

Rosa Orlacchio, PhD

Associate Professor at École Pratique des Hautes Études (EPHE) – PSL in Paris, Laboratoire IMS (Integration from Material to System), in Talence

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[Linkedin](#) ; [ResearchGate](#) ; [Google Scholar](#)

RESEARCH EXPERIENCE

Nov. 2022 – Current	<u>Associate Professor</u> , École Pratique des Hautes Études – PSL (Paris, France), Laboratoire IMS (University of Bordeaux, Talence, France). Research topic: Bioelectromagnetics (therapeutic and environmental).
2019 – 2022	<u>Post-doctoral Researcher</u> , XLIM research institute, University of Limoges (Limoges, France) Research topic: Bioelectromagnetics (therapeutic and environmental).
2015 – 2019	<u>PhD</u> in Bioelectromagnetics, Institut d'Electronique et des Technologies du numéRique (IETR), University of Rennes 1 (Rennes, France). Dissertation: Millimeter waves for biomedical electromagnetics: study of changes induced at the cellular level by pulsed electromagnetically-induced heating .

EDUCATION AND QUALIFICATION

2021 (6 months)	<u>Master</u> in EU Project Design and Management, Europa Business School (online).
June – July 2015	<u>Intern</u> , UCL (University College London), Neuroscience department, Riccio Lab.
2015	Entitlement to the Professional Register of Italian Industrial Engineer (i.e. Abilitazione alla Professione di Ingegnere Industriale).
2012 – 2014	<u>Master</u> degree in Biomedical Engineering, University of Roma, “La Sapienza” (<i>cum laude</i>).
March – June 2014	<u>Intern</u> , IMS laboratory, (Laboratoire de l'Intégration du Matériau au System), BioEM team.
January – June 2014	<u>Intern</u> , DIET, (Department of Information Engineering, Electronics and Telecommunications), University of Roma, “La Sapienza”.
2007 – 2011	<u>Bachelor</u> degree in Clinical Engineering, University of Roma, “La Sapienza”.

GRANTS, FELLOWSHIP, AND AWARDS

2025 – 2028	Project participant , ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail) PNR EST 2024, CORSICA : Do combined effects of radiofrequency fields at 26 GHz and solar UV radiations
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	have an effect on the human skin and cornea in vitro? (290 k€).
2024 – 2028	Project Leader , ANR (Agence National de la Recherche), Instrument de financement: Jeunes chercheuses - jeunes chercheurs (JCJC), CE19 - Technologies pour la santé, PIONEER: Ultrashort Pulsed electric fields modulation of ION channels as a novel thERapeutic approach (288 k€).
2023 – 2025	Project Leader , Cancéropôle Grand Sud-Ouest , appel à projets Emergence, SUPERHERO: Synergic effects of Ultrashort Pulsed Electric fields and nanopArticles for targeted thERapies in Oncology , (25 k€). Collaboration with Jelena Kolosnjaj-Tabi (IPBS, Toulouse) and Delia Arnaud-Cormos (XLIM, Limoges).
2023 – 2027	Project participant , Horizon Europe , GOLIAT: 5G exposure, causal effects, and risk perception through citizen engagement (7036 k€).
2023 – 2025	Project participant , Horizon Europe , ETAIN: Exposure To electromAgnetic fields and plaNetary health (6635 k€).
2023 – 2026	Project participant , ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail) PNR EST 2022, 5G SKINUV: Does exposure to 5G radio frequencies potentiate the carcinogenic effect of UV-B? (298 k€).
2017 – 2023	Project participant , ANSES , PNR EST 2017 , Coriolis: Exposure of the French population to radio frequencies from mobile telephony (398 k€).
2025	Student Award to Nina Van (1st place) for the best poster presentation at the 11th International School on Bioelectromagnetism Alessandro Chiabrera: Advances in Electroporation-Based Therapy: From Principles to Clinical Applications , Erice, Italy, May 2–7, 2025.
2024	Fellowship to hire a PhD, French Ministry of Education and Research, France.
2024, June – July (5 weeks)	Short Term Mission (2.5 k€), at ENEA (Italian National Agency for New Technology, Energy and Sustainable Economic Development) sponsored by BioEM association. Project: Macroscopic and microscopic dosimetry at millimeter waves (MMW) and with pulsed electric fields (PEF) .
2022	Travel Grant (1 k€) provided by the Doreen J. Putrah Cancer Foundation to attend the 4th World Congress on Electroporation & Pulsed Electric Fields in Biology, Medicine, Food and Environmental Technologies , Copenhagen, Denmark, 9-13 October 2022.
2017	Travel Grant (1 k€) to attend the Training school on diagnostic and therapeutic application of electromagnetic, ESOA (European School of Antennas) , Naples, Italy, 11-15 September 2017.

