

ALESSANDRA PAFFI

Curriculum Vitae

(ai fini della pubblicazione)

Place: Manziana (Roma)

Date: 21-08-2024

Part I – General Information

Full Name	Alessandra Paffi
Citizenship	Italian
Spoken Languages	Italian (native language), English (good knowledge), French (good knowledge)

Public contacts:

ORCID: <https://orcid.org/0000-0003-0408-8348>

SCOPUS: <https://www.scopus.com/authid/detail.uri?authorId=23390136900>

WOS: <https://www.webofscience.com/wos/author/record/2374789>

IEEEEXPLORE: <https://ieeexplore.ieee.org/author/37264880900>

WEBSITE SAPIENZA: <https://corsidilaurea.uniroma1.it/it/users/alessandrapaffiuniroma1it>

Part II – Education and qualification

Type	Date	Institution	Notes
Qualification (ASN), round 2016	16-10-2018 (5 th quarter)	MIUR	National Scientific Qualification (ASN) II level (09/G2) Bioingegneria
Qualification (ASN), round 2016	31-03-2017 (1 st quarter)	MIUR	National Scientific Qualification (ASN) II level (09/F1) Campi elettromagnetici
Ph.D.	07-02-2005	Sapienza University of Rome	Ph.D. Degree in Electronic Engineering (XVII cycle); Ph.D. Thesis: “Development of an integrated interaction model on the basis of theoretical and experimental studies”; Tutor: Prof. G. d’Inzeo
Qualification	2000 (II session)	Sapienza University of Rome	Professional engineering qualification
University graduation	17-12-1999	Sapienza University of Rome	Master Degree in Electronic Engineering; graduation grade: summa cum laude and dignity of the Thesis publication Thesis: “Blind source separation by neural networks”; Tutor: Prof. V. Cimagalli
High school degree	July 1989	Liceo Scientifico “Ignazio Vian”, Bracciano (Rome)	Scientific high school, grade: 60/60

Part III – Appointments

IIIA – Academic Appointments

Summary:

Academic Appointments to date with a total duration of **12 years and 9 months** detailed below:

- **4 years and 10 months RTD:** 1 year and 10 months RTD-A (art. 24, comma 3, lett. a, L. 240/2010); 3 years RTD (art.1 comma 14 L. 230/05);
- **6 years and 6 months Research fellow** (3,5 years art. 22, L. 204/2010; 3 years L. 230/05);
- **17 months Research collaborator.**

Details:

Start	End	Institution	Position
13-10-2022	12-10-2025 (current contract)	Department of Information Engineering, Electronics and Telecommunications (DIET), Sapienza University of Rome	Assistant professor RTD-A (art. 24, comma 3, lett. a, L. 240/2010) (3 years contract) Activity: "Theory and applications of the electromagnetic fields" (ING-INF/02) On University funds (2021 hiring planning resources); Supervisor: Prof. Francesca Apollonio
01-04-2019	12-10-2022	Italian Inter-University Center for the Study of Electromagnetic Fields and Biological Systems (I.C.Em.B.), Università degli Studi di Genova, Italy	Research fellow (art. 22, L. 240/2010) (3,5 years) Activity: "Development of in vitro and in vivo applicators for the electromagnetic stimulation of tumor lesions and their dosimetry" (ING-INF/02) On research group funds (IGEA S.p.A. third party contract); Supervisor: Prof. Micaela Liberti
01-05-2016	31-07-2016	Department of Information Engineering, Electronics and Telecommunications (DIET), Sapienza University of Rome	Research collaborator (Co.Co.Co.) Activity: "Numerical and experimental characterization of TMS coils" (ING-INF/02) On research group funds (EMS medical s.r.l. third party Contract); Supervisor: Prof. Micaela Liberti
01-05-2011	30-04-2014	Department of Information Engineering, Electronics and Telecommunications (DIET), Sapienza University of Rome	Assistant professor RTD (art.1 comma 14 L. 230/05) (3 years contract) Activity: "Low impact monitoring of human physiologic parameters in domestic environments using micro-nano sensors" (ING-INF/02) Co-financed by the Lazio Region; Supervisor: Prof. Guglielmo d'Inzeo
01-12-2008	30-11-2010	Department of Information Engineering, Electronics and Telecommunications (DIET), Sapienza University of Rome	Research fellow (L. 230/2005) (2 years) Activity: "Design and characterization of exposure systems for biological experiments in the radiofrequency range and analysis of the acquired physiological signals" (ING-INF/02) On research group funds (PRIN 2007); Supervisor: Prof. Micaela Liberti
01-03-2008	31-07-2008	Italian Inter-University Center for the Study of Electromagnetic Fields and Biological Systems (I.C.Em.B.), Università degli Studi di Genova, Italy	Research collaborator (Co.Co.Co.) Activity: "Analysis of models of interaction between EM fields and biosystems: plausibility evaluation" (ING-INF/02) Supervisor: Prof. Guglielmo d'Inzeo
01-11-2007	31-12-2007	Department of Electronic Engineering, Sapienza University of Rome	Research collaborator (Co.Co.Co.) Activity: "Evaluation of the demodulation efficiency of pulsed signals in a stochastic model of neuronal cells" (ING-INF/02) On research group funds (PRIN 2005); Supervisor: Prof. Guglielmo d'Inzeo
01-07-2007	30-09-2007	Italian Inter-University Center for the Study of Electromagnetic Fields and Biological Systems (I.C.Em.B.), Università degli Studi di Genova, Italy	Research collaborator (Co.Co.Co.) Activity: "Preliminary report on EMF-NET WP 2.5 project (interaction mechanisms)" (ING-INF/02) On EU Project funds (EMF-NET Project, Sixth Framework Programme, European Commission) Supervisor: Prof. Guglielmo d'Inzeo
03-10-2005	02-10-2006	Italian Inter-University Center for the Study of Electromagnetic Fields and Biological Systems (I.C.Em.B.), Università degli Studi di Genova, Italy	Research fellow (L. 230/2005) (1 years) Activity: "Evaluation of the endogenous electric field in macromolecules of biological interest" (ING-INF/02) Supervisor: Prof. Bruno Bianco

01-06-2005	30-09-2005	Italian Inter-University Center for the Study of Electromagnetic Fields and Biological Systems (I.C.Em.B.), Università degli Studi di Genova, Italy	Research collaborator (Co.Co.Co.) Activity: “Design and experimental characterization of exposure systems for real-time electrophysiological measurements in brain slices” (ING-INF/02) On EU Project funds (RAMP2001 Project, Fifth Framework Programme, European Commission) Supervisor: Prof. Guglielmo d’Inzeo
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IIIB – Other Research Appointments

<i>Start</i>	<i>End</i>	<i>Institution</i>	<i>Position</i>
14-03-2011	31-05-2011	RISE Technology S.r.l.	Research collaborator (contratto collaborazione occasionale) Activity: “Study and analysis of the interaction between electric fields and biological systems; numerical calculation of the electric field induced by flexible electrodes for electroporation”- "ELECTROFLEX" – POR FESR Lazio 2007/2013 Project n. FILAS-RS-2009-1209 –Projects for research, development and innovation of PMI.
12-01-2007	14-02-2007	Sezione di Tossicologia a Scienze Biomediche, Centro Ricerche Casaccia, Ente per le Nuove Tecnologie, l’Energia e l’Ambiente (ENEA)	Fixed-term contract for research activity Activity: “Characterization of the Wi-Fi signal for in vivo exposures”

