Curriculum vitae

PERSONAL INFORMATION

Stefania Romeo

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http://www.irea.cnr.it/index.php?option=com_comprofiler&task=userProfile&user=136&Itemid=100

Date of birth 19 Mar 1985 | Nationality Italian

POSITION

Senior Researcher

WORK EXPERIENCE

01/01/2023 - Present

Senior Researcher

Italian National Research Council (CNR) - Institute for Electromagnetic Sensing of the Environment (IREA)
via Diocleziano 328, 80124 Napoli (Italy)
http://www.irea.cnr.it/
Business or sector Public Research Institute

27/12/2018–31/12/2022

Research Scientist

Italian National Research Council (CNR) - Institute for Electromagnetic Sensing of the Environment (IREA)
via Diocleziano 328, 80124 Napoli (Italy)
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Business or sector Public Research Institute

15/03/2016–26/12/2018

Fixed Term Researcher

Italian National Research Council (CNR), Institute for Electromagnetic Sensing of the Environment (IREA)
via Diocleziano 328, 80124 Napoli (Italy)
www.irea.cnr.it

Business or sector Public Research Institute

01/06/2012–14/03/2016

Research Fellow

Italian National Research Council (CNR), Institute for Electromagnetic Sensing of the Environment (IREA),
via Diocleziano 328, 80124 Napoli (Italy)
www.irea.cnr.it

Business or sector Public Research Institute

11/2011–05/2012

Fixed term contractor

Dept. of Information Engineering of the Second University of Naples, Aversa (Italy)

Strain and temperature measurements in railway infrastructures by means of distributed, fiber optic sensors

Business or sector Public University

04/2009–05/2009

Fixed term contractor

Dept. of Biomedical, Electronic and Telecommunication Engineering of the University of Naples Federico II, Napoli (Italy)

Data processing of broadband measurements of electromagnetic fields and transfer to GIS (Geographic Information System) in the framework of the project "Evaluation of the background level of electromagnetic fields in urban environment in the Province of Naples".

Business or sector Public University

EDUCATION AND TRAINING

2009–2012

PhD in Electronic Engineering

Second University of Naples, Dept. of Information Engineering, Aversa (Italy)

Pulsed power technology for bioelectrics: realization of a nanosecond, high voltage, Blumlein-type pulse generator and pilot biological experiments

06/2009–10/2009

Master course

Dept. of Biomedical, Electronic and Telecommunication Engineering of the University of Naples Federico II, Napoli (Italy)

Electromagnetic fields: risks and protection

2006–2008

Master's degree in biomedical engineering, grade 110/110 cum laude

University of Naples Federico II, Napoli (Italy)

2003–2006

Bachelor's degree in biomedical engineering, grade 110/110 cum laude

University of Naples Federico II, Napoli (Italy)

PERSONAL SKILLS

Mother tongue(s) Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills Good communication skills gained through oral presentations at national and international events and through frontal lessons

Job-related skills Good R&D skills developed through work in a research group focused on the research fields of Biomedical applications of electromagnetic fields, Bioelectromagnetics, bioelectrics, electromagnetic dosimetry. More specifically, the research activity is mainly related with:

- Design and development of in vitro exposure systems to nanosecond pulsed electric fields.
- Numerical and experimental electromagnetic dosimetry at radiofrequencies and microwaves.
- Electroporation: biophysical aspects and biomedical applications
- Study of the interaction between biological systems and electric, magnetic and electromagnetic

fields by experimental and modelling approaches.

- Evaluation of occupational exposure to electromagnetic fields.
- THz spectroscopy techniques for the study of electroporation phenomenon.
- Systematic review of the literature concerning biological effects of electromagnetic fields
- Measurements of environmental levels of electric, magnetic and electromagnetic fields from low to high frequencies, in indoor and outdoor contexts

Good skills on writing of scientific papers, technical reports and research projects

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Independent user	Independent user	Independent user

