erice, Italy.

TEACHING

- 2018 Lecturer, First Level Master on MR techniques in clinic and research, Università Campus Bio-Medico, Roma.
- 2017 Lecturer, Second Level Master on Radioprotection – Safety of ionizing and non-ionizing radiations, Università degli Studi “Tor Vergata”, Rome.
- 2016–2017 Adjunct Professor (Professore a contratto), Electric and Electronic Measures program (SSD ING-INF/07), degree course “E” in Tecniche di radiologia medica, per immagini e radioterapia (L/SNT3), Dipartimento di Scienze anatomiche, istologiche, medico legali e dell’apparato locomotore, Sapienza Università di Roma.
1 CFU, 1 academic year
- 2015–2017 Adjunct Professor (Professore a contratto) Applied Physics program (SSD FIS/07), degree course “E” in Tecniche di radiologia medica, per immagini e radioterapia (L/SNT3), Dipartimento di Scienze anatomiche, istologiche, medico legali e dell’apparato locomotore, Sapienza Università di Roma.
2 CFU, 2 academic years
- 2015–2017 Teaching at the Radioprotection Physics program (SSD FIS/07), degree course “E” in Tecniche di radiologia medica, per immagini e radioterapia (L/SNT3), Dipartimento di Scienze anatomiche, istologiche, medico legali e dell’apparato locomotore, Sapienza Università di Roma, with Prof. Rosanna Pellegrini.
2 CFU, 2 academic years
- 2015 Lecturer, Second Level Master on Radioprotection – Safety of ionizing and non-ionizing radiations, Università Campus Bio-Medico, Rome.
- 2014–2015 Lecturer (Docente in convenzione), Radioprotection Physics program (SSD FIS/07), degree course “E” in Tecniche di radiologia medica, per immagini e radioterapia (L/SNT3), Dipartimento di Scienze anatomiche, istologiche, medico legali e dell’apparato locomotore, Sapienza Università di Roma

3 CFU, 1 academic year

2014–2015 Teaching at the Applied Physics program (SSD FIS/07), degree course “E” in Tecniche di radiologia medica, per immagini e radioterapia (L/SNT3), Dipartimento di Scienze anatomiche, istologiche, medico legali e dell’apparato locomotore, Sapienza Università di Roma, with Prof. Rosanna Pellegrini.

2 CFU, 1 academic year

2014–2017 Teaching at the Applied Physics program (SSD FIS/07), degree course “U” in Infermieristica (L/SNT1), Dipartimento di Sanità pubblica e malattie infettive, Sapienza Università di Roma, with Prof. Rosanna Pellegrini.

1 CFU, 3 academic years

2008–2014 Teaching at the Medical Physics program (SSD FIS/07), degree course in Physics (LM-17), Department of Physics, Sapienza Università di Roma, with Prof. Bruno Maraviglia and Prof. Giovanni E. Gigante.

6 CFU, 6 academic years

2007 Teaching at the Complements of Biosystem Physics program (SSD FIS/07), degree course in Physics (LM-17), Department of Physics, Sapienza Università di Roma, with Prof. Bruno Maraviglia

3 CFU, 1 academic year

2006–ongoing Supervisor of 7 bachelor’s degrees in Physics, 11 Master degrees in Physics, 5 Degrees at the Postgraduate school in Medical Physics, and 2 PhD thesis in Biophysics, all at Sapienza Università di Roma. I also supervised 2 PhD thesis in Physics at the in Fisica at Università Roma 3, and 5 bachelor’s degrees in Physics at Université Paris–Sud 11.

EDITORIAL WORK**Associate Editor**

2018–ongoing Frontiers in Cellular Neuroscience.

2015–ongoing Frontiers in Physics, Biomedical Physics section.

2015–ongoing Frontiers in Physiology, Biomedical Physics section.

Editorial Board member

2015–ongoing Frontiers in Computational Neuroscience.

Reviewer

2006–ongoing For many international journals (Scientific Reports, Cerebral Cortex, Neuroimage, Journal of Cerebral Blood Flow and Metabolism, NMR in Biomedicine, Magnetic Resonance in Medicine, PLOS One, Journal of Neuroscience Methods, Magnetic Resonance Imaging, Journal of Physiology, Journal of Mathematical Biology, Brain Structure and Function, Frontiers in Neuroscience).

Guest editor

2016–2018 Coeditor of the Proceedings of the International School on Magnetic Resonance and Brain Function, Erice, Italy, *Frontiers in Physics*, *Frontiers in Neurology*, *Frontiers in Neuroscience* (2 special issues).

