

Laura Caramazza

CURRENT POSITION

March 2023 – today

PostDoc at the BioEMLab of the Department of Information Engineering, Electronics and Telecommunications (DIET)

Sapienza University of Rome, Department of Information Engineering, Electronics, and Telecommunications (DIET), Division of Electronic Engineering, Rome, Italy.

Research Project: “Magnetoliposomes and their combination with hydrogels for controlled drug delivery mediated by pulsed electromagnetic fields” funded by Sapienza University of Rome

Research activity: Numerical and experimental activity for the development of Drug Delivery Techniques Controlled by ElectroMagnetic Fields

PAST POSITION

March 2022 – February 2023

PostDoc at the BioEMLab of the Department of Information Engineering, Electronics and Telecommunications (DIET)

Sapienza University of Rome, Department of Information Engineering, Electronics, and Telecommunications (DIET), Division of Electronic Engineering, Rome, Italy.

Research Project: FET OPEN RISEUP project funded by EU Horizon 2020

Research activity: Numerical and experimental activity of characterization and control of exposure systems generating pulsed electric fields for in vitro experimental models

EDUCATION AND TRAINING

2018 – 2022

PhD in Information and Communications Technologies (ICT) XXXIV Cycle

Sapienza University of Rome, Department of Information Engineering, Electronics and Telecommunications (DIET), Division of Electronic Engineering, Rome, Italy.

Supported by Center for Life Nano Science@Sapienza, Istituto Italiano di Tecnologia (IIT), Rome, Italy

Thesis: “Electromagnetic Fields and Nanosystems for Biomedical Applications”

(Scholarship end date January 31st, 2021. Dissertation held on May 27th, 2022)

2015 – 2018

Master of Science in Nanotechnology Engineering

Sapienza University of Rome, Rome, Italy

Master Thesis Trainee at the Department of Information Engineering, Electronics and Telecommunications (DIET) and in collaboration with the Department of Drug Chemistry and Technologies, University of Rome, “Sapienza”, Rome, Italy (six months)

Title of the thesis: Stimuli-responsive liposomes activated by nanosecond pulsed electric field: an integrated approach

Grade 110 out of 110, cum laude

2015

Full-time English course

EF International Language Centers, Boston MA, United States (one month)

- Intercultural communication skills

2011 – 2015

Bachelor of Science in Chemical Engineering

Sapienza University of Rome, Rome, Italy
 Bachelor Thesis Trainee at Department of Chemical Materials, Environmental Engineering (DICMA), University of Rome, "Sapienza", Rome, Italy (three months)

Title of the thesis: "Multistage extraction of lycopene from tomatoes waste"
Grade 99 out of 110

2006 – 2011

High school leaving qualification in scientific studies

"Isacco Newton", Rome, Italy, Subjects including Math's, Science, Chemistry, English
Grade 100 out of 100

INTERNATIONAL COURSES

March 2023 - June 2023

Full-time participation in the EIC Pioneer Programme for Innovative Researchers

In the framework of the FET OPEN RISEUP Project, I attended this course based on collective sessions and individual coaching to explore deep technologies topics, from IP protection, industrialization, and team management to finance as part of the European Innovation Council (EIC) Tech to Market Programme

ACADEMIC COURSES AND SCHOOL PARTICIPATION

January 2021

Full-time participation in the Tom Brazil Doctoral School of Microwaves by the European Microwave Week EUMW2020, Utrecht, The Netherlands

School title: "The Route to 5G: Design of mmWave Active Array Systems, from RFIC to Signal Processing". The overall theme of the technical topics is 5G mmWave with a focus on the design of integrated active array systems, covering the fields all the way from RFIC to signal processing. (one week)

October 2019

Full-time participation in the High Performance Molecular Dynamics course by CINECA, Rome, Italy

I learned how to perform molecular dynamic simulations reducing the computational costs of the simulations. (one week)

February 2019

Full-time participation to the XXIII International School of Pure and Applied Biophysics on "Emerging Tools in Biomechanics: from tissues down to single molecules", Venice, Italy