- 2019** Nominated to the “[prix de thèse en radioscience](#)”, URSI- (Union Radio-Scientifique Internationale), France. https://www.youtube.com/watch?v=HLbj_notaAA
- 2015 – 2018** PhD Fellowship, French Ministry of Education and Research, France.

PUBLICATIONS

Articles in peer-reviewed journals

1. Haidar, J., Nabos, P, **Orlacchio, R.**, Hurtier, A., Poullétier De Gannes, F., Cario, M., Moisan, F., Rezvani, HR, Lagroye, I., Leveque, P., Arnaud-Cormos, D., Percherancier, Y., “[Effects of in vitro exposure to 5G-modulated 3.5 GHz electromagnetic field on oxidative stress and the repair efficiency of UVB-induced DNA damage in skin cells](#)”. (2025). *Scientific Report*, 15(1):31214.
2. Laplanche A., Guida, F., Moissonnier, M., Launay, L., Beranger, R., Lagroye, I., **Orlacchio, R.**, Fontaine, M., Bories, S., Mazloun, T., Conil, E., Huss, A., Wiart, J., Danjou, A., Schüz, J., Dejardin, O., Deltour, I., “[Associations between individual and geospatial characteristics and power of 4g signals received by mobile phones](#)”. (2025). *Environmental Research*, 286(123030).
3. Hurtier, A.*, Patrignoni, L.*, Canovi, A.*, **Orlacchio, R.**, Poullétier De Gannes, F., Garenne, A., Lévêque, P., Arnaud-Cormos, D., Lagroye, I., Lewis, N., Percherancier, Y., “[In-vitro effects of simultaneous exposure to 5G-modulated 3.5 GHz and GSM-modulated 1.8 GHz electromagnetic fields on neuronal network electrical activity and on cellular stress in- fibroblasts cells](#)”, under revision in *Bioelectromagnetics*. *equal contribution. (2025) *Bioelectromagnetics*, 46(7):e70026.
4. Patrignoni, L., Hurtier A., **Orlacchio, R.**, Joushomme, A., Poullétier de Gannes, F., Lévêque, P., Arnaud-Cormos, D., Revzani, HR., Mahfouf, W., Garenne, A., Percherancier, Y., Lagroye I., “[Evaluation of mitochondrial stress following ultraviolet radiation and 5g radiofrequency field exposure in human skin cells](#)”. (2024). *Bioelectromagnetics*, 45(3):110-129.
5. Patrignoni, L., Hurtier A., **Orlacchio, R.**, Joushomme, A., Poullétier de Gannes, F., Lévêque, P., Arnaud-Cormos, D., Revzani, HR., Mahfouf, W., Garenne, A., Percherancier, Y., Lagroye I., “[Evaluation of mitochondrial stress following ultraviolet radiation and 5g radiofrequency field exposure in human skin cells](#)”. (2024). *Bioelectromagnetics*, 45(3):110-129.
6. **Orlacchio R***, Kolosnjaj-Tabi, J.*, Mattei, N., Lévêque, P., Rols MP., Arnaud-Cormos, D., Golzio M., “[Effects of nanosecond pulsed electric field \(nsPEF\) on a multicellular spheroid tumor model: influence of pulse duration, pulse repetition rate, absorbed energy, and temperature](#)”. (2023). *International Journal of Molecular Science*, special issue submitted to section The Emerging Role of Non-ionizing Radiation in Biomedical Applications (*invited*)., 24(19), 14999*equal contribution.
7. Canovi, A., **Orlacchio, R.**, Poullétier de Gannes, F., Lévêque, P., Arnaud-Cormos, D., Lagroye, I., Garenne, A., Percherancier, Y., Lewis, N. “[In vitro exposure of neuronal networks to the 5G-3.5 GHz signal](#)”. (2023). *Frontiers in Public Health*. 7(11):1231360.
8. Joushomme, A., **Orlacchio, R.**, Patrignoni, L. et al., “[Effects of 5G-modulated 3.5 GHz radiofrequency field exposures on HSF1, RAS, ERK, and PML](#)