2003–2011 Coeditor of the Proceedings of the International School on Magnetic Resonance and Brain Function, Erice, Italy, *Magnetic Resonance Imaging* (8 special issues).

Activity as grants reviewer

2018 Grant reviewer for the Alzheimer's Society Foundation, UK.

2017–ongoing Member of the REPRISE list in the basic research section, Italian Ministry of Research, ERC sectors LS4_5, LS5_10, LS7_1, PE8_13, SSD FIS/07, BIO/09, ING-IND/34.

MEMBERSHIPS

2009–2014 INFN, Istituto Nazionale di Fisica Nucleare, Rome 1 Unit.

2008–ongoing International Society for Magnetic Resonance in Medicine, Berkeley, CA, USA.

2002–ongoing Museo storico della fisica e Centro studi e ricerche "Enrico Fermi", Rome.

2000–2011 Department of Physics, Sapienza Università di Roma.

2000–2003 INFN, Istituto Nazionale di Fisica della Materia.

MAIN COLLABORATIONS

2015–2017 Galmed Pharmaceuticals; Tel Aviv. ARREST Phase IIb Trial. Optimization of MR spectroscopy methods for MR centers in Italy.

2015–ongoing Siemens Healthcare Italy; Milano. Development of methods for MR spectroscopy in vivo.

2015–ongoing University of Eastern Finland; Kuopio, FI (Olli Gröhn). Development of structural MRI for characterization of microstructural damage in neurodegeneration.

2013–ongoing Cardiff Brain Research University Center, University of Cardiff (CUBRIC); Cardiff, UK (Richard G. Wise). Development of methods for the study of brain functional networks.

2013–ongoing Istituto per i processi chimico-fisici, now Istituto di nanotecnologia, Consiglio Nazionale delle Ricerche (CNR-IPCF); Rome. (Andrea De Martino, Alessia Cedola, Michela Fratini). Metabolic networks, spinal cord imaging.

2013–2017 Dipartimento di scienze radiologiche, Sapienza Università di Roma; Rome. (Valeria Panebianco). Advanced MR methods for prostate cancer characterization.

2008–2012 EBNeuro S.p.A.; Firenze. Development of an hardware EEG filter for simultaneous EEG/fMRI recordings.

2008–ongoing Università di Modena e Reggio Emilia; Modena. (Carlo A. Porro, Paul E. Summers). Spinal cord fMRI.

2006–ongoing Center For Magnetic Resonance Research, University of Minnesota (CMRR); Minneapolis, MN, USA (Silvia Mangia, Ivan Tkáč, Kâmil Uğurbil). Study of brain metabolic dynamics, neurometabolic coupling, metabolic pathologies, metabolic modeling.

- 2003–2017 Fondazione Santa Lucia IRCCS, Roma. (Gisela E. Hagberg, Emiliano Macaluso, Gianfranco Spalletta, Marco Bozzali). Brain metabolism and neurodegenerative diseases. Technological partnership for the development of 2.3 T MR scanners.
- 2003–ongoing Dipartimento di scienze neurologiche, Sapienza Università di Roma. (Claudio Colonnese, Carlo Di Bonaventura). Neurological diseases.

GRANTS, FUNDING AND RESEARCH PROJECTS

- 2017 E.M.S. S.R.L., Bologna. Measures of EM compatibility of stimulation devices with MRI.
- 2015–2019 H2020 MSCA–RISE 691110 “MICROBRADAM: Advanced MR methods for characterization of microstructural brain damage”. Consortium coordinator and Principal Investigator.
Total amount: 540000 €.
- 2015–2018 Regione Lazio FILAS RU-2014-1092, “PAMINA: Piattaforma per l’Analisi Multimodale Integrata in Neuroscienze Applicate - Platform for Integrated and Multimodal Analysis in Applied Neuroscience”. Coordinator and Principal Investigator.
Total amount: 862000 €.
- 2012–2014 MIUR Progetti Premiali, “NETFUN: Functional brain networks studied by NMR”. Principal Investigator.
Total amount: 100500 €.
- 2010–ongoing IRCCS Fondazione Santa Lucia, Rome. Coordinator of the project “Study of metabolic events during visual perception by MR techniques”.
- 2010 A whole body 7 T MRI system was jointly assigned to prof. Bruno Maraviglia and to me, given by the National Institutes of Health (Bethesda, MD; USA) to Sapienza Università di Roma following an international call. The scanner was not recommissioned because of missing cofunding.
Total value: about 4 million €.
- 2008–2010 PRIN, “Characterization of human spinal cord function by MRI”. Investigator.
Total amount: 41700 €.
- 2007–2009 Regione Lazio, “FUSION: Framework and Unified System for Investigation on Neurosciences”. Scientific coordinator.
Total amount: 800000 €.
- 2003–2005 PRIN, “Advanced methods for the study of human brain function by MRI”. Investigator.
Total amount: 81500 €.
- 2004–ongoing Museo storico della fisica e Centro studi e ricerche “Enrico Fermi”, “Non-invasive technologies for the Neurosciences: Magnetic Resonance (TNIN)”, then “MRI techniques for the study of human brain function (T-MENS)”. Investigator 2004–2010, Principal Investigator 2010–ongoing.