IIIC – Member of Competition Commissions

<i>Year</i>	<i>Institution</i>	<i>Position</i>
2024	DIET, Sapienza University of Rome	Research fellowship (AR-B) “Dosimetria di stimolazione magnetica transcranica cerebellare”, Scientific Supervisor: Prof. Micaela Liberti
		Senior Scholarship (BS Senior) “Modellistica molecolare di reazioni di trasferimento elettronico in proteine cellulari in presenza di un campo EM”, Scientific Supervisor: Prof. Francesca Apollonio
		Research fellowship (AR-B) “In silico models to investigate the interaction mechanisms at cellular level with 5G signals” Scientific Supervisor: Prof. Francesca Apollonio
2023	DIET, Sapienza University of Rome	External collaboration (ICE) “Studio degli effetti del campo elettromagnetico su strutture proteiche in soluzione acquosa tramite tecniche di dinamica molecolare classica”, Scientific Supervisor: Dr. Alessandra Paffi

Part IV – Teaching experience

IVA – International academic assignments

<i>Year</i>	<i>Institution</i>	<i>Lecture/Course</i>
2016	Center for Scientific Culture “Ettore Majorana”, Erice, Italy	Invited lecturer at the 8 th course of the International School of Bioelectromagnetics “Alessandro Chiabrera”, “Electromagnetic Fields and the Nervous System: Biological Effects, Biophysical Mechanisms, Methods, and Medical Applications”
2012	Center for Scientific Culture “Ettore Majorana”, Erice, Italy	Lecturer at the 6 th course of the International School of Bioelectromagnetics “Alessandro Chiabrera”, “Static and Low Frequency Magnetic Fields: Physical Concepts, Biological Effects, Mechanisms and Limit Setting”
2010	Center for Scientific Culture “Ettore Majorana”, Erice, Italy	Substitute lecturer at the 5 th course of the International School of Bioelectromagnetics “Alessandro Chiabrera”, “Medical applications of electromagnetic fields”
2006	Center for Scientific Culture “Ettore Majorana”, Erice, Italy	Rapporteur at the 3 rd course of the International School of Bioelectromagnetics “Alessandro Chiabrera”, “Mechanisms of interaction between electromagnetic fields and biological systems”

IVB – National academic assignments

- Member of the CAD of Clinical and Biomedical Engineering, Sapienza University of Rome;
- Member, as president or examiner, of more than 250 examination commissions in Master and Bachelor Degree Courses;
- Member of more than 30 Master's and Bachelor's Degree commissions.

Summary of the credits assigned in academic Courses:

SSD	n. AYs	From	To	Courses	Tot. CFU
ING-INF/02	13	2013/2014	now	"Electromagnetic compatibility of medical devices", Master degree in Biomedical Engineering, Sapienza University of Rome (6 CFU)	72
		2011/2012	2012/2013	"Laboratory of high frequency measurements", Master degree in Electronic Engineering, Sapienza University of Rome (3 CFU)	
ING-INF/06	9	2015/2016	2021/2022	"Processing of biomedical data and signals II", Master degree in Biomedical Engineering, Sapienza University of Rome (3 CFU)	31
		2007/2008	2008/2009	"Bioelectromagnetic interaction", Master degree in Biomedical Engineering, University "Campus Biomedico" of Rome (5 CFU)	
ING-IND/11	1	2013/2014	2013/2014	"Techniques and technology of prevention", Bachelor degree in Techniques of prevention in the environment and in the workplace, Sapienza University of Rome, location of Rieti	1

Details of the national academic assignments:

Year	Institution	Course
2023/2024 2022/2023	Sapienza University of Rome	Professor of "Electromagnetic compatibility of medical devices" (ING-INF/02) (6 CFU), Master degree in Biomedical Engineering
2021/2022 2020/2021 2019/2020 2018/2019 2017/2018 2016/2017 2015/2016	Sapienza University of Rome	Contract professor of "Electromagnetic compatibility of medical devices" (ING-INF/02) (6 CFU), Master degree in Biomedical Engineering Contract professor of "Processing of biomedical data and signals II" (ING-INF/06) (3 CFU), Master degree in Biomedical Engineering
2014/2015	Sapienza University of Rome	Contract professor of "Electromagnetic compatibility of medical devices" (ING-INF/02) (6 CFU), Master degree in Biomedical Engineering
2013/2014	Sapienza University of Rome	Professor of "Electromagnetic compatibility of medical devices" (ING-INF/02) (6 CFU), Master degree in Biomedical Engineering
	Sapienza University of Rome, location of Rieti	Professor of "Techniques and technology of prevention" (ING-IND/11) (1 CFU), Bachelor degree in Techniques of prevention in the environment and in the workplace
2012/2013 2011/2012	Sapienza University of Rome	Professor of "Laboratory of high frequency measurements" (ING-INF/02) (3 CFU), Master degree in Electronic Engineering
2008/2009	University "Campus Biomedico" of Rome	Contract professor of "Bioelectromagnetic interaction" (ING-INF/06) (5 CFU), Master degree in Biomedical Engineering
		Tutor of "Bioelectromagnetic Interaction" (ING-INF/06), Master degree in Biomedical Engineering
2007/2008	University "Campus Biomedico" of Rome	Contract professor of "Bioelectromagnetic interaction" (ING-INF/06) (5 CFU), Master degree in Biomedical Engineering
		Tutor of "Bioelectromagnetic interaction" (ING-INF/06), Master degree in Biomedical Engineering

	Sapienza University of Rome	Tutor of “Electronics – Electromagnetic fields” (ING-INF/01, ING-INF/02), Faculty of Engineering
2006/2007	University “Campus Biomedico” of Rome	Tutor of “Bioelectromagnetic interaction” (ING-INF/06), Master degree in Biomedical Engineering
	Sapienza University of Rome	Tutor of “Electronics – Electromagnetic fields” (ING-INF/01, ING-INF/02), Faculty of Engineering
2005/2006	University “Campus Biomedico” of Rome	Tutor of “Bioelectromagnetic interaction” (ING-INF/06), Master degree in Biomedical Engineering
from 2002	Sapienza University of Rome	Teaching collaborator: seminars, exercises, exams, co-supervision of degree thesis, for the courses of “Bioelectromagnetic interaction” (Prof. Guglielmo d’Inzeo) first and second module, “Electromagnetic fields” (Prof. Francesca Apollonio and Prof. Micaela Liberti), “Electromagnetic fields and nanosystems” (Prof. Micaela Liberti and Prof. Francesca Apollonio), “Electrical Measurements” (Prof. Emanuele Piuze).

