

CURRICULUM VITAE:

PERSONAL INFORMATION

Family name: **MERLA**, First name: **Caterina**,
ORCID: <http://orcid.org/0000-0001-8612-9566>.

EDUCATION

- **08/12/2004 – 15/02/2008: PhD in electronic engineering.** Univ. of Rome "Sapienza", Dept. of Electronic Engineering, Italy. Title of the thesis: "Evaluation of the electromagnetic field induced in the biological tissues at microscopic level". Supervisor: Prof. G. d'Inzeo.
- **20/02/2007 – 31/05/2007 (3 months): Research mobility as PhD student.** XLIM, CNRS-Univ. Limoges, France. on the program: "Electromagnetic analysis of nanosecond pulsed electric fields on biological cells". Supervisor Dr. P. Leveque (Centre National de la Recherche Scientifique CNRS research director).
- **1/11/1998 – 31/03/2004: B. and M. Sc. Degrees in electronic engineering.** Univ. of Rome "Sapienza", Dept. of Electronic Engineering, Italy. "Development of an experimental methodology to synthesize a dielectric model of biological cell". Supervisor Prof. G. d'Inzeo.

CURRENT POSITION

- **01/08/2013 – present: Research Scientist.** Italian National Agency for New Technology, Energy and Sustainable Economic Development (ENEA), SSPT- Division of Health Protection Technologies, Rome, Italy.

PREVIOUS EXPERIENCES

- **2015 – 2017: Marie Sklodowska-Curie Action, Individual Fellowship** at UMR 8203, Laboratory of Vectorology and Anticancer Therapy CNRS-Université Paris-Sud, Université Paris-Saclay, Gustave Roussy, Villejuif, France.
- **01/02/2013– /06/30/2013: Teaching activity.** Laboratory of Electric Measurements, B. Sc. Degree in Electronic Engineering, Univ. of Rome, "Sapienza".
- **01/07/2012 – 31/12/2012 (6 months): Research Scientist.** Lehigh Univ., Dept. of Electronic and Computer Engineering, Bethlehem, PA, USA.
- **01/07/2010 – 30/06/2012: Post-doctoral fellow.** Inter-University Center for the Study of Electromagnetic Fields and Bio-systems (ICeMB), at Univ. Genoa, and Department of Electronic Engineering Univ. of Rome "Sapienza" and ENEA, Rome, Italy.
- **01/05/2008 – 31/05/2010 (25 months): Post-doctoral fellow.** XLIM, UMR 7252 CNRS-Univ.

of Limoges, Limoges, France.

AWARDS AND FELLOWSHIPS

- **11/04/2016-15/04/2016: Winner of grant given by COST EMF MED (BM 1309) to attend the VIII Course of International School of Bioelectromagnetics “Alessandro Chiabrera”** entitled: “Electromagnetic Fields and the Nervous System Biological Effects, Biophysical Mechanisms, Methods, and Medical Applications”. Organized by the EBEA (European Bioelectromagnetic Association) and the COST Action BM1309, Erice, Italy. Directors of the Course were Vincenzo di Lazzaro (Campus Bio-Medico University, Rome, Italy) and Bernard Veyret (IMS-CNRS, Bordeaux, France).
- **30/04/2015-23/05/2015: Short Term Scientific Mission COST TD1104 Action EP4Bio²Med Electroporation Technologies and Treatments in Medicine and Biology.** Winner of a grant entitled: “**Experimental assessment of the performance of an antenna prototype to apply nsPEF**” at the Frank Reidy Center for Bioelectrics, Old Dominion University, Norfolk, VA USA.
- **18/02/2015: Marie Sklodowska Curie Action, Horizon 2020.** Winner of an Individual Fellowship entitled: **Toward the comprehension of primary bioelectromagnetic interactions: real time non-linear OPTICAL imaging of BIO-samples under ElectroMagnetic exposure (OPTIC BIOEM).** CNRS UMR 8203 - Institut Gustave Roussy (IGR), Université Paris-Sud, Université Paris-Saclay, Villejuif, France.
- **23/05/2010: Post-doctoral Fellowship.** Winner of a post-doctoral fellowship (n.28 DDA n. 186, 12/03/2010) instituted by ICEmB and University of Genoa.
- **09/08/2008– 16/08/2008: «YOUNG SCIENTISTS AWARD»** XXIX URSI General Assembly (International Union of Radio Science), Chicago, Illinois, USA.
- **11/11/2007 – 17/11/2007: Scholarship for course attending.** International Scientific Workshop and Postgraduate Course EBTT Electroporation Based Technologies and Treatments, Univ. of Ljubljana, Slovenia.
- **03/09/2006 08/09/2006: Scholarship for meeting attending.** Gordon Research Conference on Bioelectrochemistry, Centre P. Langevin, Aussois, France.
- **08/12/2004 – 08/12/2007: Italian Governmental Fellowship for PhD Training.** Winner of a governmental grant for PhD training instituted by the Italian Ministry of the University and Research (MIUR).