- [activation in live fibroblasts and keratinocytes cells](#)". (2023). *Scientific Report* 13, 8305.
9. **Orlacchio, R.**, Le Page, Y., Le Dréan, Y., Zhadobov, M. "[Millimeter-wave pulsed heating in vitro: effect of pulse duration](#)". (2023). *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*. 69(2):840-848. Corresponding author.
 10. Wehbi, S., Tabcheh, N., Tonello, A., **Orlacchio, R.**, Leveque, P., Arnaud-Cormos, D., Mansuryan, T., Fabert, M., Tantot, O., Vergnole, S., Couderc, V. "[Temporal shaping of high-voltage picosecond electric pulses for electronic spectroscopy and bioelectric applications](#)". (2023). *Microwave and Optical Technology Letters*. 65(2), 717-722.
 11. **Orlacchio, R.**, Andrieu, G., Joushomme, A., Patrignoni, L., Hurtier, A., Poullétier De Gannes, F., Lagroye, I., Percherancier, Y., Arnaud-Cormos D., Leveque, P. "[A novel reverberation chamber for in vitro bioelectromagnetic experiments at 3.5 GHz](#)". (2022). *IEEE Transaction on Electromagnetic Compatibility*. 65(1), 39-50. Corresponding author.
 12. Tabcheh, N., **Orlacchio, R.**, Couderc, V., Leveque, P., Arnaud-Cormos, D. "[High voltage generator with adjustable delay between two nanosecond duration pulse](#)". (2022). *IEEE Photonics Technology Letters*, 34(10), 553-556.
 13. **Orlacchio, R.**, Percherancier, Y., Poullétier De Gannes, F., Hurtier, A., Leveque, P., Arnaud-Cormos, D. "[In vivo functional ultrasound \(fUS\) real-time imaging of mice brain under radiofrequency exposure](#)". (2022). *Bioelectromagnetics*, 43(4):257-267.
 14. Nefzi, A., **Orlacchio, R.**, Carr, L., Lemercier, C., El Khoueiry, C., Lewis N., Leveque, P., Arnaud-Cormos, D. "[Dosimetry of microelectrodes array chips for electrophysiological studies under simultaneous radiofrequency exposures](#)". (2022). *IEEE Transactions on Microwave Theory and Technique*. 70(3), pp. 1871-1881.
 15. **Orlacchio, R.**, Nikolayev, D., Le Page, Y., Le Dréan, Y., Zhadobov M. "[Millimeter-wave heating in vitro: local microscale temperature measurements correlated to heat shock cellular response](#)". (2022). *IEEE Transactions on Biomedical Engineering*, 69 (2) 840-848. (Featured article). Corresponding author.
 16. Carr, L.*, Golzio M.*, **Orlacchio R.***, Alberola, G., Kolosnjaj-Tabi, J., Leveque, P., Arnaud-Cormos, D., Rols, M.P. "[A nanosecond pulsed electric field \(nsPEF\) can affect membrane permeabilization and cellular viability on 3D spheroids tumor model](#)". (2021). *Bioelectrochemistry*, 141, 2021, Oct. 2021. *equal contribution.
 17. **Orlacchio, R.**, Carr, L., Palego, C., Arnaud-Cormos, D., Leveque, P. "[High-voltage 10 ns pulse generator with delayed paired pulses or bipolar negative polarity for in vitro bioelectric experiments](#)". (2020). *Bioelectrochemistry*, 137, pp. 107648.
 18. **Orlacchio, R.**, Le Page, Y., Le Dréan, Y., Le Guével, R., Sauleau, R., Alekseev, S., Zhadobov, M. "[Millimeter-wave pulsed heating in vitro: cell mortality and heat shock response](#)". (2019). *Scientific Report*, (9)15249. Top 100 collection. Corresponding author.
 19. **Orlacchio, R.**, Zhadobov, M., Alekseev, S., Nikolayev, D., Sauleau, R., Le Page, Y., Le Dréan, Y. "[Millimeter-wave heating in in vitro studies: Effect of convection in continuous and pulse-modulated regimes](#)". (2019). *Bioelectromagnetics*, 40(8) pp. 553-568. Corresponding author.

20. El Khoueiry, C., Moretti, D., Renom, R., Camera, F., **Orlacchio, R.**, Garenne, A., Poullietier de Gannes, F., Poque-Haro, E., Lagroye, I., Veyret, B., Lewis, N. "[Decreased spontaneous electrical activity in neuronal networks exposed to radiofrequency 1800 MHz signals](#)". (2018). *Journal of Neurophysiology*, 120 (6), pp. 2719-2729.