RECOGNITIONS AND PRIZES

- 2010 The paper DiNuzzo, Mangia, Maraviglia, Giove. “Glycogenolysis in astrocytes supports blood–borne glucose channeling not glycogen–derived lactate shuttling to neurons”, *Journal of Cerebral Blood Flow and Metabolism* **30**:1895–1904 (2010), doi: 10.1038/jcbfm.2010.151 is selected as “Feature article”, with an introduction by Gerald Dienel.
- 2014 **Outstanding Reviewer**
International journal *Journal of Neuroscience Methods*.
- 2001–2004 PhD scholarship, Sapienza Università di Roma.

EDUCATION AND PUBLIC SELECTIONS

- 2017 Second in a public selection for Associate Professor in Applied Physics (G.U. n. 83, 31 October 2017 SC 02/D1, SSD FIS/07), Università degli Studi di Chieti-Pescara.
- 2017 Third in a public selection for Associate Professor in Applied Physics (G.U. n. 79, 4 October 2016 SC 02/D1, SSD FIS/07), Università degli Studi di Siena.
- 2016 Second in a public selection for Associate Professor in Applied Physics (G.U. n. 62, 5 August 2016, SC 02/D1, SSD FIS/07), Università degli Studi di Torino.
- 2015–2016 Successful candidate to 3 public selections for Adjunct Professor (Professore a contratto), academic years 2015–2016 and 2016–2017, Sapienza Università di Roma (the relevant teaching activity is detailed above).
- 2010 Qualified at a public competition for researcher, Museo storico della fisica e Centro studi e ricerche “Enrico Fermi”.
- 2005 **PhD in Biophysics** ISCED 6, EQF 8
Sapienza Università di Roma. Thesis title: “Energetics and activation of the central nervous system by in vivo nuclear magnetic resonance”. Supervisor: Prof. Bruno Maraviglia.
- 2001 **Master Degree in Physics** ISCED 5A, EQF 7
(cum laude). Sapienza Università di Roma. Thesis title: “Dynamics of neuronal metabolism under activation: “in vivo” lactate measurement with NMR”. Supervisor: Prof. Bruno Maraviglia.

OTHER INFORMATION

Experience with MRI scanners

- Programming languages – Certified IDEA programmer (Pulse programming language for Siemens scanners).
– Basic knowledge of Bruker and Philips pulse programming languages.
- Scanners – Advanced knowledge of Siemens scanners (software and hardware).
– Very good knowledge of General Electric and Philips scanners (software), basic knowledge of Bruker scanners.
- NMR Software – Advanced knowledge of main MR processing tools. Spectroscopy: LCMoDel, jMRUI, MatNMR, XWinNMR; Imaging: SPM, AFNI, FSL, freesurfer).
– Author of several custom processing routines in Matlab.

Informatic knowledge

- Programming languages C, Fortran, HTML (basic knowledge); Matlab, $\text{\LaTeX} 2_{\epsilon}$ (advanced knowledge).
- OS and servers SQL Server (basic knowledge); MS Windows (NT kernel, workstation and server), Linux, Apache (advanced knowledge). Advanced knowledge in the fields of networking and systems management (Unix-like, Windows server).
- Applications Main productivity applications; Data analysis and statistics (SPSS, Origin).

LANGUAGES

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B1	B2	C1
Spanish	B2	A2	A2	A2	A2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

DIGITAL SKILLS**Digital competences**

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Independent user	Independent user	Proficient user	Proficient user

[Digital competences - Self-assessment grid](#)

ATTACHMENTS

Complete list of scientific publications.