INVITED SCIENTIST IN INTERNATIONAL CONFERENCES AND WORKSHOPS (oral speeches)

- **6/09/2015 – 11/09/2015: European Microwave Week 2015, Workshop and Short Courses: Bio-ElectroMagnetism for biological and medical applications: latest developments of implantable micro-devices, sensing concept and modelling approaches, Paris, France.**
- **17/05/2015 - 22/05/2015: IEEE IMS Dig. Workshop WFJ-134: Nanosecond pulsed electric fields (nsPEF)- from modeling to applications: biology, medicine, plasma and apparatus; Sponsored by MTT-10 Biological Effects and Medical Applications, Phoenix, USA.**

- **02/06/2013 – 07/06/2013:** IEEE IMS Dig. Workshop WMF: Electronanoporation an emerging biomedical electromagnetic application, Sponsored by MTT-10 Biological Effects and Medical Applications, Seattle (WA), USA.
- **26/03/2012 – 30/03/2012:** EUCAP 2012, Convened session, Prague, Czech Republic.
- **14/09/2009 – 18/09/2009:** ICEAA'09, Convened session, Turin, Italy.
- **09/08/2008 – 16/08/2008:** XXIX URSI General Assembly (GA), Chicago, USA. Invited scientist in the Young Scientists Award Program.

TECHNICAL PROGRAMM REVIEWER COMMITTEE

- **05/06/2017 – 9/06/2017:** TPRC member. BioEM 2017, the Annual Meeting of Bioelectromagnetic Society, and the European Bioelectromagnetic Association. Hangzhou, China.
- **November 2016:** TPRC member at 11th European Conference on Antennas and Propagation (EuCAP 2017), Paris France.
- **January to December 2016 Ambassador** of the Electroporation-Based Technologies and Treatments International Scientific Workshop and Post-Graduate Course 10th Edition, Ljubljana Slovenia (<http://2016.ebtt.org/>).
- **05/06/2016 – 10/06/2016:** TPRC member. BioEM 2016, the Annual Meeting of Bioelectromagnetic Society, and the European Bioelectromagnetic Association. Ghent, Belgium.
- **12/04/2015 – 17/04/2015:** TPRC member. EUCAP 2015, 9th European Conference on Antennas and Propagation, Lisbon, Portugal.
- **08/06/2015 – 12/06/2015:** TPRC member. BioEM 2015, the Annual Meeting of Bioelectromagnetic Society, and the European Bioelectromagnetic Association, Asilomar, VA USA.

INSTITUTIONAL RESPONSABILITIES

- **2016– 2017 Assistant supervisor** to 1 these of Master's Degree for Nanotechnological Applications, at "Ecole Normale Supérieur de Cachan", Cachan, France.
- **2014 – 2015 Supervisor** at ENEA UT-BIORAD of three M.Sc. and one B. Sc. students, Rome Italy.
- **11/11/2011 Member of PhD thesis commission**, title: "Développement et caractérisation de générateur optoélectronique d'impulsions de champ électrique nanoseconde et subnanoseconde de forte intensité: application au domaine biomédical" at XLIM CNRS UMR 7252.
- **2008– 2010 Assistant supervisor** to the PhD activities conducted by Mr. S. El-Amari. Title: "Développement et caractérisation de générateur optoélectronique d'impulsions de champ électrique nanoseconde et subnanoseconde de forte intensité: application au domaine biomédical", XLIM CNRS UMR 7252, University of Limoges, France.
- **2006– 2017 Assistant supervisor** to 10 theses of Master's Degree for the Laurea Degree in Telecommunication Engineering, Electronic Engineering, and Biomedical Engineering at

the Department of Information Engineering, Electronic and Telecommunications, Sapienza University of Rome, Italy.