Through theoretical lessons, in silico tutorials and experimental activities, I studied the importance of mechanical properties in biological processes, from molecular and sub-cellular approaches to single cells and tissues. (one week)

2019

Master Course of Biomedical Engineering "Compatibilità elettromagnetica per apparecchiature medicali" by Prof. Alessandra Paffi

Theoretical and practical lessons attended in the framework of the PhD training (five months)

2018

Master Course of Biomedical Engineering "Misure elettriche per la biomedica" by Prof Emanuele Piuze

Theoretical and practical lessons attended in the framework of the PhD training (four months)

RESEARCH INTERESTS

My research centers on the computational modeling of electromagnetic field interactions with biological systems and lipid-based nanosystems across multiple scales, spanning multiple scales from the atomistic level of proteins and membranes to cellular and tissue levels. Experimental investigations frequently complement these activities. My primary focus is on advancing biomedical applications and ensuring safety, with particular interests in cell manipulation for therapeutic purposes, tissue regeneration, on-demand drug delivery techniques, and the estimation of 5G exposure.

RESEARCH ACTIVITY

- September 2024 – October 2024** **Short-term Mission (STM) in the framework of the BioEM Society**
 Grant winner for the short-term mission
 Title: "IDEA": Innovating Dielectric spectroscopy through Advanced experiments and modeling
 Home Institution: Sapienza University of Rome, Italy
 Host Institution: CNRS - Laboratory of Analysis and Architecture of Systems LAAS, National Scientific Research Center CNRS, Toulouse, France
- May 2023 - today** **5G expOsure, causal effects, and risk perception through citizen engagement (GOLIAT) Project**
 In the framework of the European Union's Horizon 2021 Research and Innovation under grant agreement N° 101057262
 Participation as PostDoc
- Oct 2022 – May 2023** **Research partnership at the ENEA Casaccia Research Center, Rome, Italy**
 In the framework of the research work on "Numerical and experimental investigations on the use of PEMFs for the treatment of sclerosis amyotrophic lateral (SLA)" (one year)
 Participation as PhD and PostDoc
- September 2021 - today** **Regeneration of Injured Spinal Cord by Electro Pulsed Bio-hybrid Approach (RISE UP) Project**
 In the framework of the European Union's Horizon 2020 FET OPEN Research and Innovation under grant agreement N° 964562
 Participation as PhD Student and PostDoc
- September 2021 - today** **Numerical Modelling of RF interaction with Thermal Receptors – Mechanisms and *vivo/vitro* experiments (MOTHERR) Project**
 In the framework of the ANSES, Programme national de recherche "Environnement Santé Travail"
 Participation as a PhD Student and PostDoc
- 2020** **Progetto di Ricerca di Ateneo: RM120172B6F1B0D6 (One year project)**
 Participation as PhD Student.
 Title: "Optimization of magnetic field remote controlled lipid vesicle nanocarriers".
 In collaboration with the Department of Chemistry and Pharmaceutical Technologies, Sapienza University of Rome, Italy."
- One-Month activity suspended due to COVID-19** **COST Action [CA15211] ElectroNET STSM**
 Grant winner for the short-term mission
 Title: "Complete analysis to reach a full comprehension of the destabilizing effect of pulsed electric fields like atmospheric lightning signals on lipid vesicles"
 Home Institution: Sapienza University of Rome, Italy
 Host Institution: CNRS - University of Paris-Saclay - Gustave Roussy UMR 9018, Metabolic and systemic aspects of oncogenesis for new therapeutic approaches (METSU), Paris, France
- February 2020 – March 2020** **COST Action [CA15211] ElectroNET STSM**
 Grant winner for the short-term mission
 Title: "Investigations on driving mechanisms of lipid vesicles destabilization due to intense electric fields with characteristics of the lightning"
 Home Institution: Sapienza University of Rome, Italy
 Host Institution: CNRS - University of Paris-Saclay - Gustave Roussy UMR 9018, Metabolic and systemic aspects of oncogenesis for new therapeutic approaches (METSU), Paris, France