Publications Federico Giove

Papers on international journal

- [A1] Petr Bednařík, Ivan Tkáč, Federico Giove, Lynn E Eberly, Dinesh K Deelchand, Felipe R Barreto, and Silvia Mangia. Neurochemical responses to chromatic and achromatic stimuli in the human visual cortex. *Journal of cerebral blood flow and metabolism* 38 (2018), 347–359. DOI: [10.1177/0271678X17695291](https://doi.org/10.1177/0271678X17695291).
- [A2] Federico Giove and Itamar Ronen. Editorial: Proceedings of the International School on Magnetic Resonance and Brain Function – XII Workshop. *Frontiers in Physics* 6 (2018), 18. DOI: [10.3389/fphy.2018.00018](https://doi.org/10.3389/fphy.2018.00018).
- [A3] Laura Maugeri, Marta Moraschi, Paul E. Summers, Stefania Favilla, Carlo Adolfo Porro, Alessia Cedola, Eleonora Stefanutti, Paolo Mocchi, Federico Giove, and Michela Fratini. Assessing denoising strategies for fMRI in spinal cord and Brainstem. *Journal of Instrumentation* 13 (2018), C02028. DOI: [10.1088/1748-0221/13/02/C02028](https://doi.org/10.1088/1748-0221/13/02/C02028).
- [A4] Eleonora Stefanutti et al. Assessment of the effects of different sample perfusion procedures on phase-contrast tomographic images of mouse spinal cord. *Journal of Instrumentation* 13 (2018), C03027. DOI: [10.1088/1748-0221/13/03/C03027](https://doi.org/10.1088/1748-0221/13/03/C03027).
- [A5] Silvia Tommasin, Daniele Mascali, Marta Moraschi, Tommaso Gili, Ibrahim Eid Hassan, Michela Fratini, Mauro DiNuzzo, Richard G Wise, Silvia Mangia, Emiliano Macaluso, and Federico Giove. Scale-invariant rearrangement of resting state networks in the human brain under sustained stimulation. *NeuroImage* 179 (2018), 570–581. DOI: [10.1016/j.neuroimage.2018.06.006](https://doi.org/10.1016/j.neuroimage.2018.06.006).
- [A6] I. Bukreeva, G. Campi, Michela Fratini, R. Spanò, D. Bucci, G. Battaglia, Federico Giove, A. Bravin, A. Uccelli, C. Venturi, M. Mastrogiacomo, and A. Cedola. Quantitative 3D investigation of Neuronal network in mouse spinal cord model. *Scientific reports* 7 (2017), 41054. DOI: [10.1038/srep41054](https://doi.org/10.1038/srep41054).
- [A7] Mauro DiNuzzo, Federico Giove, Bruno Maraviglia, and Silvia Mangia. Computational Flux Balance Analysis Predicts that Stimulation of Energy Metabolism in Astrocytes and their Metabolic Interactions with Neurons Depend on Uptake of K⁺ Rather than Glutamate. *Neurochemical research* 42 (1 2017), 202–216. DOI: [10.1007/s11064-016-2048-0](https://doi.org/10.1007/s11064-016-2048-0).