- **2006– 2015 Assistant supervisor** to 18 theses of Bachelor's Degree for the Laurea Degree in Telecommunication Engineering and Clinical Engineering at the Department of Information Engineering, Electronic and Telecommunications, Sapienza University of Rome, Italy.

CHAIR AND ORGANIZER OF SESSIONS AND WORKSHOPS AT INTERNATIONAL CONFERENCES AND INTERNATIONAL SEMINAIRES

- **24/09/2017 – 30/09/2017** Session Chair "Molecular and biological mechanisms of electroporation – models and experiments" at the 2nd World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine, and Food & Environmental Technologies
- **24/03/2017 – 27/03/ 2017** Organizer and co-chair (with Dr. M. Liberti, Sapienza University, Rome Italy) of a Convened Session at the 11th European Conference on Antennas and Propagation EuCAP 2017, Paris France. Title: "OPTIC BIOEM and other approaches for electropulsation in medicine and biology".
- **24/03/2017 – 27/03/2017** B_P03 Session Chair " Biological Propagation Measurements" at the 11th European Conference on Antennas and Propagation EuCAP 2017, Paris France.
- **05/06/2016 – 10/06/ 2016:** Organizer and co-chair (together with Prof. R. Davalos, Virginia Tech, Richmond VA USA) of an invited Workshop Session at **BioEM 2016 Meeting, Ghent Belgium**. Title: "Single cell electromagnetic exposure and analysis: experimental considerations, coupling of optical imaging techniques, and biological outcomes". Sponsor of the event: COST EMF-MED Action BM1309, OPTIC BIOEM MSCA-IF g.a.661041 H2020.
- **07/02/2016– 08/02/2016** Organizer within the framework of the project MSCA OPTIC BIOEM of an inter-laboratory seminar "CNRS UMR 8203, Villejuif France – "Sapienza" Univ. of Rome Italy, entitled: "Electropulsation Research: Numerical Technologies and Biological Experiments for Modelling" at the CNRS UMR 8203, Gustave Roussy, Villejuif France.
- **09/11/2016 – 10/11/2016** Organizer within the framework of the project MSCA OPTIC BIOEM of an inter-laboratory seminar "CNRS UMR 8203, Villejuif France – ENEA Division of Health Protection Technologies", for the dissemination and networking activity of the MSCA OPTIC BIOEM project at ENEA, CR Casaccia, Rome Italy.
- **15/07/2011** – Speaker to the Seminar for the "Laboratorio Inter-disciplinare III", Course of "Electric Measurements", Faculty of Information Engineering, "Sapienza" University of Rome, title: "La spettroscopia dielettrica dalla teoria alle applicazioni".
- **16/10/2010** Speaker to the seminar for the month meeting of the SIEM group (Società Italiana di Elettromagnetismo) at Sapienza University of Rome, title: "Campi elettrici pulsati ultrabrevi: generazione del segnale e analisi microdosimetrica su singola cellula".