- January 2020** **Collaboration with the Department of Chemical Sciences, University of Padua, Italy**
Short term scientific mission (one week)
Title: "Time-Domain NMR analysis of nano-sized liposome exposed to ultra-short pulsed electric fields"
- 2019** **Progetto di Ricerca di Ateneo: RM11916B835D12D4 (One year project)**
Participation as PhD Student.
Title: "Liposome vesicles loading magnetic nanoparticles as optimal drug delivery nanosystems controlled by magnetic fields".
In collaboration with the Department of Chemistry and Pharmaceutical Technologies, Sapienza University of Rome, Italy.
- April 2019** **COST Action [CA17115] MyWave STSM**
Participation in the short-term mission as an involved person (one week).
Title: "Magnetoliposomes for hyperthermia based clinical approach and remotely controlled drug delivery", Home Institution: Sapienza University of Rome, Italy;
Host Institution: Aristotle University of Thessaloniki, Greece
- March 2019 – today** **Collaboration with the Department of Physics and Astronomy, University of Bologna, Italy**
Research project on "Non-contact electrical stimulation of human-derived cells for regenerative medicine studies"

ROLES IN INTERNATIONAL SOCIETIES

SOCIETY MEMBERSHIP

October 2022 to present

Founder Member of the Chapter Women in Radio Science (WIRS) in the framework of the Italian URSI Commission

August 2020 to present

Member of the URSI

October 2019 to present

Member of the IEEE European Microwave Association (EuMA)

June 2019 to present

Member of the BioEM society

March 2019 to present

Member of the different IEEE societies (EMBS, MTT-S, AP-S)

SESSION CHAIR

Convened the Session "Modeling molecular and cellular targets in bioelectromagnetics studies" in the framework of the 4th URSI Atlantic Radio Science Meeting, AT-RASC 2024, Gran Canaria, Spain, 19-24 May 2024.

Convened the Session " Innovative EMF based biomedical applications" in the framework of the 4th URSI Atlantic Radio Science Meeting, AT-RASC 2024, Gran Canaria, Spain, 19-24 May 2024.

Convened and Chaired the Session "Nanoparticles for EM biomedical applications: from diagnosis to treatment" in the framework of the XXXV General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science, URSI GASS 2023, Sapporo, Japan, 19-26 August 2023.

Convened and Chaired the Workshop "Nanoparticles in medicine: from diagnosis to treatment", supported by the COST Action [CA17115] MyWave, in the framework of the 52nd European Microwave Conference (EuMC), Milan, Italy, 25-30 September 2022

SUPPORTING THE LOC OF INTERNATIONAL CONFERENCES

Participation in the Local Organising Committee in the On-Site Working Group LOC 5th World Congress on Electroporation, which will be held in Rome, Italy, 15-19 September 2024

Coordination of the Volunteer Staff Staff in all the OnLine and OnSite work related to the conference activities for the 52nd European Microwave Conference (EuMC), held in Milan, Italy, 25-30 September 2022

Coordination of the Volunteer Staff Staff in all the OnLine and OnSite work related to the conference activities for the "XXXIV General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science" held in Rome, Italy from August 28th to September 4th, 2021