- [A8] Mauro DiNuzzo, Daniele Mascali, Marta Moraschi, Giorgia Bussu, Bruno Maraviglia, Silvia Mangia, and Federico Giove. Temporal Information Entropy of the Blood-Oxygenation Level-Dependent Signals Increases in the Activated Human Primary Visual Cortex. *Frontiers in physics* 5 (2017), 7. DOI: [10.3389/fphy.2017.00007](https://doi.org/10.3389/fphy.2017.00007).
- [A9] Silvia Mangia et al. Multi-modal Brain MRI in Subjects with PD and iRBD. *Frontiers in neuroscience* 11 (2017), 709. DOI: [10.3389/fnins.2017.00709](https://doi.org/10.3389/fnins.2017.00709).
- [A10] Daniele Mascali, Mauro DiNuzzo, Laura Serra, Silvia Mangia, Bruno Maraviglia, Marco Bozzali, and Federico Giove. Disruption of Semantic Network in Mild Alzheimer’s Disease Revealed by Resting-State fMRI. *Neuroscience* 371 (2017), 38–48. DOI: [10.1016/j.neuroscience.2017.11.030](https://doi.org/10.1016/j.neuroscience.2017.11.030).
- [A11] Silvia Tommasin, Daniele Mascali, Tommaso Gili, Ibrahim Eid Assan, Marta Moraschi, Michela Fratini, Richard G Wise, Emiliano Macaluso, Silvia Mangia, and Federico Giove. Task-Related Modulations of BOLD Low-Frequency Fluctuations within the Default Mode Network. *Frontiers in Physics* 5 (2017), 31. DOI: [10.3389/fphy.2017.00031](https://doi.org/10.3389/fphy.2017.00031).
- [A12] Petr Bednařík, Ivan Tkáč, Federico Giove, Mauro DiNuzzo, Dinesh K. Deelchand, Uzay E. Emir, Lynn E. Eberly, and Silvia Mangia. Neurochemical and BOLD responses during neuronal activation measured in the human visual cortex at 7 Tesla. *Journal of Cerebral Blood Flow and Metabolism* 35 (2015), 601–610. DOI: [10.1038/jcbfm.2014.233](https://doi.org/10.1038/jcbfm.2014.233).
- [A13] Mauro DiNuzzo, Federico Giove, Bruno Maraviglia, and Silvia Mangia. Monoaminergic Control of Cellular Glucose Utilization by Glycogenolysis in Neocortex and Hippocampus. *Neurochemical Research* 40 (2015), 2493–2504. DOI: [10.1007/s11064-015-1656-4](https://doi.org/10.1007/s11064-015-1656-4).
- [A14] Mauro DiNuzzo, Silvia Mangia, Bruno Maraviglia, and Federico Giove. Does abnormal glycogen structure contribute to increased susceptibility to seizures in epilepsy? *Metabolic Brain Disease* 30 (2015), 307–316. DOI: [10.1007/s11011-014-9524-5](https://doi.org/10.1007/s11011-014-9524-5).
- [A15] Michela Fratini et al. Simultaneous submicrometric 3D imaging of the micro-vascular network and the neuronal system in a mouse spinal cord. *Scientific Reports* 5 (2015), 8514. DOI: [10.1038/srep08514](https://doi.org/10.1038/srep08514).
- [A16] Daniele Mascali, Mauro DiNuzzo, Tommaso Gili, Marta Moraschi, Michela Fratini, Bruno Maraviglia, Laura Serra, Marco Bozzali, and Federico Giove. Intrinsic Patterns of Coupling between Correlation and Amplitude of Low-Frequency fMRI Fluctuations Are Disrupted in Degenerative Dementia Mainly due to Functional Disconnection. *PLOS ONE* 10 (2015), e0120988. DOI: [10.1371/journal.pone.0120988](https://doi.org/10.1371/journal.pone.0120988).
- [A17] Mauro DiNuzzo, Silvia Mangia, Bruno Maraviglia, and Federico Giove. Physiological bases of the K+ and the glutamate/GABA hypotheses of epilepsy. *Epilepsy Research* 108 (2014), 995–1012. DOI: [10.1016/j.eplepsyres.2014.04.001](https://doi.org/10.1016/j.eplepsyres.2014.04.001).

- [A18] Michela Fratini, Marta Moraschi, Bruno Maraviglia, and Federico Giove. On the impact of physiological noise in spinal cord functional MRI. *Journal of Magnetic Resonance Imaging* 40 (2014), 770–777. DOI: [10.1002/jmri.24467](https://doi.org/10.1002/jmri.24467).
- [A19] Mauro DiNuzzo, Federico Giove, Bruno Maraviglia, and Silvia Mangia. Glucose metabolism down-regulates the uptake of 6-(N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl)amino)-2-deoxyglucose (6-NBDG) mediated by glucose transporter 1 isoform (GLUT1): theory and simulations using the symmetric four-state carrier model. *Journal of Neurochemistry* 125 (2013), 236–246. DOI: [10.1111/jnc.12164](https://doi.org/10.1111/jnc.12164).
- [A20] Mauro DiNuzzo, Silvia Mangia, Bruno Maraviglia, and Federico Giove. Regulatory mechanisms for glycogenolysis and K(+) uptake in brain astrocytes. *Neurochemistry International* 63 (2013), 458–464. DOI: [10.1016/j.neuint.2013.08.004](https://doi.org/10.1016/j.neuint.2013.08.004).
- [A21] Franco Garibaldi et al. TOPEM: A PET TOF endorectal probe, compatible with MRI for diagnosis and follow up of prostate cancer. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 702 (2013), 13–15. DOI: [10.1016/j.nima.2012.09.020](https://doi.org/10.1016/j.nima.2012.09.020).
- [A22] Silvia Mangia, Federico Giove, and Mauro DiNuzzo. K⁺ homeostasis in the brain: a new role for glycogenolysis. *Neurochemical Research* 38 (2013), 470–471. DOI: [10.1007/s11064-012-0962-3](https://doi.org/10.1007/s11064-012-0962-3).
- [A23] Francesco A. Massucci, Mauro DiNuzzo, Federico Giove, Bruno Maraviglia, Isaac Perez Castillo, Enzo Marinari, and Andrea De Martino. Energy metabolism and glutamate-glutamine cycle in the brain: a stoichiometric modeling perspective. *BMC Systems Biology* 7 (2013), 103. DOI: [10.1186/1752-0509-7-103](https://doi.org/10.1186/1752-0509-7-103).
- [A24] Valeria Panebianco, Federico Giove, Flavio Barchetti, Franca Podo, and Roberto Passariello. High field PET/MRI and MRS: potential clinical and research applications. *Clinical and Translational Imaging* 1 (2013), 17–29. DOI: [10.1007/s40336-013-0004-4](https://doi.org/10.1007/s40336-013-0004-4).
- [A25] Paul E. Summers, Carlo A. Porro, and Federico Giove. Somatotopy of nociceptive responses in the human spinal cord. *Pain* 154 (2013), 2572–2573. DOI: [10.1016/j.pain.2013.07.056](https://doi.org/10.1016/j.pain.2013.07.056).
- [A26] Mauro DiNuzzo and Federico Giove. Activity-dependent energy budget for neocortical signaling: effect of short-term synaptic plasticity on the energy expended by spiking and synaptic activity. *Journal of Neuroscience Research* 90 (2012), 2094–2102. DOI: [10.1002/jnr.23098](https://doi.org/10.1002/jnr.23098).
- [A27] Mauro DiNuzzo, Silvia Mangia, Bruno Maraviglia, and Federico Giove. The role of astrocytic glycogen in supporting the energetics of neuronal activity. *Neurochemical research* 37 (11 2012), 2432–2438. DOI: [10.1007/s11064-012-0802-5](https://doi.org/10.1007/s11064-012-0802-5).
- [A28] Silvia Mangia, Federico Giove, and Mauro DiNuzzo. Metabolic pathways and activity-dependent modulation of glutamate concentration in the human brain. *Neurochemical research* 37 (11 2012), 2554–2561. DOI: [10.1007/s11064-012-0848-4](https://doi.org/10.1007/s11064-012-0848-4).