IVC – Teaching assignments in Masters and training courses (third mission)

<i>Year</i>	<i>Institution</i>	<i>Lecture/Course</i>
2020	ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale)	Lecturer at the training course: “Risk assessment of exposure to electromagnetic fields in living and working environments and measurement techniques”, suppressed due to the COVID-19 pandemic
2016		Lecturer at the training course: “Risk assessment of exposure to electromagnetic fields in living and working environments and measurement techniques”
2015		
2014		
2013		
2006/2007	Università degli Studi di Perugia	Lecturer at the course “Interazione e rischio elettromagnetico”, Master I deg. “Tecnologia, economia e gestione dei sistemi radio”
	Sapienza University of Rome	Lecturer at the course: “Protezione dalle radiazioni non ionizzanti”, Master II deg. “Sicurezza e Protezione”
2005/2006	Sapienza University of Rome	Lecturer at the course: “Protezione dalle radiazioni non ionizzanti”, Master II deg. “Sicurezza e Protezione”

IVD – Support activity for students

<i>Year</i>	<i>Institution</i>	<i>Role</i>
From 2011	Sapienza University of Rome	Supervisor of 31 Master Degree theses in Biomedical Engineering Supervisor of 1 Master Degree thesis in Electronic Engineering Supervisor of 10 Bachelor Degree theses in Clinical Engineering
From 2007		Support activity for 11 Ph.D. students in “Information and Communications Technologies (ICT)” and “Electronic Engineering”: XXXIX cycle (from 2023), Amir Ghassabi, research activity “Biomedical application, Nanosystems in Electromagnetics application”, Tutor Prof. Francesca Apollonio; XXXVIII cycle (from 2022), Noemi Dolciotti, research activity “Bioelectromagnetism and Biomedical Devices”, Tutor Prof. Micaela Liberti; XXXVIII cycle (from 2022), Carmen Pisano, research activity “Bioelectromagnetism and Biomedical Devices”, Tutor Prof. Francesca Apollonio; XXXVII cycle (from 2021), Sara Fontana, research activity “Therapeutic Applications of Electric and Magnetic Fields”, Tutor Prof. Micaela Liberti; XXXIV cycle (2018-2021), Laura Caramazza, research activity “Electromagnetic fields and Nanosystems for Biomedical Applications”, Tutor Prof. Francesca Apollonio; XXXIII cycle (2017-2020), Micol Colella, research activity “Noninvasive electric and magnetic stimulation of the brain: numerical modeling and

	dosimetrical assessment”, Tutor Prof. Micaela Liberti; XXX cycle (2014-2017), Elena Della Valle, research activity “Nanomedicine Applications mediated by Electromagnetic fields”, Tutor Prof. Francesca Apollonio; XXVIII cycle (2012-2015), Francesca Camera, research activity “Electrical and magnetic stimulation of the central nervous system: identification of action mechanisms and optimization of applications” Tutor Prof. Micaela Liberti; XXVIII cycle (2012-2015), Maura Casciola, research activity “Study of the interaction of electromagnetic fields and smart carriers for the applications of controlled release of drugs: theoretical and experimental characterization”, Tutor Prof. Francesca Apollonio; XXVII cycle (2011-2014), Agnese Denzi, research activity “Technological and Theoretical Studies of Effects of Ultra-Short Pulses on the Biological System”, Tutor Prof. Micaela Liberti; XXII cycle (2007-2011), Fernando Maggio “Stimolazione elettrica e magnetica del sistema nervoso: studi teorici e sviluppo terapeutico”, Tutor Prof. Guglielmo d’Inzeo.
From 2004	Co-supervisor of more than 50 Bachelor and Master Degree theses in Biomedical Engineering, Clinical Engineering, Electronic Engineering, Communications Engineering; Supervisors: Prof. Guglielmo d’Inzeo, Prof. Francesca Apollonio, Prof. Micaela Liberti, Prof. Alessandro Galli.

IVE – Teaching at School

<i>From - To</i>	<i>Institution</i>
26-11-2001 – 15-12-2001	Substitute teacher of Informatics at the High School “Luca Paciolo”, Bracciano (Roma)
March 2000 – June 2000	Substitute teacher of Mathematics and Science at the Middle School “Tommaso Tittoni”, Manziana (Roma)

Part V - Society memberships, Awards and Honors

VA – Memberships

<i>Year</i>	<i>Society</i>
From 2022	Founder Member of the URSI Chapter Women in Radioscience (WIRS), Italy
2014-2019	European Microwave Association (EuMA)
2005-2019	Bioelectromagnetic Society (BEMS)
2005-2019	European Bioelectromagnetic Association (EBEA)
From 2002	Società Italiana di Elettromagnetismo (SIEm)
From 2002	ICEmB - Centro Interuniversitario sulle Interazioni fra Campi Elettromagnetici e Biosistemi

VB – Awards

<i>Year</i>	<i>Title</i>
2022	<i>As a supervisor of a Master Degree student in Biomedical Engineering:</i> Award for the best theses on the topic of disability from Sapienza University of Rome
2006	Award for the best Ph.D. thesis (XVII cycle) granted by CISB (Centro di ricerca per lo studio dei modelli e dell’informazione nei sistemi biomedici)
2005	“Second place award for platform presentation” at the Joint meeting of the Bioelectromagnetics Society and the European Bioelectromagnetics Association (BioEM 2005), June 19–24, 2005, Dublin, Ireland

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

As research funds owner, identified as RADRL-Dirigente at the Bioelectromagnetics Laboratory, DIET, Sapienza University of Rome.

<i>Year</i>	<i>Title</i>	<i>Program</i>	<i>Role</i>
2024/2026	Realistic integrated models for the estimate of the effectiveness of brain stimulation techniques	Ricerca Scientifica 2023 – Sapienza Sapienza University of Rome	PI Grant value: 10230 €
2019/2024	Multilevel methodologies to investigate interactions between radiofrequencies and biological systems – MIRABILIS	Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale 2017 (PRIN 2017) PI: Prof. Maria Rosaria Scarfi, CNR-IREA; Coordinators of the Research Unit: Dr. Alessandra Paffi (2022-2024), Prof. Guglielmo d’Inzeo (2019-2022), Sapienza University of Rome	PI of the Research Unit (2022-2024) Total grant value: 435120 € Research Unit grant value: 123103 €
2012/2013	Studio teorico-sperimentale sull’interazione tra campi elettrici pulsati di durata ultra-breve e le membrane cellulari	Studi di fattibilità per Progetti di ricerca e innovazione (Fari 2011), Sapienza University of Rome	PI Grant value: 6200 €
2022/2027	5G expOsure, causal effects, and risk perception through citizen engagement - GOLIAI	HORIZON-HLTH-2021 RIA Coordinator: Dr. Monica Guxens, ISGLOBAL, Spain; Coordinator of the Research Unit: Prof. Francesca Apollonio, Sapienza University of Rome	I Total grant value: 8 M€ Research Unit grant value: 328 k€
2021/2025	Regeneration of Injured Spinal Cord by Electro Pulsed Bio-Hybrid Approach - RISEUP	FET Open, UE Program Horizon 2020 Coordinator: Dr. Claudia Consales, ENEA, Rome, Italy; Coordinator of the Research Unit: Prof. Micaela Liberti, Sapienza University of Rome	IPR Dissemination & Exploitation Board (IPRDEB) Total grant value: 3 M€ Research Unit grant value: 366 k€
2021/2024	Pillole Intelligenti per le Neuroscienze e la Gastroenterologia - PING	POR FERS LAZIO 2014/2020, “Gruppi di Ricerca 2020” Regione Lazio; Coordinator of the Research Unit: Prof. Micaela Liberti, Sapienza University of Rome	I Research Unit grant value: 61179 €
2020	Valutazione numerica dell’efficacia di elettrodi bipolari nella porazione della parete atriale	IGEA S.p.A. third party Contract PI: Prof. Micaela Liberti, Sapienza University of Rome	I
2020	Calcolo del campo elettrico indotto in metastasi vertebrali per la pianificazione del trattamento elettrocemioterapico	IGEA S.p.A. third party Contract PI: Prof. Micaela Liberti, Sapienza University of Rome	I
2019/2020	Effective navigated Transcranial Magnetic Stimulation (En-TMS)	Avviso Pubblico “Creatività 2020” approvato con Determinazione n. G12783 del 20/09/2017 nell’ambito del POR FESR LAZIO 2014 – 2020; Coordinator of the Research Unit: Prof. Micaela Liberti, Sapienza University of Rome	I Research Unit grant value: 79327 €
2018/2019	Sviluppo di un software per la pianificazione del trattamento clinico in applicazioni di elettroporazione tramite calcolo del campo elettrico indotto in un dominio 3D	IGEA S.p.A. third party Contract PI: Prof. Micaela Liberti, Sapienza University of Rome	I