Book chapters

1. Arnaud-Cormos, D., **Orlacchio, R.**, Couderc, V., Leveque, P. "*Ch. 47, Photoconductive switching for pulsed high-voltage generators*", in Handbook of Electroporation, Damijan Miklavčič, Springer Edition, under revision for the 3rd edition.
2. Leveque, P., **Orlacchio, R.**, O'Connor, R., Arnaud-Cormos, D. "*Ch. 46. Measurement and characterization of exposure systems for high-frequency, ultrashort pulses*" in Handbook of Electroporation, Damijan Miklavčič, Springer Edition, under revision for the 3rd edition.

Articles in international congresses

1. Reitano-Ferber, N.*, Van, N.*, Nabos, P., Pinet, E., Garenne, A., Hurtier, A., Poullietier De Gannes, F., Lagroye, I., Leveque, P., Arnaud-Cormos, D., Lewis, N., Percherancier, Y., **Orlacchio, R.**, "Exploring the impact of nanosecond pulsed electric field on ion channels" submitted to the 17th International Bioelectrics Symposium (BIOELECTRICS 2025), Eindhoven, The Netherlands, 14-17 September 2025. *equal contribution.
2. Ferber-Reitano, N., Van, N., Nabos, P., Garenne, A., Poullietier De Gannes, F., Hurtier, A., Lagroye, I., **Orlacchio, R.**, Percherancier, Y.; "Modulation of ion channel gating by nanosecond pulsed electric fields: toward novel electroceutical strategies" at ion channel signaling in health and diseases, Tours, France, 23-26 June 2025.
3. Mattei, N., Van, N., Camera, F., Merla, C., Lewis, N., L., Lagroye, I., Poullietier de Gannes, F., Percherancier, Y., Leveque, P., Rols, M.P., Arnaud-Cormos, D., Golzio, M., Kolosnjaj-Tabi, J., †**Orlacchio, R.**, †, "Challenges in enhancing pulsed electric fields (PEF) electroporation using conductive nanoparticles: from theory to practice", at BioEM 2025, Rennes, France, 22-27 June 2025. †equal contribution.
4. Pinet, E., Poullietier De Gannes, F., Hurtier, A., **Orlacchio, R.**, Nabos, P., Leveque, P., Arnaud-Cormos, D., Percherancier, Y., Lagroye, I., "Study of the effects of 5g modulated-700 MHz radiofrequency fields on the cellular stress response in astrocytes and sh-sy5y neuroblastoma cells", at BioEM 2025, Rennes, France, 22-27 June 2025.
5. Haidar, J., Nabos, P., **Orlacchio, R.**, Hurtier, A., Poullietier De Gannes, F., Arnaud-Cormos, D., Leveque, P., Lagroye, I., Percherancier, Y. "Effects of fifth-generation (5G) environmental radiofrequency signals on oxidative stress in skin cells: a BRET study", at BioEM 2025, Rennes, France, 22-27 June 2025.
6. **Orlacchio, R.**, †, Kolosnjaj-Tabi, J., †, Mattei, N., Michard, L., Tjiou, H., Serradeill, L., Lagroye, I., Poullietier de Gannes, F., Percherancier, Y., Leveque, P., Rols, M.P., Arnaud-Cormos, D., Golzio, M., "Nanosecond pulsed electric fields and gold nanoparticles for cancer treatment", at 5th World Congress on Electroporation, Rome, Italy, 15-19 September 2024. †equal contribution.