Digital skills - Self-assessment grid

Driving licence B

ADDITIONAL INFORMATION

Publications

Peer-reviewed Journals and Book Chapters

1. Anna Sannino, Stefania Romeo, Maria Rosaria Scarfì, Daniele Pinchera, Fulvio Schettino, Mario Alonzo, Mariateresa Allocca, Olga Zeni, The effect of exposure to radiofrequency LTE signal and coexposure to mitomycin‐C in Chinese hamster lung fibroblast V79 cells, Bioelectromagnetics 2023;1–12. DOI: 10.1002/bem.22478
2. Stefania Romeo and Olga Zeni, Microwave Heating for the Conservation of Cultural Heritage Assets: A Review of Main Approaches and Challenges, IEEE Journals of Electromagnetics, RF and Microwaves in Medicine and Biology, 2022.
3. Anna Sannino, Maria Rosaria Scarfì, Mélody Dufossée, Stefania Romeo, Loredana Poeta, Valerie Prouzet-Mauléon, Muriel Priault and Olga Zeni, Inhibition of Autophagy Negates Radiofrequency-Induced Adaptive Response in SH-SY5Y Neuroblastoma Cells, Int. J. Molecular Science, 2022, 23, 8414
4. Stefania Romeo, Olga Zeni, Maria Rosaria Scarfì, Loredana Poeta, Maria Brigida Lioi, and Anna Sannino, Radiofrequency Electromagnetic Field Exposure and Apoptosis: A Scoping Review of In Vitro Studies on Mammalian Cells, Int. J. Molecular Science, 2022, 23, 2322
5. V. Hartwig, G. Virgili, F. Mattei, C. Biagini, S. Romeo, O. Zeni, M.R. Scarfì, R. Massa, F. Campanella, L. Landini, F. Gobba, A. Modenese, G. Giovannetti, Occupational exposure to electromagnetic fields in magnetic resonance environment: an update on regulation, exposure assessment techniques, health risk evaluation, and surveillance, Medical and Biological Engineering and Computing, 60(2), 297-320, 2022.
6. Olga Zeni, Stefania Romeo, Anna Sannino, Rosanna Palumbo, Maria Rosaria Scarfì. Evidence of bystander effect induced by radiofrequency radiation in a human neuroblastoma cell line, Environmental Research, 196: 110935, 2021
7. Stefania Romeo, Olga Zeni, Anna Sannino, Susanna Lagorio, Mauro Biffoni, Maria Rosaria Scarfì, Genotoxicity of radiofrequency electromagnetic fields: Protocol for a systematic review of in vitro studies, Environment International, Volume 148, March 2021, 106386
8. Stefania Romeo, Anna Sannino, Olga Zeni, Leopoldo Angrisani, Rita Massa, and Maria Rosaria Scarfì, Effects of Radiofrequency Exposure and Co-Expo-sure on Human Lymphocytes: the Influence of Signal Modulation and Bandwidth, IEEE Journal of Electromagnetics RF and Microwaves in Biology and Medicine, 2020, vol. 4 (1): 17-23
9. A Sannino, O Zeni, S Romeo, MB Lioi, MR Scarfì, Treatment with 3-Aminobenzamide Negates the Radiofrequency-Induced Adaptive Response in Two Cell Models, International journal of

environmental research and public health 2019, 16, 2768.

10. Stefano Falone, Anna Sannino, Stefania Romeo, Olga Zeni, Silvano Jr. Santini, Roberta Rispoli, Fernanda Amicarelli, Maria Rosaria Scarfì. Protective effect of 1950 MHz electromagnetic field in human neuroblastoma cells challenged with menadione, Scientific Reports, 2018, 8(1), 13234

11. Stefania Romeo, Anna Sannino, Maria Rosaria Scarfì, P. Thomas Vernier, Ruggero Cadossi, Julie Gehl, Olga Zeni, ESOPE-equivalent pulsing protocols for calcium electroporation: an in vitro optimization study on two cancer cell models, Technology in Cancer Research and Treatments, 2018 17: 1533033818788072

12. Stefania Romeo, P. Thomas Vernier, Olga Zeni, Electroporation-Induced Cell Modifications Detected with THz Time-Domain Spectroscopy. J Infrared Milli THz Waves, 2018, 39(9), pp. 854-86

13. Patrizia Lamberti, Michele Compitiello, Stefania Romeo, ns pulsed electric field -induced action potentials in the circuital model of an axon. IEEE Trans. On Nanobioscience, 2018, 17(2), pp. 110-116

14. Hartwig V., Romeo S., Zeni O., Occupational exposure to electromagnetic fields in magnetic resonance environment: basic aspects and review of exposure assessment approaches. Medical and Biological Engineering and Computing 2018, DOI: 10.1007/s11517-017-1779-7

15. Sannino A, Romeo S, Scarfì MR, Massa R, d'Angelo R, Petrillo A, Cerciello V, Fusco R and Zeni O (2017) Exposure Assessment and Biomonitoring of Workers in Magnetic Resonance Environment: An Exploratory Study. Front. Public Health 5:344. doi: 10.3389/fpubh.2017.00344

16. Anna Sannino, Olga Zeni, Stefania Romeo, Rita Massa, Maria Rosaria Scarfì, Adverse and beneficial effects in chinese hamster lung fibroblast cells following radiofrequency exposure, Bioelectromagnetics 38(4): 245-254, 2017.