2017/2018	Genotossicità delle Radiazioni Elettromagnetiche nelle Applicazioni Militari 2 (GREAM 2)	Italian Defence Ministry PI: Col. Florigio Lista, Policlinico Militare Celio; Coordinator of the Research Unit: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2014-2015	Sviluppo di un codice numerico per la valutazione in tempo reale della distribuzione del campo elettrico indotto dalla Transcranial Magnetic Stimulation (TMS) su un modello cerebrale; caratterizzazione sperimentale di bobine per la TMS	EMS medical s.r.l. third party Contract PI: Prof. Francesca Apollonio, Sapienza University of Rome	I
2013	Data Analyzer & Acquisition System, Prot. FILAS-CR-2011-1372	Progetti di R&S in collaborazione da parte delle PMI del Lazio (DGR 403 del 9/9/2011) - POR FESR Competitività regionale e occupazione 2007-13 Regione Lazio Coordinator of the Research Unit: Prof. Micaela Liberti, Sapienza University of Rome	I
2013/2015	Electromagnetic Fields as Controller of Molecular Switches and Reactions	Ricerca Scientifica 2013 – Sapienza PI: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2012/2013	Nanostrutture metalliche per micro attuazione	Ricerca Scientifica 2012 – Sapienza PI: Prof. Marco Balucani, Sapienza University of Rome	I
2010/2012	Nanoklystron per frequenze nel range dei THz	Selex Galileo S.p.A. PI: Prof. Marco Balucani, Sapienza University of Rome	I
2010/2012	Stimolazione Elettrica e Magnetica del Sistema Nervoso in Applicazioni Terapeutiche	Ricerca Scientifica 2009 – Sapienza Ricerca Scientifica 2010 – Sapienza PI: Prof. Micaela Liberti, Sapienza University of Rome	I
2009/2010	Field emission device per applicazioni nelle frequenze dei THz; stabilità degli emettitori ed analisi della collimazione del fascio	Progetti Scientifici Ateneo Confederato della Scienza e della Tecnica presso Sapienza Università di Roma PI: Prof. Marco Balucani, Sapienza University of Rome	I
2008/2010	Theoretical and experimental studies on neuronal cells exposed to low and high frequency electromagnetic fields	Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale 2007 (PRIN 2007) PI: Prof. Ferdinando Bersani, Università di Bologna; Coordinator of the Research Unit: Prof. Micaela Liberti, Sapienza University of Rome	I
2008/2010	Liposomes and micelles as model systems for nanoparticle carrier in presence of electromagnetic field: theoretical and experimental activity	Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale 2007 (PRIN 2007) PI: Prof. Ovidio Mario Bucci, Università degli Studi di Napoli "Federico II"; Coordinator of the Research Unit: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2008/2009	Stimolazione elettrica e magnetica del sistema nervoso	Ricerca Scientifica 2008 – Sapienza PI: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2007/2008	Tecniche di spettroscopia dielettrica per applicazioni biomedicali	Progetti Scientifici Ateneo Confederato della Scienza e della Tecnica presso Sapienza Università di Roma PI: Prof. Micaela Liberti, Sapienza University of Rome	I

2006/2008	Electromagnetic field action on the activity of neuronal cells	Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale 2005 (PRIN 2005) PI: Prof. Ferdinando Bersani, Università di Bologna; Coordinator of the Research Unit: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2006/2007	Tecniche di spettroscopia applicate a sospensioni di cellule biologiche per indagini morfologiche della loro struttura	Progetti di ricerca della Facoltà di Ingegneria 2006 – Sapienza PI: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2004/2008	EMF-NET "Effects of the exposure to electromagnetic fields: from science to public health and safer workplace"	Sixth Framework Programme, European Commission Coordinator of the Research Unit: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2002/2005	RAMP2001 "Risk assessment for exposure of nervous system to mobile telephones EMF: from in vitro to in vivo studies"	Fifth Framework Programme, European Commission Coordinator of the Research Unit: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I
2001/2004	Protecting people and the environment from electromagnetic emissions	MURST / CNR-ENEA Coordinator of the Research Unit: Prof. Guglielmo d'Inzeo, Sapienza University of Rome	I

Part VII – Organizer of scientific conferences

<i>Year</i>	<i>Conference</i>	<i>Role</i>
2024	5 th World Congress on Electroporation, September 15-19, 2024, Rome, Italy	Member of the Local Organizing Committee, Student Staff Manager
	25 th International Conference on Electromagnetics in Advanced Applications and 13 th IEEE APWC IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications, September 2-6, 2024, Lisbon, Portugal	Invited organizer of the Special Session "Electromagnetics in biomedical applications: advances in nervous system stimulation"
		Review Panel member
2023	24 th International Conference on Electromagnetics in Advanced Applications and 12 th IEEE APWC IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications, October 9-13, 2023, Venice, Italy	Invited organizer of the Special Session "Electromagnetics in biomedical applications: recent studies on nervous system stimulation"
		Review Panel member
2020/ 2021	22 th International Conference on Electromagnetics in Advanced Applications and 10 th IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (ICEAA-IEEE APWC Dual Conference 2021), August 9-13, 2021, Honolulu, Hawaii, USA	Invited organizer of the Special Session "Biomedical electromagnetics: future directions of nervous system stimulation"
		Session chat moderator
		Review Panel member
	XXXIV General Assembly and Scientific Symposium of International Union of Radioscience (URSI GASS 2021), August 28 th – September 4 th Rome, Italy	Member of the Local Organizing Committee
		Organizer of the Special Session "K04 Permittivity characterization and dielectric spectroscopy in cells and tissues"
From 2015		Chairperson
		Review Panel member
	Joint Annual Meeting of the Bioelectromagnetics Society (BEMS) and European Bioelectromagnetics Association (EBEA) (BioEM2024; BioEM2023; BioEM2022; BioEM2021; BioEM2020; BioEM2019; BioEM2016; BioEM2015)	Member of the Technical Program Review Committee