7. **Orlacchio, R.**, Kolosnjaj-Tabi, J., Mattei, N., Leveque, P., Rols, M.P., Golzio M., Arnaud-Cormos, D., "Macroscopic and microscopic temperature measurements during exposure of multicellular spheroid tumors to nanosecond pulsed electric field (nsPEF)", at *BioEM 2024*, Chania, Greece, 16-21 June 2024 (Invited workshop).
8. Haidar, J., Nabos, P., **Orlacchio, R.**, Hurtier, A., Poullétier De Gannes, F., Arnaud-Cormos, D., Leveque, P., Lagroye, I., Percherancier, Y., "Effects of fifth-generation (5G) environmental radiofrequency signals on oxidative stress and DNA repair in skin cells: a BRET study", to *BioEM 2024*, Chania, Greece, 16-21 June 2024.
9. **Orlacchio, R.**, Kolosnjaj-Tabi, J., Mattei, N., Leveque, P., Rols, M.P., Golzio M., Arnaud-Cormos, D., "Effects of different nanosecond pulsed electric fields (nsPEF) parameters on multicellular colorectal carcinoma spheroids", at *International Bioelectrics Symposium 2023*, Lisbon, Portugal, 10-13 September 2023. (Invited).
10. Canovi, A., **Orlacchio, R.**, Poullétier de Gannes, F., Hurtier A., Arnaud-Cormos, D., Lévêque, P., Lagroye, I., Garenne, A., Percherancier, Y., Lewis, N., "Effects of 5G RF signals at 3.5 GHz on the activity of neuronal networks in vitro", at *BioEM 2023*, Oxford, UK, 18-23 June 2023.
11. Patrignoni, L., Joushomme, A., **Orlacchio, R.**, Poullétier de Gannes, F., Hurtier A., Lévêque, P., Arnaud-Cormos, Garenne, A., Percherancier, Y., Lagroye I., "Study of the effects of 3.5 GHz radiofrequency fields on cellular stress response", at *BioEM 2023*, Oxford, UK, 18-23 June 2023.
12. **Orlacchio, R.**, Percherancier, Y., Poullétier de Gannes, F., Hurtier, A., Lagroye, I., Leveque, P., Arnaud-Cormos, D., "Can we observe brain activity changes during exposure to radiofrequency? A proof-of-concept study", at *BioEM 2023*, Oxford, UK, 18-23 June 2023.
13. Arnaud-Cormos, D., **Orlacchio, R.**, Tabcheh, N., Couderc, V., Leveque, P., "High-Voltage Generators for Nano- and Pico-second Pulsed Electric Fields generation with flexible inter-polarity delays", at *2023 Pulsed Power Conference*, San Antonio, USA, 25-29 June 2023.
14. **Orlacchio, R.**, "Biological effects of 10 nanosecond pulsed electric field (nsPEF) on 3D cancer multicellular spheroids", at ElectroPros Event 2023, On Line School on Electroporation (Invited), February 10th 2023 (Online).
15. **Orlacchio, R.**, Tabcheh, N., Arnaud-Cormos, D., Leveque, P., "Ultrashort high-voltage pulse generators for simultaneous cellular permeabilization and endoscopic imaging for future biomedical applications" at *4th World Congress on Electroporation*, Copenhagen, Denmark, 9-13 October 2022. (Invited workshop).
16. **Orlacchio, R.**, Golzio, M., Kolosnjaj-Tabi, J., Leveque, P., Arnaud-Cormos, D., Rols, M.P., "Multicellular spheroids as three-dimensional in vitro models for bipolar cancellation assessment" at *4th World Congress on Electroporation*, Copenhagen, Denmark, 9-13 October 2022.
17. **Orlacchio, R.**, Arnaud-Cormos, D., Leveque, P., "5th generation of telecommunication networks (5G): towards innovative exposure systems for cellular biological experiments at 3.5 GHz" at *EuMW*, Milan, Italy, 25-30 September 2022.
18. Arnaud-Cormos, D., Leveque P., **Orlacchio, R.**, "WSC-5: New challenges related to 5g bioelectromagnetic exposure for laboratories studies", at *IMS*, Denver, CO USA, 19-24 June 2022.