INVITED SPEAKERS

- 2023** INVITED lecturer at the Focused session on Young Professionals titled “RF and Microwaves for Biomedical and eHealth Applications: Overview of the Recent Young Professionals Research Highlights” in the framework of the 2023 IEEE MTT-S International Microwave Biomedical Conference (IMBioC 2023), 11-13 September 2023, Leuven, Belgium
- 2023** INVITED lecturer as Young Scientist on “In silico modeling in bioelectromagnetics: a molecular to tissue level perspective” in the framework of the Kick-off Workshop of the URSI-Italy Women in Radio Science (WIRS) Chapter, 21 February 2023, Faculty of Engineering, Sapienza University, Rome
- 2022** INVITED lecturer on “On demand drug delivery mediated by EM fields: from dry to wet experiments” in the framework of the Women in Engineering Workshop titled Bioelectromagnetic research: from health protection to biomedical applications for the Master Course of Communication Engineering and Electronic Technologies, Università del Salento, Lecce, Italy, 15 November 2022.
- 2022** INVITED lecturer at the Workshop “Dosimetry and microdosimetry applied to emerging wireless technologies: from human to cell level” in the framework of the 52nd European Microwave Conference (EuMC), Milan, Italy, 25-30 September 2022
- 2022** INVITED lecturer at the Workshop “Novel frontiers in nanocarriers preparation and characterization”, organized by the Nanomedicine_Lab at the Sapienza University of Rome, Rome, Italy, 7 June 2022
- 2022** INVITED lecturer on behalf of Prof. Micaela Liberti at the Workshop “Sensing, imaging and biological tissues characterization using microwaves and mm-waves” in the framework of the 51st European Microwave Conference (EuMC), London, United Kingdom, 2-7 April 2022

EDITORIAL ACTIVITIES

- REVIEWER for IEEE TRANSACTION on BIOMEDICAL ENGINEERING (TBME) [I.F. 4.756]
- REVIEWER for SCIENTIFIC REPORTS [I.F. 4.996]
- REVIEWER of the IEEE CONFERENCE PROCEEDINGS for the 54th European Microwave Conference (EuMW 2024), Paris, France, 22-27 September 2024
- REVIEWER of the IEEE CONFERENCE PROCEEDINGS for the 53rd European Microwave Conference (EuMW 2023), Berlin, Germany, 17-22 September 2023
- REVIEWER of the CONFERENCE PROCEEDINGS for the International Conference BioEM2023, Oxford, United Kingdom, June 18 - 23, 2023
- REVIEWER of the IEEE CONFERENCE PROCEEDINGS for the 52nd European Microwave Conference (EuMW 2022), Milan, Italy, 25-30 September 2022
- REVIEWER of the CONFERENCE PROCEEDINGS for the International Conference BioEM2022, Nagoya, Japan, June 19 - 24, 2022

AWARDS

- 2023** **2023 IEEE MTT-S International Microwave Biomedical Conference (IMBioC 2023), Leuven, Belgium: Best Paper Award**
- 2023** **XXXV General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science, URSI GASS 2023, Sapporo, Japan: Young Scientist Award**
- 2021** **XXXIV General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science (Union Radio Scientifique Internationale-URSI), Rome, Italy: Young Scientist Award**
- 2021** **EuMW2021 51st European Microwave Conference, London, United Kingdom: Student Award**
- 2021** **BioEM2021 Annual Joint Meeting, Ghent, Belgium: Student Travel Award**

- 2020** **EuMW2020 50th European Microwave Conference, Utrecht, Netherlands: Student Award**
- 2019** **EuMW2019 49th European Microwave Conference, Paris, France: Student Award**
- 2019** **BioEM2019 Annual Joint Meeting, Montpellier, France: Student Travel Award**