COMMISSIONS OF TRUST

- **2017 Guest Editor for a special issue entitled:** "Delivery of Ultrashort Electric Pulses to Biological Targets and Resulting Effects" Biomed Research International (Hindawi)

- **2017:** Reviewer for PLOSE ONE (Plose ONE).
- **December 2016** – Expert of Research Executive Agency (REA) (CONTRACT NUMBER - CT-EX2013D161286-101) to assess the state and progress of action implementation and constitutes review of H2020-FET-Open projects (H2020-FETOPEN-664828-NEMF21).
- **June 2016** – Member of the Judging Committee to assign the "Student Best Paper (platform and poster) at the BioEM 2016 Meeting", Ghent Belgium.
- **2015 – present:** Reviewer for **International Journal of Membrane Biology** (Springer).
- **2015– present:** Reviewer for **Innovative Food Science and Emerging Technologies** (Elsevier).
- **2015 – present:** Reviewer for **COMPEL: the International Journal for Computation and Mathematics in Electrical and Electronic Engineering** (Emeral Insight).
- **2014– present:** Reviewer for **Progress in Electromagnetics Research** (PIERS).
- **2013 – present:** Reviewer board of the **2nd, 3rd, and 4th International Conference on Biomedical Eng. and Biotechnology (Icbeb 2013, 2014, 2015)**, held in Wuhan, and Beijing China on October 2013, 2014 and 2015. The accepted papers are published by the **J. of Biomed. Materials and Eng.** (IOS Press, Scopus indexed).
- **2013 – present:** Reviewer for **BBA – Biomembranes** (Elsevier).
- **2013 – present:** Reviewer for **Bioelectrochemistry** (Elsevier).
- **2013 – present:** Reviewer for **Rad. Research** (Allen Press).
- **2013 – present:** Reviewer for **Surgery Current Research** (OMICs Publishing Group).
- **2012 – present:** Reviewer for the **Int. J. Hyperthermia** (Informa Healthcare).
- **2012 – present:** Reviewer for the **IEEE Trans. on Biomedical Eng.** (IEEE Press).
- **May 2012:** Reviewer for the "Ministero degli Affari Esteri" and ENEA for the EUREKA Projects, "Italy-Israel Cooperation Program".
- **2010 – present:** Reviewer for the **IEEE Trans. on Microwave Theory and Tech.** (IEEE Press).
- **2010 – present:** Reviewer for **Bioelectromagnetics** (Wiley)

MONOGRAPHS

- Signed Academic Invited Author Agreement with Cambridge University Press for a book (publication April 2018) entitled: "Nanoelectroporation: Principles and Applications". authors: C. Merla, A. Silve, L.M. Mir and P.T. Vernier.

SCIENTIFIC COLLABORATIONS

- **2016 – present** Ecole de MINES de Saint Etienne, Mimet, France. (Dr. Rod O'Connor)
- **2015 – present** ONERA the French Aerospace Lab, Palaiseau, France. (Dr. B. Attal-Tretout, Dr. M. Scherman)
- **2014 – present** "Old Dominion University, F. Reidy Center for Bioelectrics", Norfolk VA USA. (Prof. P. T. Vernier and Prof. A G. Pakhomov).
- **2012 – present** Lehigh Univ. Department of Electronic and Computer Engineering, Bethlehem, PA USA. (Prof. J. Hwang and Prof. X. Cheng).

- **2012 – present** Danish Cancer Society Research Center, Copenhagen, Denmark and Department of Biology, Tor Vergata University, Rome, Italy (Dr. G. Filomeni).
- **2012– present** "Sapienza" Univ. Rome, Dept of "Chimica e Tecnologie Farmaceutiche", Rome Italy. (Dr. S. Petralito).
- **2012 –2015** Catholic University of "Sacro Cuore", Institute of Human Physiology, School of Medicine and Surgery "Agostino Gemelli", Rome Italy. (Prof. C. Grassi).
- **2012 –2015** Sapienza University of Rome, Dept. of Inf. Eng., Elect. and Telecom., Rome Italy. (Prof. G. d'Inzeo, Dr. M. Liberti, Dr. F. Apollonio, Dr. M. Balucani).
- **2011 – present:** University of Bangor, Bangor UK (Dr. C. Palego).
- **2010 – present** XLIM, UMR 7562 CNRS-Univ. Limoges, France. (Dr. P. Leveque, Dr. D. Arnaud-Cormos, Dr. V. Couderc, Dr. A. Poithier).
- **2011 – 2015** ISPESL/INAIL Rome, Italy. (Dr R. Falsaperla).
- **2009– 2010** Institut de Recherche Biomédicale des Armées, CRSSA, Grenoble (Dr. A. Perrin).
- **2008– 2010** IMS, UMR 5218 CNRS-Univ. Bordeaux, France. (Dr. B. Veyret and Prof. I. Lagroye).
- **2006– 2010** Sapienza Univ. of Rome, Dept. of "Istologia ed Embriologia Medica, Laboratorio d'Ematopoiesi Normale e Neoplastica", Rome Italy. (Prof. C. Nervi).
- **2005** CNR, Institute of Neurobiology and Molecular Medicine, Rome Italy. (Dr. A. Ramundo Orlando).