19. **Orlacchio, R.**, Andrieu, G., Joushomme, A., Patrignoni, L., Poullietier De Gannes, F., Lagroye, I., Percherancier, Y., Arnaud-Cormos, D., Leveque, P., "Design and experimental characterization of a cell culture incubator used as a reverberation chamber for in vitro experiments at 3.5 GHz" at *BioEM 2022*, Nagoya, Japan, 19-24 June 2022.
20. Tabcheh, N., **Orlacchio, R.**, Strutunsky, C., Danto, S., Cardinal, T., Couderc, V., Leveque, P., Arnaud-Cormos, D., "High voltage sub-nanosecond pulses: generation and optoelectronic delivery system based on electrodes embedded in an optical fiber" at *BioEM 2022*, Nagoya, Japan, 19-24 June 2022.
21. Joushomme, A., Patrignoni, L., **Orlacchio, R.**, Canovi, A., Chappe, Y., Hurtier A., Poullietier De Gannes F., Cario M., Arnaud-Cormos D., Leveque P., Lagroye I., Percherancier Y., "Impact of 3.5-GHz 5G radiofrequency fields on molecular-stress responses in human keratinocytes and fibroblasts" at *BioEM 2022*, Nagoya Japan, 19-24 June 2022.
22. Patrignoni, L., Joushomme, A., Poullietier, De Gannes F., Leveque, P., Arnaud-Cormos, D., **Orlacchio, R.**, Lagroye, I., Percherancier, Y., "Study of the effects of 5G technology on the mitochondrial stress response" at *BioEM 2022*, Nagoya, Japan, 19-24 June 2022.
23. Canovi, A., Poullietier De Gannes, F., Hurtier, A., **Orlacchio, R.**, Arnaud-Cormos, D., Leveque, P., Lagroye, I., Garenne, A., Percherancier, Y., Lewis, N. "Effects of 5G RF signals at 3.5 GHz on the activity in neuronal networks in vitro", at *BioEM 2022*, Nagoya, Japan, 19-24 June 2022.
24. **Orlacchio, R.**, Percherancier, Y., Poullietier de Gannes, F., Hurtier, A., Lagroye, I., Leveque, P., Arnaud-Cormos, D., "In vivo imaging of mice brain under RF exposure", at *3rd URSIAT-AP-RASC*, Gran Canaria, Spain, 29 May-3 June 2022.
25. **Orlacchio R.**, Arnaud-Cormos, D., Leveque P., "Nanosecond and subnanosecond optoelectronic generator" at the *39th International Bioelectrics Consortium Teleconference*, June 8, 2022 (online, Invited).
26. Arnaud-Cormos, D., **Orlacchio R.**, Leveque P., "Recent trends for 5G in vitro exposure systems dosimetry and setup" at *ICEMS-BIOMED*, Sibiu, Romania, 19-20 May 2022 (Invited).
27. **Orlacchio, R.**, Dalmay, C., Leveque, P., Arnaud-Cormos, D., "From flexible wire electrodes to coplanar waveguides for intense electromagnetic fields exposures", at *ImBIOC 2022*, Suzhou, China, 16-18 May 2022 (Invited workshop, online).
28. **Orlacchio, R.**, Golzio, M., Rols, MP., Leveque, P., Arnaud-Cormos, D., "10 ns bipolar pulses: effects on the plasma membrane permeability of 2D and 3D cellular models", at *BioEM 2021*, Ghent, Belgium, Sep 26-Oct 2021.
29. **Orlacchio, R.**, Leveque, P., Arnaud-Cormos, D. "Developments on high-voltage generators and exposure chambers for nanosecond pulsed electric fields (nsPEFs)", at *URSI GASS 2021*, 28 August-4 September 2021, Rome, Italy. (Invited workshop).
30. Nefzi, A., **Orlacchio, R.**, Carr L., Lewis, N., Percherancier, Y., Leveque, P., Arnaud-Cormos D., "Microscale temperature measurements within specific exposure systems for real-time cellular characterization", at *ImBIOC 2020*, Toulouse, France, 14-17 December 2020 (Virtual event).
31. **Orlacchio, R.**, Carr, L., Palego, C., Arnaud-Cormos, D., Leveque, P., "High-voltage generator for delayed bipolar and paired nanosecond pulsed electric

field (nsPEF)", *Electroporation-Based Technologies and Treatments (EBTT)*, November 16-December 4, 2020, Online Event, Ljubljana, Slovenia.

32. **Orlacchio, R.**, Nefzi, A., Percherancier, Y., Leveque, P., Arnaud-Cormos, D., "In vivo functional ultrasound (fUS) imaging of mice brain under radiofrequency exposure: preliminary dosimetric results", at *BioEM 2020*, Oxford, United Kingdom, June 22-26 (Accepted for publication in abstract book collection as the conference was cancelled due to Covid-19).
33. **Orlacchio, R.**, Le Page, Y., Le Dréan, Y., Le Guével, R., Sauleau, R., Alekseev, S., Zhadobov, M., "Heat shock response of melanoma cells induced by continuous and pulsed millimeterwave heating", at *BioEM 2019*, Montpellier, France, 23-28 June 2019.
34. **Orlacchio, R.**, Zhadobov, M., Alekseev, S., Nikolayev, D., Sauleau, R., Le Page, Y., Habauzit, D., Le Dréan, Y., "Thermal convection in in vitro sample exposed to millimeter wave in continuous and pulse-modulated regimes", at *BioEM 2019*, Montpellier, France, 23-28 June 2019.
35. **Orlacchio, R.**, Zhadobov, M., Alekseev, S., Sauleau, R., Le Page, Y., Le Dréan, Y., "Local thermal dosimetry applied in in vitro studies at millimeter wave", at *BioEM 2018*, Piran- Portoroz, Slovenia, 24-29 June 2018.
36. Khoueiry, C. E., Camera, F., **Orlacchio, R.**, Renom, R., Garenne, A., Poullétier De Gannes, F., Poque-Haro, E., Lagroye, I., Veyret, B., Lewis N., "Decrease in burst activity of neuronal networks under exposure to RF as a function of SAR for the CW and GSM-1800 signals", at *BioEM 2016*, Ghent, Belgium, 5-10 June 2016.
37. **Orlacchio, R.**, Garenne, A., Poullétier De Gannes, F., Azzopardi, S., Roder, R., Poque-Haro, E., Lagroye, I., Veyret, B., Lewis, N., "Decreased electrical activity in neuronal networks exposed to CW and GSM-1800 signals", at *BioEM 2014*, Cape Town, South Africa, 9-13 June 2014.