ACADEMIC ACTIVITIES

- December 2022** **Awarded as “Cultore della Materia” in the framework of the Master Course of Biomedical Engineering “Compatibilità elettromagnetica per apparecchiature medicali” by Prof. Alessandra Paffi**
- November 2022** **Seminar for the Master Course of Interazione Bioelettromagnetica II under the direction of Prof. Francesca Apollonio and Prof. Micaela Liberti**
Seminar on “Electrical stimulation for regenerative medicine”
- February 2020 - June 2020** **Tutor for Bachelor Course of Electrical Measurements under the direction of Prof. Emanuele Piuze**
Bando n. 6-2020, prot. n. 819 – Class. VII/16, 16/12/2020
Practical lessons on the use of basic and advanced equipment, to study electromagnetic fields propagation.
- From November 2020 to present** **Practical lessons and Trainer for thesis’ students for Master Course in Therapeutic applications of low frequency electromagnetic, fields under the direction of Prof. Micaela Liberti and Prof. Francesca Apollonio**
Practical lessons on the use of basic software to study electromagnetic fields propagation.
Trainer for nine master students under the direction of Prof. Micaela Liberti and Prof. Francesca Apollonio with a thesis on:
- Numerical microdosimetric studies on biological cells for bioelectromagnetic interaction applications
 - Numerical and experimental investigations on the use of PEMFs for the treatment of sclerosis amyotrophic lateral (SLA)
 - Molecular Dynamics studies on the interaction of RF EM fields with biological systems, investigating the transmembrane receptor TRPM8 as a target of interaction
 - Microdosimetric investigations on 3D realistic models of cells with intracellular organelles to evaluate the electrical exposure obtained with interdigitated electrodes in the framework of the RISE UP project
- From November 2018 to present** **Practical lessons and Trainer for thesis’ students for Master Course in Electromagnetic Fields and Nanosystems under the direction of Prof. Micaela Liberti and Prof. Francesca Apollonio**
Practical lessons on the use of advanced equipment for electric field application. Practical lessons on the use of basic and advanced software to both study the interaction of electromagnetic fields with biological tissues and perform the post-processing of experimental data.
Trainer for four master students under the direction of Prof. Micaela Liberti and Prof. Francesca Apollonio, with a thesis on:
- Experimental and numerical investigations on magnetoliposomes nanosystems activated by magnetic fields
 - Numerical studies on biological membranes under the action of the electric field at the molecular level
 - Study of the electric field distribution in realistic 3D models of microfibril layers in a bio-hybrid device for the treatment of Spinal Cord Injuries
 - Numerical characterization of magnetoliposomes activated by Magnetic Field for Drug Delivery Applications

From November 2018 to
present

Practical lessons and Trainer for thesis' students Bachelor Course of Electromagnetic Fields under the direction of Prof. Apollonio Francesca

Practical lessons on the use of basic software to study electromagnetic fields propagation.

Trainer for eleven master students under the direction of Prof. Micaela Liberti and Prof. Francesca Apollonio, and Dr. Alessandra Paffi with thesis on:

- Microdosimetric investigations on the use of intense pulsed electric fields as a trigger for on demand liposomal drug delivery nanosystems: from 2D to 3D realistic models
- Experimental characterization of exposure systems for intense pulse electric fields delivered during *in vitro* and *ex-vivo* experiments
- Numerical characterization of an exposure system for *in vitro* DC electrical stimulation for tissue regeneration
- Experimental characterization of dielectric properties of different culture media used for *in vitro* EMF exposure experiments
- Microdosimetric investigations on spherical and realistic models of cells with intracellular organelles to evaluate the effects of 5G EMFs on biological systems
- Microdosimetric investigations on spherical and realistic models of cells with intracellular organelles to evaluate the dielectric response of biological structures at microscopic level
- Numerical studies to design an implantable electrified device for *in vitro* and *in vivo* exposures to electrical stimulus, in the framework of the RISE UP project
- Microdosimetric investigation on the exposure of cells to intense pulsed electric fields delivered by two parallel electrodes, using 3D realistic models of cells and intracellular organelles, in the framework of the RISE UP project
- Literature research on tissue regeneration techniques using electrical stimulation, focusing on spinal cord injury treatments

PERSONAL SKILLS

TECHNICAL SKILLS AND COMPETENCES

- Good knowledge of Windows and Linux operating Systems.
- Good command of Office suite (word processor, spreadsheet, presentation software)
- Programming languages: Awk, Fortran, basic knowledge of C++.
- Software: COMSOL Multiphysics, Ansys HFSS, AutoCAD 2D and 3D, Matlab, GROMACS, LAMMPS, VMD, GNUPLOT, ImageJ, basic knowledge of Labview.
- Laboratory equipment: Electrical Nanopulse Generator, Oscilloscope, Vector Network Analyzer, chromatograph for HPLC, pH meter, Atomic Absorption Spectrometer, Scanning Electron Microscope, Spectrofluorometer, Spectrometer, LCR meter for dielectric properties measurements.