MEMBERSHIPS AND EDITORIAL ACTIVITIES

- **2016 August** – Author of the Newsletter n. 3, of the "International Society for Electroporation Based Technologies and Treatments", ISSN: 2463-9850 (on line at goo.gl/k2q9A0)
- **2015 – present** Member of COST EMF-MED BM 1309, Working Groups 2 and 3.
- **2015 – present** Member of the "International Society for Electroporation-Based Technologies and Treatments".
- **2015 – present** Member of the European Associated Laboratory (LEA) entitled "Pulsed electric fields applications in biology and medicine" (abbreviated as LEA EBAM). Instituted by the CNRS.
- **2013 – 2015** Member of COST TD1104 Action EP4Bio2Med, Working Groups 1 and 3.
- **2013– present** Member of Biophysical Society.
- **2006– present** Member of IEEE, IEEE Microwave Theory and Tech. Society, and IEEE Biomed. Eng. Society.
- **2006– present** Member of the European Bioelectromagnetic Association (EBEA).

PARTICIPATION TO INTERNATIONAL COURSES, SCHOOLS, AND MEETINGS

- **18/04/2016– 19/04/2016** Participation as invited scientist to the COST EMF MED BM 1309 meeting (WG2) entitled "ELF Effects and Applications of Ultrashort Electric Pulses to Modify Cells Activities in Vitro and in Vivo", Madrid Spain. The meeting concerned scientific data and results as well as funding strategies and managing project applications.

- **03/12/2015–04/12/2015** Participation to the "First International Workshop on Metamaterials-by-Design: Theory, Methods, and Applications to Communications and Sensing". Paris Saclay. Workshop director: Prof. A. Massa (Univ. Trento, Italy).
- **13/10/2011–19/10/2011** Participation to the course "Nano-drug delivery from bench to the patient", organized by the "Istituto Superiore di Sanità" (Dipartimento Tecnologie e Salute), the Italian Chemical Society and the National Research Council (CNR) Institute of Chemical Methodologies.
- **11/11/2007–17/11/2007** Participation to the "International Scientific Workshop and Postgraduate Course Electroporation Based Technologies and Treatments" at University of Ljubljana, Slovenia. Directors of the course: Prof. D. Micklavcic, and L. M. Mir CNRS Research Director.
- **19/11/2006–25/11/2006** Participation to the "International School of Bioelectromagnetics Alessandro Chiabrera", "3rd Course: Mechanisms of Interaction between Electromagnetic Fields and Biological Systems" "Ettore Majorana Foundation and Center for Scientific Culture", Erice Italy. Director of the School: Prof. F. Bersani, Director of the course: Prof. G. d'Inzeo.
- **16/11/2005–18/11/2005** Participation to the "International Advanced School on Non Linear Analysis of Complex Dynamical Systems" at the "Center for the study of complex systems" University of Siena, Italy.
- **21/02/2005 26/02/2005:** Participation to the "1st Cours of the European School of Antennas 2005, Antenna Center of Excellence", "High Frequency Technique and Traveling-Wave Antennas" at the University of Siena and Sapienza University of Rome, Italy. Directors of the course: Prof. S. Maci and Prof. F. Frezza.
- **19/09/2005 23/09/2005:** Participation to the "European School of Antennas 2005, Antenna Center of Excellence", "Computational EM for Antenna Analysis" at "Politecnico di Torino", Italy. Director of the course: Prof. G. Vecchi.

24/01/ 2018

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