Articles in national congresses

1. **Orlacchio, R.**, Golzio, M., Leveque, P., Arnaud-Cormos, D. Rols, M.P., "Effets biologiques des champs électriques pulsés ultracourts sur des modèles cellulaires 2D et 3D", at *Journées 2022 du GDR HappyBio*, Albi, France, 2-4 Novembre 2022.
2. Tabcheh, N., **Orlacchio, R.**, Leveque, P., Couderc V., Arnaud-Cormos, D. "Génération haute tension pour la modulation d'expériences bioélectriques sur différents modèles cellulaires avec des nsPEF (nanosecond pulsed electric field)", at *Journées Nationales Microondes (JNM)*, Limoges, France, 8-10 June 2022.
3. **Orlacchio, R.**, Andrieu, G., Arnaud-Cormos, D., Leveque, P., "Caractérisation électromagnétique d'un incubateur de culture cellulaire transformé en chambre réverbérante pour l'exposition bioélectromagnétique à 3.5 GHz", at *Journées Nationales Microondes (JNM)*, Limoges, France, 8-10 June 2022.
4. **Orlacchio, R.**, "Millimeter wave for biomedical electromagnetics", *Journée scientifique URSI France*, Paris, France 11-13 March 2020. Poster presentation for the nomination for the "best PhD thesis in Radioscience" (*Invited*).
5. **Orlacchio, R.**, Zhadobov, M., Alekseev, S., Sauleau, R., Le Page, Y., Le Dréan Y., "In vitro millimeter-wave heating: role of thermal convection", at *Journée scientifique Effets Biologiques et Sanitaires des Rayonnements Non-Ionisants*, Montpellier, France, 2 October 2018.

SCIENTIFIC DISSEMINATION

1. [Journée d'échange IMS – Neurocampus](#), "Nanosecond pulsed electric field (nsPEF) as an innovative tool for ion channel modulation, 26 Jun 2025 ([Invited](#)).
2. [Réunion de démarrage des projets Jeunes Chercheurs Jeunes Chercheuses \(Biologie -Santé\)](#), presentation of the project [PIONEER \(Ultrashort Pulsed electric fields modulation of ION channels as a novel therapeutic approach\)](#), 29 November 2024 ([Invited](#)).
3. [Journée Scientifique des Sciences de la Vie et de la Terre 2024 \(EPHE-PSL\)](#), "Approches électroceutiques innovantes utilisant des champs électriques pulses en nanosecondes (nsPEF) : applications biomédicales actuelles et futures", 26 November 2024, ([Invited](#)).
4. [Workshop BioTECH Red](#), "Current and future perspectives on the use of electromagnetic fields and short electric pulses for innovative biomedical applications", at laboratory ENEA, Italy, 10 July 2024 ([Invited](#)).
5. [Les cordées de la recherche](#), "Microdosimétrie sur cellules et sur microsystèmes", at University of Limoges France, 7 Avril 2022.
6. [Orientation day](#) to help students toward the university choice: "What is Bioengineering? What does a Researcher?", at Liceo Classico Marco Tullio Cicerone", Sala Consilina, Italy, 25 February 2022 ([Invited](#), Online 2h).
7. [Journées de l'interdisciplinarité à l'université](#), "Génération haute tension pour la modulation d'expériences bioélectriques sur différents modèles cellulaires avec des nsPEF (nanosecond pulsed electric field)", at University of Limoges, Limoges, France, 30 June-2 July 2021.
8. [Journées de Doctorant de l'IETR](#), "Millimeter waves for hyperthermic treatment of cancer", at University of Rennes, France, every year from 2016-2018.

TEACHING

2025	Master SVT EPHE-PSL. English course (M2, 18h)
2025	Master Photonics and Electronics, University of Limoges. Practical work on electroporation (<i>in vitro</i> experiments and numerical simulations, 6h).
2024 – Current	Master NeuroBim, Bordeaux International Master of Neuroscience: Introduction to the use of the software R. (M1, 8h).
2023 – Current	Master SVT EPHE-PSL. Responsible of the English course (M1, On-line platform and on-site, 30h).
2023 – Current	Master SVT EPHE-PSL. Cell signaling and oncogenesis II (M2, 2h).
2023 – Current	Master SVT EPHE-PSL. Statistical data analysis I (M1, 20h).
2022	ENSIL-ENSCI. TP (lab work) on antenna simulations using CST (6h).