17. Esin B. Sozer, Yu-Hsuan Wu, Stefania Romeo, P. Thomas Vernier, Nanometer-scale permeabilization and osmotic swelling induced by 5 ns pulsed electric fields, J Membrane Biol (2017) 250: 21. doi:10.1007/s00232-016-9918-x

18. Stefania Romeo, Anna Sannino, Maria Rosaria Scarfì, Rita Massa, Raffaele d'Angelo, Olga Zeni, Lack of effects on key cellular parameters of MRC-5 human lung fibroblasts exposed to 370 mT static magnetic field, Scientific Reports 6, Article number: 19398 (2016) doi:10.1038/srep19398

19. Patrizia Lamberti, Stefania Romeo, Anna Sannino, Luigi Zeni, Olga Zeni, The role of pulse repetition rate in nsPEF-induced electroporation: a biological and numerical investigation, IEEE Trans. On Biomedical Engineering, 62(9): 2234-2243, 2015.

20. Emilie Louise Hansen, Esin Bengisu Sozer, Stefania Romeo, Stine Krog Frandsen, P. Thomas Vernier, Julie Gehl, Dose-dependent ATP depletion and Cancer Cell Death following Calcium Electroporation, Relative Effect of Calcium Concentration and Electric Field Strength, PLoS ONE, 10(4):e0122973

21. Olga Zeni, Anna Sannino, Stefania Romeo, Federico Micciulla, Stefano Bellucci, Maria Rosaria Scarfì, Growth inhibition, cell cycle alteration and apoptosis in stimulated human peripheral blood lymphocytes by multiwalled carbon nanotube buckypaper, Future Medicine – Nanomedicine, 2015, 10(3): 351-360

22. Amerigo Beneduci, Katia Cosentino, Stefania Romeo, Rita Massa, Giuseppe Chidichimo, Effect of millimetre waves on phosphatidylcholine membrane models: a non-thermal mechanism of interaction, Soft Matter, 2014, 10(30): 5559-5567

23. Martina Albini, Simone Dinarelli, Francesco Pennella, Stefania Romeo, Emiliano Zampetti, Marco Girasole, Umberto Morbiducci, Rita Massa, Alfonsina Ramundo-Orlando, Induced movements of giant vescicles by millimeter wave radiation, BBA-Biomembranes, 1838, pp 1710-1718, 2014.

24. Anna Sannino, Olga Zeni, Stefania Romeo, Rita Massa, Giancarlo Gialanella, Gianfranco Grossi, Lorenzo Manti, Vijayalaxmi, Maria Rosaria Scarfì, Adaptive response in human blood lymphocytes exposed to non-ionizing rediofrequency fields: resistance to ionizing radiatio-induced damage, J. Radiation Research 55, pp 210-217, 2014.

25. Stefania Romeo, Claudio D'Avino, Olga Zeni, Luigi Zeni, A Blumlein-type, Nanosecond Pulse Generator with Interchangeable Transmission Lines for bioelectrical applications, IEEE Trans. on Dielectrics and Electrical Insulation, Vol. 20, Issue 4, pp. 1224-1230, August 2013.

26. Patrizia Lamberti, Vincenzo Tucci, Stefania Romeo, Anna Sannino, Maria Rosaria Scarfì, Olga Zeni, nsPEF-induced effects on cell membranes: the use of an electrophysical model to optimize the experimental design, IEEE Trans. on Dielectrics and Electrical Insulation, Vol. 20,

Issue 4, pp. 1231-1238, August 2013.

27. Stefania Romeo, Yu-Hsuan Wu, Zachary A. Levine, Martin A. Gundersen, P. Thomas Vernier, Water influx and cell swelling after nanosecond electropermeabilization, BBA-Biomembranes 1828 (2013), 1715-1722 DOI: 10.1016/j.bbamem.2013.03.007.

