

List of publications

International journals

1. Patrignoni, L., Hurtier A., **Orlacchio, R.**, Joushomme, A., Poullietier 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", *Bioelectromagnetics* (accepted).
2. **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", *International Journal of Molecular Science*, special issue submitted to section The Emerging Role of Non-ionizing Radiation in Biomedical Applications (*invited*). *Int. J. Mol.Sci.* 2023, 24(19), 14999*equal contribution.
3. Canovi, A., **Orlacchio, R.**, Poullietier de Gannes, F., Lévêque, P., Arnaud-Cormos, D., Lagroye, I., Garenne, A., Percherancier, Y., Lewis, N. (2023). "In vitro exposure of neuronal networks to the 5G-3.5 GHz signal", *Frontiers in Public Health*. 2023 Aug 7;11:1231360.
4. 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". *Scientific Report* 13, 8305.
5. **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*.
6. Wehbi, S., Tabcheh, N., Tonello, A., **Orlacchio, R.**, Leveque, P., Arnaud-Cormos, D., Mansuryan, T., Fabert, M., Tantot, O., Vergnole, S., Couderc, V. (2023). "Temporal shaping of high-voltage picosecond electric pulses for electronic spectroscopy and bioelectric applications". *Microwave and Optical Technology Letters*. 65 (2), 717-722.
7. **Orlacchio, R.**, Andrieu, G., Joushomme, A., Patrignoni, L., Hurtier, A., Poullietier De Gannes, F., Lagroye, I., Percherancier, Y., Arnaud-Cormos D., Leveque, P. (2022). "A novel reverberation chamber for in vitro bioelectromagnetic experiments at 3.5 GHz". *IEEE Transaction on Electromagnetic Compatibility*. 65 (1), 39-50. *Corresponding author*.
8. Tabcheh, N., **Orlacchio, R.**, Couderc, V., Leveque, P., Arnaud-Cormos, D. (2022). "High voltage generator with adjustable delay between two nanosecond duration pulse". *IEEE Photonics Technology Letters*, vol. 34, no. 10, pp. 553-556.
9. **Orlacchio, R.**, Percherancier, Y., Poullietier De Gannes, F., Hurtier, A., Leveque, P., Arnaud-Cormos, D (2022). In vivo functional ultrasound (fUS) real-time imaging of mice brain under radiofrequency exposure. *Bioelectromagnetics*, 43(4):257-267.

10. Nefzi, A., **Orlacchio, R.**, Carr, L., Lemercier, C., El Khoueiry, C., Lewis N., Leveque, P., Arnaud-Cormos, D. (2022). "Dosimetry of microelectrodes array chips for electrophysiological studies under simultaneous radiofrequency exposures". *IEEE Transactions on Microwave Theory and Technique*. 70(3), pp. 1871-1881.

11. **Orlacchio, R.**, Nikolayev, D., Le Page, Y., Le Dréan, Y., Zhadobov M. (2022). "Millimeter-wave heating in vitro: local microscale temperature measurements correlated to heat shock cellular response". *IEEE Transactions on Biomedical Engineering*, 69 (2) 840-848. **(Featured article)**. *Corresponding author*.

12. Carr, L.*, Golzio M.*, **Orlacchio R.***, Alberola, G., Kolosnjaj-Tabi, J., Leveque, P., Arnaud-Cormos, D., Rols, M.P. (2021). "A nanosecond pulsed electric field (nsPEF) can affect membrane permeabilization and cellular viability on 3D spheroids tumor model". *Bioelectrochemistry*, 141, 2021, Oct. 2021. *equal contribution.

13. **Orlacchio, R.**, Carr, L., Palego, C., Arnaud-Cormos, D., Leveque, P. (2020). "High-voltage 10 ns pulse generator with delayed paired pulses or bipolar negative polarity for in vitro bioelectric experiments". *Bioelectrochemistry*, 137, pp. 107648.

14. **Orlacchio, R.**, Le Page, Y., Le Dréan, Y., Le Guével, R., Sauleau, R., Alekseev, S., Zhadobov, M. (2019). "Millimeter-wave pulsed heating in vitro: cell mortality and heat shock response". *Scientific Report*, (9)15249. *Top 100 collection*. *Corresponding author*.

15. **Orlacchio, R.**, Zhadobov, M., Alekseev, S., Nikolayev, D., Sauleau, R., Le Page, Y., Le Dréan, Y. (2019). "Millimeter-wave heating in in vitro studies: Effect of convection in continuous and pulse-modulated regimes". *Bioelectromagnetics*, 40(8) pp. 553-568. *Corresponding author*.

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

International congress papers

1. **Orlacchio, R.**, Kolosnjaj-Tabi, J., Mattei, N., Leveque, P., Rols, MP., 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).

2. 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.

3. 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", *BioEM 2023*, Oxford, UK, 18-23 June 2023.

4. Orlacchio, R., Percherancier, Y., Poullietier 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.

5. 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.

6. 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).

7. 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).

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. Canovi, A., Poullétier 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.
16. **Orlacchio, R.**, Percherancier, Y., Poullétier 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.
17. **Orlacchio R.**, Arnaud-Cormos, D., Leveque P., "Nanosecond and subnanosecond optoelectronic generator" at *the 39th International Bioelectrics Consortium Teleconference*, June 8, 2022 ([online, invited](#)).
18. 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](#)).
19. **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](#))
20. **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.
21. **Orlacchio, R.**, Leveque, P., "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](#)).
22. 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).
23. **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.
24. **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 canceled due to Covid-19).
25. **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 2019.26.

26. 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.

27. 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.

28. Khoueiry, C. E., Camera, F., **Orlacchio, R.**, Renom, R., Garenne, A., Poullietier 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.

29. Orlacchio, R., Garenne, A., Poullietier 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.

National congress papers

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 différentes 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. (Oral presentation).

4. Orlacchio, R., "Millimeter wave for biomedical electromagnetics", *Journée scientifique URSI France*, Paris, France 11-13 March 2020, Paris. Poster presentation for the nomination for the "best PhD thesis in Radioscience". (Oral presentation of a poster, 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 (Poster).