- [A29] Marta Moraschi, Mauro DiNuzzo, and Federico Giove. On the origin of sustained negative BOLD response. *Journal of neurophysiology* 108 (9 2012), 2339–2342. doi: [10.1152/jn.01199.2011](https://doi.org/10.1152/jn.01199.2011).
- [A30] Mauro DiNuzzo, Tommaso Gili, Bruno Maraviglia, and Federico Giove. Modeling the contribution of neuron–astrocyte cross talk to slow blood oxygenation level-dependent signal oscillations. *Journal of Neurophysiology* 106 (2011), 3010–3018. doi: [10.1152/jn.00416.2011](https://doi.org/10.1152/jn.00416.2011).
- [A31] Mauro DiNuzzo, Bruno Maraviglia, and Federico Giove. Why does the brain (not) have glycogen? *Bioessays* 33 (2011), 319–326. doi: [10.1002/bies.201000151](https://doi.org/10.1002/bies.201000151).
- [A32] Tommaso Gili, Mara Cercignani, Laura Serra, Roberta Perri, Federico Giove, Bruno Maraviglia, Carlo Caltagirone, and Marco Bozzali. Regional brain atrophy and functional disconnection across Alzheimer’s disease evolution. *Journal of Neurology, Neurosurgery and Psychiatry* 82 (2011), 58–66. doi: [10.1136/jnnp.2009.199935](https://doi.org/10.1136/jnnp.2009.199935).
- [A33] Giovanni Giulietti, Paul E. Summers, Diana Ferraro, Carlo A. Porro, Bruno Maraviglia, and Federico Giove. Semiautomated segmentation of the human spine based on echoplanar images. *Magnetic Resonance Imaging* 29 (2011), 1429–1436. doi: [10.1016/j.mri.2011.08.006](https://doi.org/10.1016/j.mri.2011.08.006).
- [A34] Silvia Mangia, Mauro DiNuzzo, Federico Giove, Anthony Carruthers, Ian A. Simpson, and Susan J. Vannucci. Response to ‘Comment on recent modeling studies of astrocyte-neuron metabolic interactions’: much ado about nothing. *Journal of Cerebral Blood Flow and Metabolism* 31 (2011), 1346–1353. doi: [10.1038/jcbfm.2011.29](https://doi.org/10.1038/jcbfm.2011.29).
- [A35] Claudia Cacciari, Marta Moraschi, Margherita Di Paola, Andrea Cherubini, Maria Donata Orfei, Federico Giove, Bruno Maraviglia, Carlo Caltagirone, and Gianfranco Spalletta. White matter microstructure and apathy level in amnesic mild cognitive impairment. *Journal of Alzheimer’s Disease* 20 (2010), 501–507. doi: [10.3233/JAD-2010-1384](https://doi.org/10.3233/JAD-2010-1384).
- [A36] Mauro DiNuzzo, Silvia Mangia, Bruno Maraviglia, and Federico Giove. Changes in glucose uptake rather than lactate shuttle take center stage in subserving neuroenergetics: evidence from mathematical modeling. *Journal of Cerebral Blood Flow and Metabolism* 30 (2010), 586–602. doi: [10.1038/jcbfm.2009.232](https://doi.org/10.1038/jcbfm.2009.232).
- [A37] Mauro DiNuzzo, Silvia Mangia, Bruno Maraviglia, and Federico Giove. Glycogenolysis in astrocytes supports blood-borne glucose channeling not glycoygen-derived lactate shuttling to neurons: evidence from mathematical modeling. *Journal of Cerebral Blood Flow and Metabolism* 30 (2010), 1895–1904. doi: [10.1038/jcbfm.2010.151](https://doi.org/10.1038/jcbfm.2010.151).
- [A38] Marta Moraschi, Giovanni Giulietti, Federico Giove, Manuela Guardati, Girolamo Garreffa, Nicola Modugno, Claudio Colonnese, and Bruno Maraviglia. fMRI study of motor cortex activity modulation in early Parkinson’s disease. *Magnetic Resonance Imaging* 28 (2010), 1152–1158. doi: [10.1016/j.mri.2010.03.025](https://doi.org/10.1016/j.mri.2010.03.025).

