

Name: Pedro Michael Cavaleiro de Miranda
Place of Birth: Cambridge, UK
Date of Birth: 19 Sept. 1959
Nationality: Portuguese, British
Address: Institute of Biophysics and Biomedical Engineering
Faculty of Science, University of Lisbon
Campo Grande
1749-016 Lisbon
Portugal
Tel: +351 217500177, +351 217500310
Fax: +351 217500030
E-mail: pcmiranda@fc.ul.pt

Academic degrees:

- “Agregação em Engenharia Biomédica e Biofísica”, Faculty of Science, University of Lisbon, Portugal, 2014
- M.Sc., Computer Science, University College London, UK, 1992
- Ph.D., Physics, University of Sussex, UK, 1987
- B.Sc., Physics, University of Sussex, UK, 1981
- International Baccalaureate, Lycée International de Saint-Germain-en-Laye, France, 1977

Present positions:

- Associate Professor, Faculty of Science, University of Lisbon, since June 2014.
- Member of the Advisory Board of [Neuroelectrics Barcelona](#), since May 2015

Previous positions:

- Vice-President of the Physics Department, Faculty of Science, University of Lisbon, 2015-2018.
- Coordinator of the PhD program in Biomedical Engineering and Biophysics, Faculty of Science, University of Lisbon, 2014-2017.
- Assistant Professor, Faculty of Science, University of Lisbon, 1993-2014.
- Senior scientist, Neuroelectrics Barcelona SL, Barcelona, Spain, 2011-2012.

- Coordinator of the Biomedical Engineering course (5 years, BSc+MSc), Faculty of Science, University of Lisbon, 2007-2011.
- Director, Institute of Biophysics and Biomedical Engineering, Faculty of Science, University of Lisbon, 2005-2011.
- Subdirector, Institute of Biophysics and Biomedical Engineering, Faculty of Science, University of Lisbon, 1999-2005.
- Research Fellow, Biomedical Magnetic Resonance Research Group, St. George's Hospital Medical School, London, UK, 1987-1991.
- Research Fellow, Rutherford and Appleton Laboratory, Oxford, UK, 1985-1986.

Main scientific area of research: Stimulation of excitable tissues

Other scientific areas of interest: MRI, Medical Imaging

Recent publications:

1. Callejón A, **Miranda PC**, "A comprehensive analysis of the impact of head model extent on electric field predictions in transcranial current stimulation", 2021, *J Neural Eng* 18:046024. [DOI](#).
2. Gentil N, **Miranda PC**, "Heat transfer during TTFIELDS treatment: Influence of the uncertainty of the electric and thermal parameters on the predicted temperature distribution", 2020, *Comput Methods Programs Biomed* 196:105706, 7pp. [DOI](#).
3. Gentil N, Salvador R, **Miranda PC**, "A Thermal Study of Tumor-Treating Fields for Glioblastoma Therapy", Ch 3, in *Brain and Human Body Modeling 2020: Computational Human Models*, SN Makarov, GM Noetscher, A Nummenmaa, Editors. 2020, Springer. [DOI](#).
4. Callejón-Leblic MA, **Miranda PC**, "A Computational Parcellated Brain Model for Electric Field Analysis in Transcranial Direct Current Stimulation", Ch 5, in *Brain and Human Body Modeling 2020: Computational Human Models*, SN Makarov, GM Noetscher, A Nummenmaa, Editors. 2020, Springer. [DOI](#).
5. Fernandes SR, Salvador R, de Carvalho M, **Miranda PC**, "Modelling Studies of Non-invasive Electric and Magnetic Stimulation of the Spinal Cord", Ch 8, in *Brain and Human Body Modeling 2020: Computational Human Models*, SN Makarov, GM Noetscher, A Nummenmaa, Editors. 2020, Springer. [DOI](#).

6. Gentil N, Salvador R, **Miranda PC**, "Temperature control in TTFields therapy of GBM: impact on the duty cycle and tissue temperature", 2019, *Phys Med Biol* 64:225008, 13 pp. [DOI](#).
7. Fernandes SR, Pereira M, Salvador R, **Miranda PC**, de Carvalho M, "Cervical trans-spinal direct current stimulation: a modelling-experimental approach", 2019, *J Neuroeng Rehabil* 16: 123, 14pp. [DOI](#).
8. Reato D, Salvador R, Bikson M, Opitz A, Dmochowski J, **Miranda PC**, "Principles of Transcranial Direct Current Stimulation (tDCS): Introduction to the Biophysics of tDCS", Ch 2, in *Practical Guide to Transcranial Direct Current Stimulation*, H Knotkova, M Nitsch, M Bikson, AJ Woods, Editors. 2019, Springer. [DOI](#).
9. Salvador R, Truong DQ, Bikson M, Opitz A, Dmochowski J, **Miranda PC**, "Role of Computational Modeling for Dose Determination", Ch 9, in *Practical Guide to Transcranial Direct Current Stimulation*, H Knotkova, M Nitsch, M Bikson, AJ Woods, Editors. 2019, Springer. [DOI](#).
10. **Miranda PC**, Callejón-Leblic MA, Salvador R, Ruffini G, "Realistic modeling of transcranial current stimulation: The electric field in the brain", 2018, *Curr Opin Biomed Eng* 8: 20-27. [DOI](#)
11. Pereira M, Fernandes SR, **Miranda PC**, de Carvalho M, "Neuromodulation of lower limb motor responses with transcutaneous lumbar spinal cord direct current stimulation", 2018, *Clin Neurophysiol* 129(9): 1999-2009. [DOI](#)
12. Fernandes SR, Salvador R, Wenger C, de Carvalho M, **Miranda PC**, "Transcutaneous spinal direct current stimulation of the lumbar and sacral spinal cord: a modelling study", 2018, *J Neural Eng* 15(3): 036008. [DOI](#)
13. Wenger C, **Miranda PC**, Salvador R, Thielscher A, Bomzon Z, Giladi M, Mrugala M, Korshoej AR, "A review on Tumor Treating Fields (TTFields): Clinical implications inferred from computational modelling", 2018, *IEEE Rev Biomed Eng*, 11:195-207. [DOI](#)
14. **Miranda PC**, Salvador R, Wenger C, Fernandes SR, "Virtual humans help to design efficient non-invasive brain and spinal cord electrical stimulation", 2017, *IEEE Pulse Magazine*, 8(4):42-45. [PubMed](#)
15. Antal A, Alekseichuk I, Bikson M, Brockmüller J, Brunoni AR, Chen R, Cohen LG, Dowthwaite G, Ellrich J, Flöel A, Fregni F, George MS, Hamilton R, Haueisen J, Herrmann CS, Hummel FC, Lefaucheur JP, Liebetanz D, Loo CK, McCaig CD,