From 3013	Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC2024; EMBC203; EMBC2022; EMBC2021; EMBC2020; EMBC2019; EMBC2018; EMBC2017; EMBC2016; EMBC2015; EMBC2014; EMBC2013)	Review Panel member
From 2013	International IEEE EMBC Conference on Neural Engineering (NER2023; NER2021; NER2019; NER2017; NER2015; NER2013)	Review Panel member
2011	10 th International Conference of the European Bioelectromagnetic Association (EBEA 2011), February 21 –24, 2011, Rome, Italy	Student staff Manager
		Chairperson
		Member of the Technical Program Review Committee

Part VIII – Speaker/lecturer in international scientific contexts

<i>Date</i>	<i>Conference/Institution</i>	<i>Role</i>
2024	25 th International Conference on Electromagnetics in Advanced Applications and 13 th IEEE APWC IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications, September 2-6, 2024, Lisbon, Portugal	<u>Invited speaker</u> : “Pulsed Electric Fields for Regeneration of Injured Spinal Cord: Calcium Oscillations Modeling”; <u>Invited Special Session Organizer</u> : “Electromagnetics in biomedical applications: advances in nervous system stimulation”
2023	24 th International Conference on Electromagnetics in Advanced Applications and 12 th IEEE APWC IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications, October 9-13, 2023, Venice, Italy	<u>Invited speaker</u> : “Electro Pulsed Devices for Regeneration of Injured Spinal Cord: Advanced Modelling of Microdevices and Cells”; <u>Invited Special Session Organizer</u> : “Electromagnetics in biomedical applications: recent studies on nervous system stimulation”
2020/2021	22 th International Conference on Electromagnetics in Advanced Applications and 10 th IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (ICEAA-IEEE APWC Dual Conference 2021), August 9-13, 2021, Honolulu, Hawaii, USA	<u>Invited speaker</u> : “Computational Estimate of the Induced Electric Field along Neuronal Fibers in TMS Applications”; <u>Invited Special Session Organizer</u> : “Biomedical electromagnetics: future directions of nervous system stimulation”
2020/2021	XXXIV General Assembly and Scientific Symposium of International Union of Radioscience (URSI GASS 2021), August 28 th – September 4 th Rome, Italy	<u>Invited speaker</u> : “Ultra-wideband Systems for Single Cell Sensing”; <u>Invited Special Session Organizer</u> : “Permittivity characterization and dielectric spectroscopy in cells and tissues”
May 2019	1 st European Microwave Conference in Central Europe (EuMCE 2019), May 13 –15, 2019, Prague, Czech Republic	<u>Invited speaker</u> : “Broadband coplanar system for in vitro experiments”
30-06-2016	Research Training Group WELISA at the University of Rostock, Germany	<u>Guest lecturer</u> : “Electric and magnetic stimulation of the central nervous system”
April 2011	5 th European Conference on Antennas and Propagation (EuCAP 2011), April 13 –15, 2020, Rome, Italy	<u>Invited speaker</u> : “Exposure systems for bioelectromagnetic investigations in the radiofrequency range: classification and emerging trends”
April 2010	4 th European Conference on Antennas and Propagation (EuCAP 2010), April 12 –16, 2010, Barcelona, Spain	<u>Invited speaker</u> : “Review of Radiofrequency Exposure Systems for in vitro Biological Experiments”
November 2006	Ansoft Workshop, Rome, Italy	<u>Invited poster presentation</u> : “Progetto, realizzazione e caratterizzazione di sistemi espositivi per la sperimentazione nel bioelettromagnetismo”
November 2005	Ansoft Workshop, Milan, Italy	<u>Invited poster presentation</u> : “Strutture radiative, risonanti e propagative adatte alla ricerca sperimentale nel bioelettromagnetismo: progetto e dosimetria tramite l'uso di HFSS”

March 2005	PIOM (Physique des Interactions Ondes-Matière), CNRS (Centre National de la Recherche Scientifique), Bordeaux, France	<u>Guest speaker:</u> “The signal specificity in modelling the bioelectromagnetic interaction”
From 2003	29 international Conferences and Workshops	Speaker

Part IX – Editorial and Reviewer roles

<i>Year</i>	<i>International Journal</i>	<i>Role</i>
2023/2024	MDPI Applied Sciences; Special Issue: “Machine Learning Approaches for Biomedical Prediction”	Guest Editor
From 2024	Membranes MDPI	Reviewer
From 2021	Physics in Medicine and Biology	Reviewer
From 2020	Scientific Reports	Reviewer
From 2018	Reviews in Biomedical Engineering	Reviewer
	IEEE Journal on Electromagnetics, RF, and Microwaves in Medicine and Biology	Reviewer
	Bioelectrochemistry	Reviewer
From 2015	PLOS one	Reviewer
From 2005	Bioelectromagnetics	Reviewer
	IEEE Transaction on Microwave Theory and Techniques	Reviewer
	European Biophysics Journal	Reviewer

<i>Year</i>	<i>International Conference</i>	<i>Role</i>
From 2020	International Conference on Electromagnetics in Advanced Applications (ICEAA)	Review Panel member
	General Assembly and Scientific Symposium of International Union of Radioscience (URSI GASS)	Review Panel member
From 2015	Joint Annual Meeting of the Bioelectromagnetics Society (BEMS) and European Bioelectromagnetics Association (EBEA) (BioEM)	Review Panel member
From 2013	The Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)	Review Panel member
	International IEEE EMBC Conference on Neural Engineering (NER)	Review Panel member
2011	International Conference of the European Bioelectromagnetic Association (EBEA)	Review Panel member

Part X - Collaborations

<i>Year</i>	<i>Research group/Company</i>
From 2022	Ing. Luigi Pavone, I.R.C.C.S. Neuromed di Pozzilli (IS), Italy
From 2021	Prof. Salvatore Maria Aglioti, Center for Life Nano- and Neuro-Science, Fondazione Istituto Italiano Di Tecnologia (IIT), Rome, Italy
From 2021	Dr. Claudia Consales, Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA), Italy
From 2020	Dr. Antonio Pallotti, Technoscience, Roma, Italy
From 2020	Prof. Giorgio Bonmassar, Harvard Medical School, Boston, USA
From 2020	Prof. Veronica Ghiglieri, Università S. Raffaele, Roma, Italy
From 2020	Dr. Marta Antonucci, CV Lab – CardioVascular Lab, Milano, Italy
From 2020	Dr. Antonio Napolitano, Ospedale pediatrico Bambino Gesù, Roma, Italy
From 2020	Prof. Eduardo Carrasco, Information Processing and Telecommunications Center, Universidad Politécnica de Madrid, Spain
From 2019	Prof. Maria Rosaria Scarfi, CNR-IREA, Italy
From 2019	SenThech S.r.l., Roma, Italy
From 2019	Info Solution S.p.A., Vimodrone (MI), Italy
From 2019	IGEA Clinical Biophysics, Carpi (MO), Italy
From 2018	Prof. Andrei Pakhomov, Old Dominion University, Norfolk, Virginia, USA
From 2017	Col. Florigio Lista, Dipartimento Scientifico del Policlinico Militare Celio di Roma, Italy