COMMUNICATION AND ORGANIZATIONAL SKILLS

- Good intercultural communication skills enhanced through my PhD, specifically during the periods spent abroad, and my one-month-long experience in EF International House, Boston USA, and during my participation in the Model United Nation, New York USA (March 2011);
- Leadership, good team-working, problem-solving and organizational skills gained working in collaboration with other laboratory groups during my PhD and Master thesis.
- Commitment and flexibility gained through my university experience.
- B2 level of English.

Other skills

- Love cinematography, watching movies. Like planning trips around the world, discovering different cultures, and meeting new people.

LIST OF PUBLICATIONS

Journals

- **L. Caramazza**, M. Nardoni, A. De Angelis, P. Paolicelli, M. Liberti, F. Apollonio, and S. Petralito, "Proof of concept of electrical activation of liposome nanocarriers: from dry to wet experiments", *Frontiers in Bioengineering and Biotechnology, Bioprocess Engineering*, v. 8, 2020. doi: 10.3389/fbioe.2020.00819. [IF: 5.89]
- **L. Caramazza**, A. Paffi, M. Liberti and F. Apollonio, "Experimental and numerical characterization of a grounded coplanar waveguide for nanoelectroporation applied to liposomes. *International Journal of Microwave and Wireless Technologies*, 13(7), 663-672, 2021. doi:10.1017/S1759078721000441. [IF: 1.418]
- P. Marracino, **L. Caramazza**, M. Montagna, R. Ghahri, M. D'Abramo, M. Liberti and F. Apollonio, "Electric-driven membrane poration: A rationale for water role in the kinetics of pore formation". *Bioelectrochemistry*. 2022 Feb;143:107987. doi: 10.1016/j.bioelechem.2021.107987. Epub 2021 Oct 26. [IF: 5.76]
- J. Trilli, **L. Caramazza**, P. Paolicelli, M. A. Casadei, M. Liberti, F. Apollonio, S. Petralito, 2021. "The Impact of Bilayer Rigidity on the Release from Magnetoliposomes Vesicles Controlled by PEMFs". *Pharmaceutics* 2021, 13, no. 10: 1712. doi:10.3390/pharmaceutics13101712. [IF: 6.525]
- C. Merla, M. Nardoni, M. Scherman, S. Petralito, **L. Caramazza**, F. Apollonio, M. Liberti, P. Paolicelli, B. Attal-Tretout, L. M. Mir, "Changes in hydration of liposome membranes exposed to nanosecond electric pulses detected by wide-field Coherent anti-Stokes Raman microspectroscopy," *Bioelectrochemistry*, 2022 Oct;147(1):108218. doi: 10.1016/j.bioelechem.2022.108218. [IF: 5.35]
- A. De Angelis, **L. Caramazza**, F. M. André, C. Merla, L. M. Mir, F. Apollonio, and M. Liberti, "Gaps and Challenges in Microdosimetry: Improvements With Realistic Models of Endoplasmic Reticulum". *URSI Radio Science Letters*, 2022, 4, doi: 10.46620/22-0003.
- S. Fontana, **L. Caramazza**, P. Marracino, I. Cuenca Ortolá, M. Colella, N. Dolciotti, A. Paffi, F. Gisbert Roca, S. Ivashchenko, J. Más Estellés, C. Consales, M. Balucani, F. Apollonio, and M. Liberti, "Electric Field Bridging-Effect in Electrified Microfibrils' Scaffolds," *Frontiers in Bioengineering and Biotechnology, Sec. Tissue Engineering and Regenerative Medicine Volume 11 – 2023*. doi: 10.3389/fbioe.2023.1264406. [IF: 5.7]
- G. Innamorati, M. Sanchez-Petidier, G. Bergafora, C. Codazzi, V. Palma, F. Camera, C. Merla, F. M. André, M. Pedraza, V. Moreno Manzano, **L. Caramazza**, M. Colella, P. Marracino, and C. Consales, "Characterization of stem cells response to bipolar microsecond pulses electric stimulation," *under review to International Journal of Molecular Sciences*.
- **L. Caramazza**, C. Pisano, A. Paffi, F. Apollonio, and M. Liberti, "Nanoscale Vesicles Respond with Poration to Pulsed Electric Fields: a Focus on EM-based Drug Delivery," *under review to IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*.
- S. Fontana, **L. Caramazza**, M. Colella, N. Dolciotti, A. Paffi, V. Moreno-Manzano, F. Apollonio, and M. Liberti, "Advanced Microdosimetric and Neurofunctionalized Multiphysics on Stem Cells Models under Microsecond Pulses Stimulation," *under review to IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*.
- **L. Caramazza**, P. Marracino, M. Liberti and F. Apollonio, "Impact of RF EMFs on Hydrated Membranes: Molecular Dynamics Investigations", *under preparation*.
- **L. Caramazza**, A. De Angelis, Z. Haider, M. Zhadobov, F.M. Andre, L.M. Mir, F. Apollonio, M. Liberti, "A frequency dependent microdosimetric study at the cellular and intracellular level based on 3D realistic cells models," *under preparation*.
- I. Zironi, T. Cramer, A. Fuschi, G. Giuliani, M. Calienni, **L. Caramazza**, M. Liberti M., F. Apollonio, D. Remondini, G. Castellani, "Can a capacitively coupled electrostatic field affect cell migration *in vitro*?" *under preparation*.