- [A39] Marta Moraschi, Gisela E. Hagberg, Margherita Di Paola, Gianfranco Spalletta, Bruno Maraviglia, and Federico Giove. Smoothing that does not blur: effects of the anisotropic approach for evaluating diffusion tensor imaging data in the clinic. *Journal of Magnetic Resonance Imaging* 31 (2010), 690–697. DOI: [10.1002/jmri.22040](https://doi.org/10.1002/jmri.22040).
- [A40] Stefano Peca, Marco Carnì, Carlo Di Bonaventura, Teresa Aprile, Gisela E. Hagberg, Anna Teresa Giallonardo, Mario Manfredi, Silvia Mangia, Girolamo Garreffa, Bruno Maraviglia, and Federico Giove. Metabolic correlates of brain activity in a FOS epilepsy patient. *NMR in Biomedicine* 23 (2010), 170–178. DOI: [10.1002/nbm.1439](https://doi.org/10.1002/nbm.1439).
- [A41] Mauro DiNuzzo, Federico Giove, and Bruno Maraviglia. A biochemical framework for modeling the functional metabolism of the human brain. *Biophysics & BioEngineering Letters* 2(2) (2009).
- [A42] Federico Giove, Tommaso Gili, Vittorio Iacovella, Emiliano Macaluso, and Bruno Maraviglia. Images-based suppression of unwanted global signals in resting-state functional connectivity studies. *Magnetic Resonance Imaging* 27 (2009), 1058–1064. DOI: [10.1016/j.mri.2009.06.004](https://doi.org/10.1016/j.mri.2009.06.004).
- [A43] Silvia Mangia, Federico Giove, Ivan Tkáč, Nikos K. Logothetis, Pierre-Gilles Henry, Cheryl A. Olman, Bruno Maraviglia, Francesco Di Salle, and Kâmil Uğurbil. Metabolic and hemodynamic events after changes in neuronal activity: current hypotheses, theoretical predictions and in vivo NMR experimental findings. *Journal of Cerebral Blood Flow and Metabolism* 29 (2009), 441–463. DOI: [10.1038/jcbfm.2008.134](https://doi.org/10.1038/jcbfm.2008.134).
- [A44] Giovanni Giulietti, Federico Giove, Girolamo Garreffa, Claudio Colonnese, Silvia Mangia, and Bruno Maraviglia. Characterization of the functional response in the human spinal cord: Impulse-response function and linearity. *Neuroimage* 42 (2008), 626–634. DOI: [10.1016/j.neuroimage.2008.05.006](https://doi.org/10.1016/j.neuroimage.2008.05.006).
- [A45] Girolamo Garreffa, Soléakhéna Ken, Maria Antonietta Macrì, Giovanni Giulietti, Federico Giove, Claudio Colonnese, Eugenio Venditti, Emilio De Cesare, Vittorio Galasso, and Bruno Maraviglia. BOLD signal and vessel dynamics: a hierarchical cluster analysis. *Magnetic Resonance Imaging* 24 (2006), 411–418. DOI: [10.1016/j.mri.2005.11.004](https://doi.org/10.1016/j.mri.2005.11.004).
- [A46] Federico Giove et al. Metabolic alteration transients during paroxysmal activity in an epileptic patient with fixation-off sensitivity: a case study. *Magnetic Resonance Imaging* 24 (2006), 373–379. DOI: [10.1016/j.mri.2005.11.003](https://doi.org/10.1016/j.mri.2005.11.003).
- [A47] Maria Antonietta Macrì, Girolamo Garreffa, Federico Giove, Marta Moraschi, Giovanni Giulietti, Nicola Modugno, Claudio Colonnese, and Bruno Maraviglia. A cluster-based quantitative procedure in an fMRI study of Parkinson’s disease. *Magnetic Resonance Imaging* 24 (2006), 419–424. DOI: [10.1016/j.mri.2005.12.035](https://doi.org/10.1016/j.mri.2005.12.035).
- [A48] Silvia Mangia, Ivan Tkáč, Rolf Gruetter, Pierre-Francois Van De Moortele, Federico Giove, Bruno Maraviglia, and Kâmil Uğurbil. Sensitivity of single-voxel ¹H-MRS in investigating the metabolism of the activated human visual cortex at 7 T. *Magnetic Resonance Imaging* 24 (2006), 343–348. DOI: [10.1016/j.mri.2005.12.023](https://doi.org/10.1016/j.mri.2005.12.023).