28. Stefania Romeo, Claudio D'Avino, Daniele Pinchera, Olga Zeni, Maria Rosaria Scarfì, Rita Massa, A waveguide applicator for in vitro exposures to single or multiple ICT frequencies, IEEE Trans. Microwave Theory and Techniques, Vol. 61, No. 5, May 2013, pp: 1994-2004 DOI: 10.1109/TMTT.2013.2246185.

29. Gianluca Gennarelli, Stefania Romeo, Maria Rosaria Scarfì, Francesco Soldovieri, A microwave resonant sensor for concentration measurements of liquid solutions, IEEE Sensors J., Vol. 13 (5): 1857-1864, DOI: 10.1109/JSEN.2013.2244035 .

30. Zeni O., Sannino A., Romeo S., Massa R., Sarti M., Reddy A.B., Prihoda T.J., Vijayalaxmi and Scarfí M.R. Induction of Adaptive Response in Human Blood Lymphocytes Exposed to Radiofrequency Fields: Influence of UMTS Signal and Specific Absorption Rate. 2012. Mutation Research – Genetic Toxicology and Environmental Mutagenesis, 747(1):29-35

31. Olga Zeni, Anna Sannino, Maurizio Sarti, Stefania Romeo, Rita Massa, and Maria R. Scarfì, Radiofrequency Radiation at 1950 MHz (UMTS) Does Not Affect Key Cellular Endpoints in Neuron-Like PC12 Cells. Bioelectromagnetics 2012, 33(6):497-507; DOI 10.1002/bem.21712

32. Romeo S, Zeni L, Sarti M, Sannino A, Scarfì MR, Vernier PT, Zeni O. DNA Electrophoretic Migration Patterns Change after Exposure of Jurkat Cells to a Single Intense Nanosecond Electric Pulse. 2011. PLoS ONE 6(12): e28419. doi:10.1371/journal.pone.0028419

33. A. Sannino, O. Zeni, M. Sarti, S. Romeo, S. B. Reddy, M. A. Belisario, T. J. Prihoda, Vijayalaxmi, M. R. Scarfì, Induction of adaptive response in human blood lymphocytes exposed to 900 MHz radiofrequency fields: Influence of cell cycle, International Journal of Radiation Biology, 87 (7): 1-8, 2011

34. S. Romeo, L. Di Donato, O.M. Bucci, I. Catapano, L. Crocco, M.R. Scarfì, R. Massa, Dielectric characterization study of liquid based materials for mimicking breast tissues, Microwave and Optical Technology Letters, 53 (6): 1276-1280, 2011

35. S. Romeo, M. Sarti, M.R. Scarfì, L. Zeni, Modified Blumlein pulse forming networks for bioelectrical applications, Journal of Membrane Biology 236 (1): 55-60, 2010.

36. Lukes P, Akiyama H, Jiang C, Doria A, Gallerano GP, Ramundo-Orlando A, Romeo S, Scarfì MR, Zeni O. Special electromagnetic agents: from cold plasma to pulsed electromagnetic radiation. In Bioelectrics. Chap. 3: 109-154. H. Akiyama and R. Heller Eds. ISBN 978-4-431-56093-7; DOI 10.1007/978-4-431-56095-1. Springer Japan.

Editorial Activity

- **Member of the Technical Program Review Committee** of the BioEM 2015, BioEM 2016, BioEM 2017, BioEM2018, BioEM2020, BioEm2021, BioEM 2022, BioEM 2023 conferences
- **Member of the Technical Program Review Committee** of EUCAP 2020, EUCAP 2021, EUCAP 2022, EUCAP 2023
- **Member of the Technical Program Review Committee** of IEEE Sensors 2020
- **Member of the Scientific Programme Committee** of the 4th and 5th World Congress on Electroporation
- 2017- 2019: **Editorial Board member** of "The Open Biomedical Engineering Journal" (Bentham Open)
- June 2023 – to date: **Editorial Board member** of "Electromagnetic Biology and Medicine" (Taylor&Francis)
- **Guest Editor for the special issue** "Electric, Magnetic, and Electromagnetic Fields in Biology and Medicine: From Mechanisms to Biomedical Applications, Volume II", Bioengineering (MDPI)

Reviewer Activity

2012 – to date: Reviewer for the following peer-reviewed journals and books:

- IEEE Transactions on Microwave Theory and Techniques; IEEE Transactions on Plasma Science; CRC press; IEEE Access; IEEE Transactions on Dielectrics and Electrical Insulation; IEEE Journal of Electromagnetics RF and Microwaves in Medicine and Biology; IEEE Transactions on Instrumentation and Measurements; IEEE Transactions on Biomedical Engineering; IET Microwaves Antennas and Propagation; International Journal of Infrared and Millimeter Waves; International Journal of Circuit Theory and Applications; International Journal

of Antennas and Propagation; Engineering Science and Technology, and International Journal; Progress in Electromagnetic Research; Biomedical Physics and Engineering Express; Bioelectromagnetics; Bioelectrochemistry; Scientific Reports; PloSOne; International Journal of Environmental Research and Public Health; International Journal of Radiation Biology; Applied Sciences; Technology in Cancer Research and Treatments.

Honours and awards

- **10/09/2015:** Young Investigator Competition – 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies
- **2/12/2016:** 2016 Best Italian Electromagnetic Compatibility Poster Prize, presented at 2016 IEEE EMC day

Conferences

- Participation as oral or poster presenter to national and international conferences (BioEM, World Congress on Electroporation, IEEE conferences).
- **Keynote Speaker** at the 8th International THz-Bio workshop (4-6/10/2017, Frascati, Italy). Presentation title: “THz spectroscopy for electroporation”.
- **Chair of the special session** entitled *Short and Ultrashort Pulsed Electric Fields for Biomedical and Industrial Applications*, during the Photonics and Electromagnetics Research Symposium (PIERS) 2019, Rome.
- **Chair of the special session** entitled *Modeling and circuit design for Electroporation*, during the 14th International Conference on synthesis, modeling, analysis and simulations method and applications to circuit design (SMACD2017), Taormina.
- **Member of the Local Organizing Committee** of the V National Meeting “Interactions between electromagnetic fields and bio-systems” (ICEMB), Salerno 2018.

Projects

- **Project responsibility**: PI of the **DEEPEST** (Digging into rEversible and irreversible ElectroPoration: in vitro and in silico multiphysical analyses on cEll modelS for cancer Treatment) project, funded by the **Italian Ministry of Education and Research under the program PRIN 2022** (2023-2025)
- **Project responsibility**: **CACEMBAS** (Catasto Campi Elettromagnetici Regione Basilicata), funded by Regione Basilicata (2020-2022)
- **Project responsibillity**: **MARE** (Safety at sea. A campaign to raise awareness and train workers in the maritime sector on the risks of occupational exposure to electromagnetic fields and biomechanical overload), technical assistance contract funded by University of Naples.
- Participation to the **Horizon Europe** funded project **NextGem** - Next Generation Integrated Sensing and Analytical System for Monitoring and Assessing Radiofrequency Electromagnetic Field Exposure and Health (2022-2026)
- Participation to several projects funded at regional (POR FESR Campania 2014-2020; INAIL Regione Campania; Legge 5 Regione Campania), national (PRIN 2017, BRIC 2018) and international (Agence Nationale de Securitè, Sanitaire de l’Alimentation, Environment, Travail, ANSES, France; COST Actions) levels.

Teaching Activities

- Teacher for the ESOA (European School of Antennas) School, Course on "Electromagnetics in Diagnostics and Therapy", Editions 2015, 2017, 2019, 2022
- Lecturer for the Course on "Electromagnetic Fields in Diagnostics and Therapy", Faculty of Biomedical Engineering, University of Naples, Federico II
- Teacher for the Course on “Biological effects of non-ionizing radiations”, master’s degree in electronic engineering, University of Campania Luigi Vanvitelli (AA 2021-2022)
- Teacher at the International School of Bioelectromagnetism “Alessandro Chiabrera”, Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Italy (2019)

Other Activities

- Visiting scientist at University pf Copenhagen, Herlev Hospital (Dr Julie Gehl’s laboratory), in the framework of a short term scientific mission funded by the COST Action TD1104 “European Network for the development of Electroporation-based technologies and treatments” (May 2014)

- Visiting student at University of Southern California (USC), Viterbi School of Engineering, Ming Hsieh Dept. of Electrical Engineering - Electrophysics (Los Angeles, CA, USA), Dr Tom Vernier's laboratory. Experimental activities on biological effects of nanosecond pulsed electric fields (2010-2011)
- Tutor for students of bachelor's and master's degree in biomedical engineering (Univ. of Naples, Federico II) and electronic engineering (University of Campania "Luigi Vanvitelli")