Conferences

- A. Denzi, C. Merla, **L. Caramazza**, A. De Angelis, F. Apollonio and M. Liberti, "Microdosimetry in Biomedical Applications: Importance of Realistic Models at the Cellular and Subcellular Levels" for 2018 EMF-Med 1st World Conference on Biomedical Applications of Electromagnetic Fields (EMF-Med), 10-13 September 2018, Split, Croatia.
- **L. Caramazza**, M. Nardoni, A. De Angelis, P. Paolicelli, S. Petralito, M. Liberti and F. Apollonio, "Feasibility of drug delivery mediated by ultra-short and intense pulsed electric fields" for 2018 ICEmB 5th National Conference on Interactions between Electromagnetic Fields and Biosystems, 28-30 November 2018, Salerno, Italy.
- **L. Caramazza**, M. Nardoni, A. De Angelis, E. della Valle, A. Denzi, P. Paolicelli, C. Merla, M. Liberti, F. Apollonio, and S. Petralito, "Feasibility of Drug Delivery Mediated by Ultra-Short and Intense Pulsed Electric Fields," 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2019,

- pp. 1678-1681, doi: 10.1109/EMBC.2019.8856393..
- **L. Caramazza**, A. De Angelis, E. della Valle, A. Denzi, M. Nardoni, P. Paolicelli, S. Petralito, F. Apollonio, and M. Liberti, "Numerical Investigations of CW Electric Fields on Lipid Vesicles for Controlled Drug Delivery," 2019 49th European Microwave Conference (EuMC), 2019, pp. 220-223, doi: 10.23919/EuMC.2019.8910714.
 - **L. Caramazza**, M. Nardoni, A. De Angelis, E. della Valle, A. Denzi, P. Paolicelli, C. Merla, M. Liberti, F. Apollonio, and S. Petralito, "nsPEFs exposure of liposomes to explore controlled drug delivery applications", for BioEM2019, Montpellier, France, Jun 23 - 28, 2019.
 - **L. Caramazza**, A. De Angelis, E. della Valle, A. Denzi, M. Nardoni, P. Paolicelli, S. Petralito, F. Apollonio, and M. Liberti, "Numerical investigations on the action of CW electric fields on lipid vesicles for drug delivery", for BioEM2019, Montpellier, France, Jun 23 - 28, 2019.
 - I. Zironi, G. D'Amen, A. De Angelis, **L. Caramazza**, A. Gabrielli and G. Castellani, "Is an electrostatic field able to induce a galvanotactic phenomenon? Investigation in a scrape wound model", for BioEM2019, Montpellier, France, Jun 23 - 28, 2019.
 - **L. Caramazza**, M. Nardoni, A. De Angelis, P. Paolicelli, S. Petralito, M. Liberti, and F. Apollonio, "Lipid vesicles exposed to nsPEF for drug delivery applications", for the 3rd WC2019, Toulouse, France, Sep 3-6, 2019.
 - S. Petralito, M. Liberti, M. Nardoni, **L. Caramazza**, A. De Angelis, C. Merla, E. della Valle and F. Apollonio, "Drug delivery through liposomes carriers mediated by pulsed electric and magnetic fields: experimental and modelling studies", for a workshop at the 2019 49th European Microwave Conference (EuMW 2019) Paris, France, 29-4 October 2019.