- [A49] Federico Giove, Girolamo Garreffa, Giovanni Giulietti, Silvia Mangia, Claudio Colonnese, and Bruno Maraviglia. Issues about the fMRI of the human spinal cord. *Magnetic Resonance Imaging* 22 (2004), 1505–1516. DOI: [10.1016/j.mri.2004.10.015](https://doi.org/10.1016/j.mri.2004.10.015).
- [A50] Maria Antonietta Macrì, Girolamo Garreffa, Federico Giove, Manuela Guardati, Anna Ambrosini, Claudio Colonnese, and Bruno Maraviglia. In vivo quantitative ¹H MRS of cerebellum and evaluation of quantitation reproducibility by simulation of different levels of noise and spectral resolution. *Magnetic Resonance Imaging* 22 (2004), 1385–1393. DOI: [10.1016/j.mri.2004.10.021](https://doi.org/10.1016/j.mri.2004.10.021).
- [A51] Silvia Mangia, Francesco Di Salle, Girolamo Garreffa, Fabrizio Esposito, Federico Giove, Sossio Cirillo, Tommaso Scarabino, Renato Morrone, and Bruno Maraviglia. Perfusion- and BOLD-based fMRI in the study of a human pathological model for task-related flow reductions. *Brain Research Bulletin* 63 (2004), 1–5. DOI: [10.1016/j.brainresbull.2003.10.012](https://doi.org/10.1016/j.brainresbull.2003.10.012).
- [A52] Federico Giove, Silvia Mangia., Marta Bianciardi, Girolamo Garreffa, Francesco Di Salle, Renato Morrone, and Bruno Maraviglia. The physiology and metabolism of neuronal activation: in vivo studies by NMR and other methods. *Magnetic Resonance Imaging* 21 (2003), 1283–1293. DOI: [10.1016/j.mri.2003.08.028](https://doi.org/10.1016/j.mri.2003.08.028).
- [A53] Maria Antonietta Macrì, Girolamo Garreffa, Federico Giove, Anna Ambrosini, Manuela Guardati, Francesco Pierelli, Jean Schoenen, Claudio Colonnese, and Bruno Maraviglia. Cerebellar metabolite alterations detected in vivo by proton MR spectroscopy. *Magnetic Resonance Imaging* 21 (2003), 1201–1206. DOI: [10.1016/j.mri.2003.08.021](https://doi.org/10.1016/j.mri.2003.08.021).
- [A54] Silvia Mangia, Girolamo Garreffa, Marta Bianciardi, Federico Giove, Francesco Di Salle, and Bruno Maraviglia. The aerobic brain: lactate decrease at the onset of neural activity. *Neuroscience* 118 (2003), 7–10. DOI: [10.1016/S0306-4522\(02\)00792-3](https://doi.org/10.1016/S0306-4522(02)00792-3).
- [A55] Silvia Mangia, Federico Giove, Marta Bianciardi, Francesco Di Salle, Girolamo Garreffa, and Bruno Maraviglia. Issues concerning the construction of a metabolic model for neuronal activation. *Journal of Neuroscience Research* 71 (2003), 463–467. DOI: [10.1002/jnr.10531](https://doi.org/10.1002/jnr.10531).

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