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17. Wenger C, Salvador R, Basser PJ, **Miranda PC**, "Improving Tumor Treating Fields treatment efficacy in patients with Glioblastoma using personalized array layouts", *Int J Radiat Oncol*, 2016, 94:1137-1143. [DOI](#)
18. Lantos J, Young RJ, **Miranda PC**, Wenger C, Wong ET, "TTFields Therapy: Preclinical and clinical data", Ch 25, in *Handbook of Neuro-Oncology and Neuroimaging*, 2nd ed, HB Newton, Editor. 2016, Academic Press. [Web page](#)
19. Wenger C and **Miranda PC**, "Biophysical Effects of Tumor Treating Fields", Ch 3, in *Alternating Electric Fields Therapy in Oncology: A Practical Guide to Clinical Applications of Tumor Treating Fields*, E. T. Wong, Editor. 2016, Springer International Publishing, 2016. [DOI](#).
20. Bortoletto M, Rodella C, Salvador R, **Miranda PC**, Miniussi C, "Reduced Current Spread by Concentric Electrodes in Transcranial Electrical Stimulation (tES)", *Brain Stimul*, 2016, *Brain Stimul*, 2016, 9;4:525-8. [DOI](#)
21. Otal B, Dutta A, Foerster A, Ripolles O, Kuceyeski A, **Miranda PC**, Edwards DJ, Ilic TV, Nitsche MA, Ruffini G, "Opportunities for guided multichannel non-invasive transcranial current stimulation in post-stroke rehabilitation", *Front Neurol*, 2016, 7;21:1-11. [DOI](#)
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41. **Miranda PC**, Correia L, Salvador R, Basser PJ, “Tissue heterogeneity as a mechanism for localized neural stimulation by applied electric fields”, *Phys Med Biol*, 2007, 52(18): 5603-17. [DOI](#)
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Bibliometric data:

[Google Scholar](#)

[ResearcherID](#),

Patents:

1. "Coil for magnetic stimulation and methods for using the same" - NIH
Patent numbers (publication date): [WO2002032504A2](#) (2002), [CA2425276A1](#) (2002), [WO2002032504A3](#) (2003), [EP1326681A2](#) (2003), [WO2002032504A8](#) (2004), [US20040078056](#) (2004), [DE60125963T2](#) (2007), [DE60125963D1](#) (2007), [EP1326681B1](#) (2007), [US20080312706](#) (2008), [US7407478](#) (2008), [US8608634](#) (2013), [CA2425276C](#) (2013)
2. "Transcranial magnetic stimulation system and methods" - Brainsway

Patent numbers (publication date): [WO2006134598A2](#) (2006), [US20060287566](#) (2006), [CA2955681A1](#) (2006), [CA2610991A1](#) (2006), [WO2006134598A3](#) (2007), [EP1890762A2](#) (2008), [US20110288365](#) (2011), [US20110288364](#) (2011), [US7976451](#) (2011), [EP1890762A4](#) (2011), [US8277371](#) (2012), [US20130178692](#) (2013), [US8388510](#) (2013), [US20140249352](#) (2014), [US8771163](#) (2014), [US9132278](#) (2015), [US20160059027](#) (2016), [CA2610991C](#) (2017)

3. “Method and a system for optimizing the configuration of multisite transcranial current stimulation and a computer-readable medium” – Neuroelectrics Barcelona S. L.

Patent numbers (publication date): [WO2015059545A1](#) (2015), [US20150112403](#) (2015), [EP3060295A1](#) (2016), [CN105916547A](#) (2016), [US9694178](#) (2017)

4. “TTFIELD Treatment with Optimization of Electrode Positions on the Head Based on MRI-Based Conductivity Measurements” – Novocure Ltd

Patent numbers (publication date): [WO2017072706](#) (2017), [US20170120041](#) (2017), [CA3003370](#) (2017), [CN10834876](#) (2018), [JP2019500179A](#) (2019), [US20190117956](#) (2019)