STUDENTS SUPERVISION

2025– 2028	PhD, University of Bordeaux. Nina Ferber-Reitano. <u>Project:</u> "Multiparametric analysis of the impact of
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	nanosecond electric pulses on ion channel activity" (Co-supervisor).
2024 – 2027	PhD, University of Bordeaux. Nina VAN. <u>Grant:</u> MESRI (Ministry of Higher Education, Research, and Innovation). <u>Project:</u> "High-intensity ultrashort electrical pulses for new biomedical applications: study and optimization of electrical parameters to modulate cellular response" (Co-supervisor).
2024 – 2025	M1, pedagogical tutoring, EPHE – PSL. Megan ROUSSELY.
2023 – 2025	M1-M2, pedagogical tutoring, EPHE – PSL. Mathilda LEMOIGNE—LAUCK.
2024	M2, scientific tutoring, EPHE – PSL. Amine BOUBAKER and Elise ROUZIE, <u>Title:</u> "Use of nanosecond pulsed electric field for atrial defibrillation".
2024	M1, Master in Cancer Biology, University of Bordeaux. Amandine MENGUE, <u>Title:</u> "Ultrashort pulsed electric fields (UsPEF): a therapeutic tool for ion channel modulation in cancer cells?" (Supervisor).
2023	2nd year prépa, Bordeaux INP. Chloé LUCQUIAULT, <u>Title :</u> "Exposition de la population aux radiofréquences de la téléphonie mobile -Projet SMARTPHONE" (Co-supervisor).
2022	M2, track iXeo High frequency electronics & photonics, University of Limoges. Hafsa TIJOU, <u>Title:</u> "Micro-dosimetry and development of microsystems for the exposure of biological samples to electromagnetic fields". Currently PhD student at the University of Limoges. (Co-supervisor).
2021 – 2022	M1, EUR CERAMIC & ICT, within the project "Les Cordées de la Recherche" (9h/week, 6 ECTS). Mariem MAFAMANE, <u>Title:</u> "Microdosimetry applied to cells and microsystems". Currently PhD student at the University of Rennes 1. (Co-supervisor).
2021	M1, ENSIL-ENSCI. Baptiste CONSTANT, <u>Title:</u> "Développement d'interface de Pilotage Matlab pour des études de l'exposition des ondes électromagnétiques sur le vivant. Travail sur une sonde FISO". (Co-supervisor).

OTHER ACTIVITIES

2025 – Current	ADT – Autorisation à diriger une thèse (Authorization to Supervise a PhD Thesis, required in France)
2025 – Current	Vice President of Commission K (Electromagnetics in Biology and Medicine) of URSI France (International Union of Radio Science).
2023 – Current	Expert member of CSI (comité de suivi individuel) aiming to follow the progress of the thesis work of 1) Lionel MICHARD, University of Limoges, XLIM; 2) Mariem MAFAMANE, University of Rennes 1, IETR.
13/12/2023	Examiner for the PhD thesis of Nour Tabcheh, "Contribution to Technologies for Generating Ultrashort Electrical Pulses

for Applications in Bioelectricity", University of Limoges, XLIM.

2023 – Current

Referee for peer-reviewed journals: Scientific Reports, IEEE Electromagnetic Biology and Medicine, Bioelectromagnetics, and Frontiers in Neuroscience

2023 – Current

Referee for international congresses: BioEM, EUMW (European Microwave Week)

2023 – Current

Member of BioEM society, EuMA (European Microwave Association), ISEBTT (International Society for Electroporation-Based Technologies and Treatments)

OTHER SKILLS

Cellular and molecular biology

- Cell culture (2D / 3D models)
- Immunofluorescence assays
- Basic fluorescence microscopy and image analysis
- Temperature measurements in lossy objects during electromagnetic exposure at the macro- and micro-scales
- Dielectrical characterization of solids and liquids
- Semisolid tissue-equivalent phantoms realization
- EM measurements

Electromagnetics

Softwares

- Office packages
- MATLAB, R, SPYCODE
- Metafluor, Image Analyst MKII, ImageJ, Metamorph
- CST, COMSOL Multiphysics (EM simulations)
- LATEX and Inkscape

Languages

Italian (mother tongue), French (fluent), Spanish (fluent), English (fluent), Catalan (intermediate).