From 2016	Prof. Simone Orcioni, Dipartimento di Ingegneria dell'Informazione, Università Politecnica delle Marche
From 2016	Prof. Valerio De Santis, Department of Industrial and Information Engineering and Economics, Università degli Studi dell'Aquila, Italy
From 2015	Prof. Ursula Van Rienen, Research Training Group Welisa, University of Rostock, Rostock, Germany
From 2014	EMS medical s.r.l., Bologna, Italy
From 2014	Dr. Filippo Carducci, Dipartimento di Fisiologia e Farmacologia, Università "La Sapienza" di Roma, Italy
From 2014	Dott.ssa Stefania Petralito, Dipartimento di Chimica e Tecnologie del Farmaco, Università "La Sapienza" di Roma, Italy
From 2013	Prof. P. Thomas Vernier, Frank Reidy Center for Bioelectrics, Norfolk, USA
2013/2015	GS Automation SPA, Roma, Italy
From 2012	Prof. Vincenzo Di Lazzaro, Responsabile UOC di Neurologia, Università Campus Biomedico di Roma, Italy
From 2012	Prof. Quirino Balzano, Department of Electrical and Computer Engineering, University of Maryland, USA
From 2012	Prof. Frank S. Prato, Bioelectromagnetics Group, Imaging Program, Lawson Health Research Institute, London, ON, Canada
From 2011	RISE Technology S.r.l., Roma, Italy
From 2010	Prof. Daniele Trincherò, Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino, Italy
From 2010	Prof. James C. M. Hwang, Lehigh University, USA
From 2010	Prof. Philippe Leveque, XLIM Université de Limoge, Limoge, France
2010/2014	Selex Galileo, Italy
From 2007	Dr. Michael Repacholi, first chair of the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
From 2006	Dott. Paolo Ravazzani, Consiglio Nazionale delle Ricerche (CNR), Milano, Italy
2006	Enterprise Digital Architects, Roma, Italy
From 2005	Prof. Bernard Veyret, Laboratorio PIOM (Physique des Interactions Ondes-Matière), CNRS (Centre National de la Recherche Scientifique), Bordeaux, France
From 2002	Dott.ssa Carmela Marino, Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA), Italy.
From 2002	Prof. Giorgio Aicardi, Dipartimento di Scienze per la Qualità della Vita, Università di Bologna, Italy
From 2002	Prof. Ferdinando Bersani, Dipartimento di Fisica, Università di Bologna, Italy
2002/2006	Prof. Michele Mazzanti, Dipartimento di Biologia Cellulare e dello Sviluppo, Università "La Sapienza" di Roma, Italy

Part XI – Research Activities

My research activity concerns theoretical and experimental studies for modelling the interactions between electromagnetic (EM) fields and biological systems at different levels of complexity, for both health protection purposes and bio-medical applications.

The variety and the multidisciplinary nature of the covered topics are based on numerous national and international collaborations and on vast and diverse scientific competences.

My research activity on different topics is proven by a wide and varied bibliographic production.

In the following, I will briefly describe only the main research lines.

Keywords		Brief Description
1	EXPOSURE SYSTEMS	This research line deals with the design, fabrication and characterization, both numerical and experimental, of EM structures and applicators suitable for the exposure of <i>in vitro</i>, <i>ex vivo</i> and <i>in vivo</i> biological systems. Well-designed and characterized exposure systems and controllable experimental conditions are fundamental for high-quality experiments aimed at correlating the observed biological response to a well-known and reproducible EM dose.
	BIOLOGICAL INVESTIGATION	In this field, I contributed to the development of several exposure setups suitable for the studies of the effects of continuous waves, broadband or pulsed signals, both for evaluating the effectiveness of biomedical techniques, such as electroporation and drug delivery, and for evaluating the effects on human health, as example of 5G signals. The developed exposure systems are used in biological experimental studies carried out in collaboration with medical and biological research groups at national and international level. The high quality of my research in the field is evidenced by my primary role (first name) in two well-cited review papers (one for <i>in vitro</i> and one for <i>in vivo</i> studies), published in a high-profile journal in the sector, and by participation in important European Projects, such as GOLIA. Moreover, I coauthored several engineering papers and some papers on biological results, published in highly ranked journals.
2	ELECTRIC AND MAGNETIC STIMULATION	Electric and magnetic stimulation of the nervous system is one of the most important therapeutic applications of the EM field. My research activity deals with some of the most widespread techniques, such as Deep Brain Stimulation (DBS), Transcranial Magnetic Stimulation (TMS), transcranial Direct Current Stimulation (tDCS), and other innovative applications using pulsed electric and magnetic fields. My research in this field is aimed at optimizing these techniques, in terms of maximizing therapeutic effects while reducing side effects, and clarifying the underlying mechanisms of interaction.
	NERVOUS SYSTEM	Specifically, I deal with three different aspects: (i) experimental characterization of the applicators; (ii) dosimetry, i.e. evaluation of the electric field distribution induced in the nervous system for different stimulation conditions; (iii) estimate of the neuronal and cellular response by means of biophysical models.
	NEURONAL MODELS	These activities are developed in collaboration with national and international multidisciplinary teams and within important research projects, such as RISEUP, aimed at evaluating the use of pulsed electric fields for the regeneration of spinal cord injuries. Among my research products, there is a custom software code developed for the estimate of the induced EM field in real-time navigated TMS (n-TMS) and in treatment planning applications. My publications include a well-cited review paper published in a high-profile journal in collaboration with the main groups in the field, several papers on dosimetry and other papers on the biophysical neuronal response. In most of these publications I am the first author.
3	MICRODOSIMETRY	The EM field can be applied to the single cell level to perform dielectric spectroscopy. Ultra-wide bandwidth (UWB) miniaturized devices, recently developed, allow us to detect cellular as well as intracellular properties in a fast, compact and label-free way. The extraction of such properties from measurements is especially challenging in single-cell sensing. Therefore, numerical simulations dealing with microscopic cell compartments (microdosimetry) must be performed iteratively.
	ELECTRIC PROPERTIES	My research in the field is focused on the extraction of cell features from comparison between measurements and numerical simulations of ultra-wide bandwidth (UWB) setups with single cells.
	DIELECTRIC SPECTROSCOPY	The obtained realistic geometric and dielectric properties are used in microdosimetric simulations aimed at predicting the membrane permeabilization induced by pulsed electric fields (electroporation) with promising therapeutic applications, such as drug delivery and cell differentiation. Results of my activity in this research line include one experimental paper on a portable and low-cost setup for the measurement of liquid permittivity, papers combining experiments with microdosimetric simulations, and others proposing analytical, numerical and circuital models to quantify the action of ultra-short pulsed fields on the permeability of cellular and intra-cellular membranes.