 - **L. Caramazza**, A. De Angelis, D. Remondini, G. Castellani, M. Liberti, F. Apollonio, and I. Zironi, "Galvanotactic Phenomenon Induced by Non-Contact Electrostatic Field: Investigation in a Scratch Assay," 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2020, pp. 2520-2523, doi: 10.1109/EMBC44109.2020.9175695.
 - P. Marracino, **L. Caramazza**, M. Liberti and F. Apollonio, "Electroporation Mechanisms: The Role of Lipid Orientation in the Kinetics of Pore Formation," 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2020, pp. 2235-2238, doi: 10.1109/EMBC44109.2020.9175706.
 - S. Petralito, M. Nardoni, P. Paolicelli, M.A. Casadei, Laura Di Muzio, **L. Caramazza**, M. Liberti and F. Apollonio, "Non-thermal electromagnetic fields to trigger on-demand drug release from high-T_m Magnetoliposomes," 21st International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems. Italy, Rome, 11-12 March 2020.
 - **L. Caramazza**, A. De Angelis, M. Nardoni, P. Paolicelli, S. Petralito, F. Apollonio, and M. Liberti, "Planning Sine Waves Electroporation on Liposomes for Drug Delivery Application," 2020 IEEE MTT-S International Microwave Biomedical Conference (IMBioC), 2020, pp. 1-4, doi: 10.1109/IMBioC47321.2020.9384905.
 - **L. Caramazza**, A. Paffi, M. Liberti and F. Apollonio, "A Coplanar Waveguide System for Drug Delivery Mediated by Nanoelectroporation: an Experimental and Numerical Study," 2020 50th European Microwave Conference (EuMC), 2021, pp. 999-1002, doi: 10.23919/EuMC48046.2021.9338023.
 - **L. Caramazza**, N. Lauciello, A. De Angelis, D. Remondini, G. Castellani, M. Liberti, F. Apollonio, I. Zironi, "Non-contact DC field effects on glioma cells migration: *in vitro* and *in silico* studies", 2021 XXXIV URSI GASS2021, Italy, Rome, 28 August – 4 September 2021.
 - A. De Angelis, **L. Caramazza**, F. Andre, L.M. Mir, F. Apollonio, M. Liberti, "Modeling Dielectric Response of Biological Structures at Cellular Level" for a workshop at the 2021 XXXIV URSI GASS2021, Italy, Rome, 28 August – 4 September 2021.
 - **L. Caramazza**, A. Paffi, M. Liberti, F. Apollonio, "3D microdosimetric model to plan and control *in vitro* drug delivery mediated by nsPEFs with GCPW system," 2021 XXXIVth General Assembly and Scientific Symposium of the International Union of Radio Science (URSI GASS), 2021, pp. 1-4, doi: 10.23919/URSIGASS51995.2021.9560610.
 - A. De Angelis, **L. Caramazza**, F. Andre, L.M. Mir, F. Apollonio, Micaela Liberti, "Modeling dielectric response of biological structures at cellular level", BioEM2021, Ghent, Belgium, Sep 26 - 30, 2021.
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