4	DOSIMETRY	A recent line of my research activity concerns the use of pulsed electric fields in clinical applications, such as electrochemotherapy for the treatment of tumor lesions in soft and bone tissues, and cardiac ablation in patients with atrial fibrillation. The aim is the optimization of the type and position of the EM applicators to maximize the therapeutic efficacy of such treatments, while reducing side effects. To this end, dosimetric simulations were performed and custom software, currently used in the treatment planning of electrochemotherapy, was developed and published in collaboration with a leader company in the field of clinical biophysics.
	ELECTROPORATION	
	OPTIMIZATION ALGORITHMS	
5	INTERACTION MECHANISMS	The possibility for microwave (MW) energy to affect biological systems via non-thermal mechanisms is an open issue I have been working on since the beginning of my Ph.D. course. Results of a wide and comprehensive literature review on this topic are summarized in a well-cited paper I coauthored, published in a high-profile microwave journal. Other publications concern a numerical-experimental estimate of the human exposure in everyday life scenarios, the mechanisms of the absorption of radiofrequency (RF) fields in biological cultures, with attention to non-linear thermodynamic events, and the analysis of macromolecule response to intense EM fields.
	MULTISCALE MODELING	
	EM ABSORPTION	
6	CLASSIFICATION	A recent research line, developed in collaboration with national companies, universities and medical centers, concerns the automatic classification of healthy and Parkinsonian subjects using machine learning algorithms based on selected features extracted by vocal and graphical signals. The aim is the patients' early diagnosis and the follow-up in the perspective of home telemonitoring. To this aim, specific protocols and software interfaces were developed to acquire data from voice and graphical tablets. Preliminary results were presented in international Conferences and one paper was published in an international journal.
	MACHINE LEARNING	
	TELEMONITORING	

Part XII – Summary of Scientific Achievements

Over the last 10 years

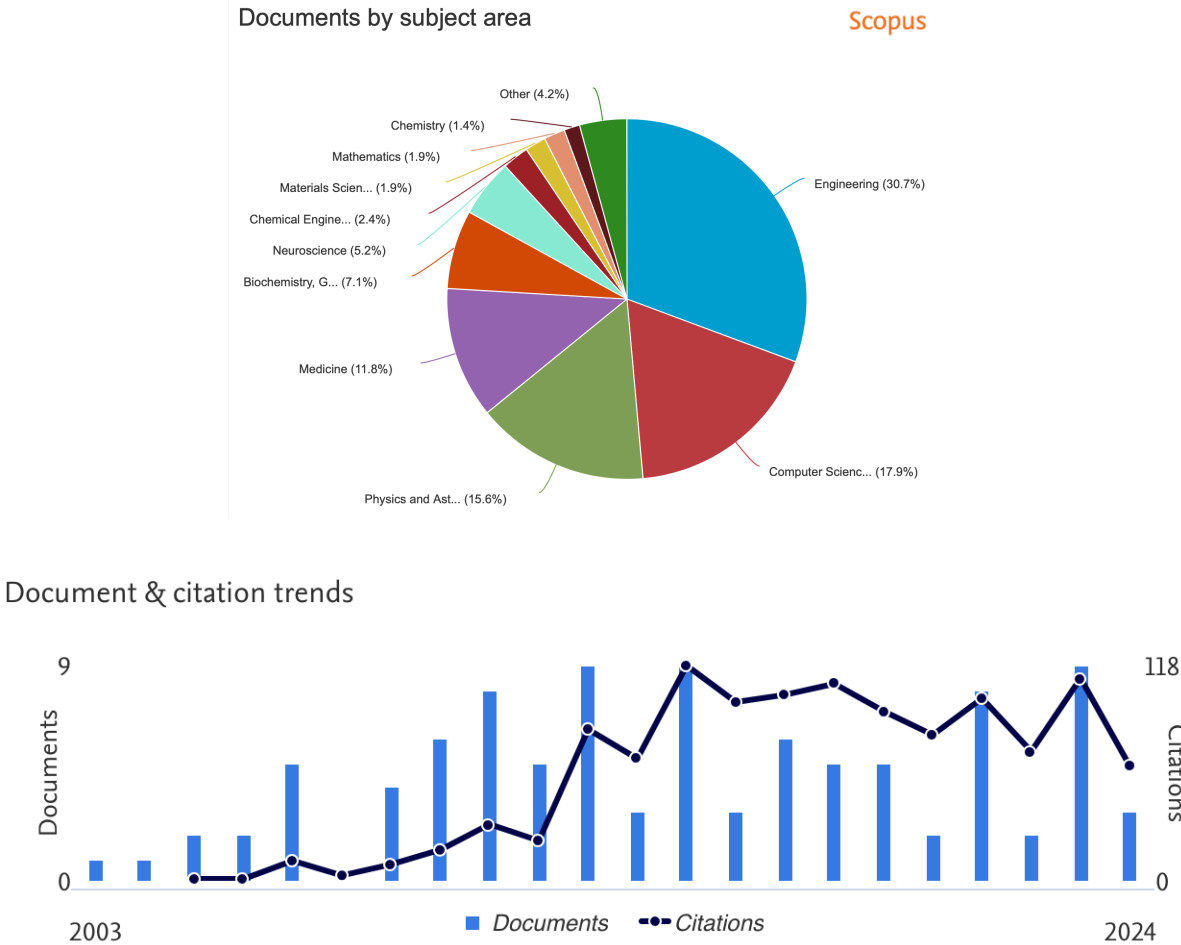
<i>Product type</i>	<i>Number</i>	<i>Data Base</i>	<i>Start</i>	<i>End</i>
Papers on peer review journals	30	Scopus	2014	2024
Conference papers	25	Scopus	2014	2024
Total documents (with peer review)	55	Scopus	2014	2024
	<i>Number</i>	<i>Data Base</i>	<i>Start</i>	<i>End</i>
Total Citations	393	Scopus	2014	2024
Average Citations per Product	7.15	Scopus	2014	2024
Hirsch (H) index	11	Scopus	2014	2024
Total IF*	83.973	Journal Citation Reports	2014	2024
Average IF per Product**	3.0	Journal Citation Reports	2014	2024

Overall production

<i>Product type</i>	<i>Number</i>	<i>Data Base</i>	<i>Start</i>	<i>End</i>
Papers on peer review journals	46	Scopus	2004	2024
Proceedings	52	Scopus	2003	2024
Total documents (with peer review)	98	Scopus	2003	2024
	<i>Number</i>	<i>Data Base</i>	<i>Start</i>	<i>End</i>
Total Citations	1190	Scopus	2003	2024
Average Citations per Product	12.14	Scopus	2003	2024
Hirsch (H) index	18	Scopus	2003	2024
Total IF*	116.851	Journal Citation Reports	2004	2024
Average IF per Product*	2.78	Journal Citation Reports	2004	2024

*For papers of 2024, the IF of 2023 was considered; **The average was calculated on the papers with an available IF in the year of publication

The following graphs (SCOPUS Database) show a multidisciplinary profile with solid engineering foundations on the topics of the IINF-02/A SSD and a very good temporal continuity over the last 22 years.



Part XIII– Publications

XIIIA – Selected publication in the last ten years (n. 12)

In the scientific field of the SSD IINF-02/A, 12 publications in the last 10 years were selected to evidence the **variety** and **interdisciplinarity** of my research topics, the numerous **collaborations** with leading national and international research groups in engineering, medicine and biology and the **temporal continuity** of my scientific production.

The list of publications includes articles published or accepted for publication to date, as required by the competition notice (CODICE CONCORSO 2024RTTR021).

		IF (JCR)	Citations (Scopus)
1)	<u>A. Paffi</u>, F. Apollonio, M. Cadossi, V. D’Alessio, R. Fusco, A. Giannini, M. Liberti, “A fast 3-D Approach for Electroporation Treatment Planning: Optimal Electrodes Configuration,” accepted for publication to <i>IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology</i>, 2024. doi: 10.1109/JERM.2024.3409678. Context: product of a collaboration with IGEA S.p.A., a leading Biomedical Company at the international level. Contribution to IING-02/A: Development of a new tool, based on the solution of the electromagnetic problem in patient-specific models, for the Electroporation treatment planning in clinics. Personal contribution: contribution to the design and implementation of the research; development of the theoretical framework and methodology; implementation of the numerical tool and performing the computations; analysis and discussion of results; manuscript writing and design of the figures.	3.0*	—

2)	S. Fontana, S. D'Agostino, <u>A. Paffi</u>, P. Marracino, M. Balucani, G. Ruocco, S. M. Aglioti, F. Apollonio, M. Liberti, "State of the Art on Advancements in Wireless Capsule Endoscopy Telemetry: A Systematic Approach," accepted for publication to <i>IEEE Open Journal of Antennas and Propagation</i>, 2024. doi: 10.1109/OJAP.2024.3409827. Context: product of the PING Project, POR FERS LAZIO 2014/2020. Contribution to IING-02/A: Review paper on the wireless telemetry applied to capsule endoscopy. Personal contribution: contribution to the supervision of the Ph.D. student Sara Fontana; contribution to the design and implementation of the research, to the analysis of the results and to the editing of the manuscript.	3.5*	—
3)	S. Fontana, L. Caramazza, P. Marracino, I. Cuenca Ortola, M. Colella, N. Dolciotti, <u>A. Paffi</u>, F. Gisbert Roca, S. Ivashchenko, J. Mas Estrellés, C. Consales, M. Balucani, F. Apollonio, M. Liberti, "Electric field bridging-effect in electrified microfibrils' scaffolds," <i>Frontiers in Bioengineering and Biotechnology</i>, vol. 11, 2023, Article number 1264406. Context: product of the RISEUP Project, FET Open, UE Program Horizon 2020. Contribution to IING-02/A: design of an electrified applicator for restoring the spinal cord injuries and solution of the electromagnetic problem in a complex environment. Personal contribution: contribution to the supervision of the Ph.D. student Sara Fontana; writing-review and editing; formal analysis.	4.3	1
4)	<u>A. Paffi</u>, E. Carrasco, Q. Balzano, "Influence of the Mesh Size on the Computation of the Close Near Fields of Dipole Antennas," <i>IEEE Open Journal of Antennas and Propagation</i>, vol. 3, pp. 1234-1241, 2022. Context: product of an international collaboration with Prof. Q. Balzano, University of Maryland, USA, and E. Carrasco, Universidad Politécnica de Madrid, Spain. Contribution to IING-02/A: comparison between theoretical prediction and numerical solution of the electromagnetic problem for the close near fields of dipole antennas, with the identification of strengths and weaknesses of different tools. Personal contribution: contribution to the design and implementation of the research; planning and performing numerical simulations; analysis and discussion of results; contribution to the manuscript writing and design of the figures.	4.0	—
5)	M. Colella, <u>A. Paffi</u>, V. de Santis, F. Apollonio, M. Liberti, "Effect of skin conductivity on the electric field induced by transcranial stimulation techniques in different head models," <i>Physics in Medicine and Biology</i>, vol. 66, n. 3, art. 035010, 2021. Context: product of a national collaboration with Prof. V. de Santis, Università degli Studi dell'Aquila. Contribution to IING-02/A: numerical study of sensitivity of the electromagnetic solution, in a complex biological environment, to the skin conductivity and assessment of the conductivity value to be used in anatomic human models. Personal contribution: contribution to the design and implementation of the research; performing bibliographic research; supervision of the Ph.D. student Micol Colella; development of the methodology; planning of numerical simulations; analysis and discussion of results; contribution to the manuscript writing and design of the figures.	4.174	14
6)	M. Casciola, S. Xiao, F. Apollonio, <u>A. Paffi</u>, M. Liberti, C. Muratori, A. G. Pakhomov, "Cancellation of nerve excitation by the reversal of nanosecond stimulus polarity and its relevance to the gating time of sodium channels", <i>Cellular and Molecular Life Sciences</i>, vol. 76, n. 22, pp. 4539-4550, Nov. 2019. Context: interdisciplinary product of an international collaboration with Prof. A. G. Pakhomov, Old Dominion University, Norfolk, Virginia, USA. Contribution to IING-02/A: design and characterization of a broadband exposure system based on a grounded coplanar waveguide (GCPW) for performing real-time exposure to nanosecond electric fields; dosimetry on frog nerves. Personal contribution: contribution to the design of the exposure system; exposure system fabrication and experimental characterization; planning and performing numerical simulations for dosimetric evaluations; analysis and discussion of results; writing the supplementary material and design of the figures.	6.496	36
7)	E. Della Valle, M. Liberti, F. Camera, <u>A. Paffi</u>, S. Petralito, V. Roncace, C. Burattini, G. Aicardi, F. Apollonio, "A Versatile Magnetic Exposure System for In-Vitro, Ex-Vivo, and In-Vivo Experiments Finalized to Therapeutic Applications in the IF	N/A	2

	Range”, <i>IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology</i>, vol. 3, n. 1, pp. 9-16, March 2019. Context: product of a national collaboration with Prof. S. Petralito, Sapienza University of Rome, and Prof. G. Aicardi, Università di Bologna. Contribution to IING-02/A: design of a magnetic exposure system for therapeutic applications in the IF range and dosimetric solution for different biological samples (<i>in vitro</i>, <i>ex vivo</i> and <i>in vivo</i>). Personal contribution: contribution to the design and implementation of the research; contribution to the design of the exposure system; supervision of the Ph.D. student Elena Della Valle; planning of numerical simulations; analysis and discussion of results; contribution to the manuscript editing.		
8)	C. Merla, <u>A. Paffi</u>, F. Apollonio, S. Orcioni, M. Liberti, “Portable system for practical permittivity measurements improved by homomorphic deconvolution,” <i>IEEE Transactions on Instrumentation and Measurement</i>, vol. 66, n. 3, pp. 514–521, 2017. Context: product of a national collaboration with Prof. S. Orcioni, Università Politecnica delle Marche, and Dr. C. Merla, ENEA. Contribution to IING-02/A: development of a methodology for the measurement of liquids permittivity using low-cost, portable instrumentation. Personal contribution: contribution to the design and implementation of the research; support to measurements and data processing; analysis and discussion of results; manuscript writing and design of the figures.	2.794	8
9)	<u>A. Paffi</u>, F. Camera, E. Lucano, F. Apollonio, M. Liberti, “Time resolved dosimetry of human brain exposed to low frequency pulsed magnetic fields,” <i>Physics in Medicine and Biology</i>, vol. 61, n. 12, pp. 4452-4465, 2016. Context: product of the activities of the Bioelectromagnetics group of DIET, Sapienza University of Rome, in the field of electromagnetics applied to brain stimulation. Contribution to IING-02/A: development of a tool for the solution of the electromagnetic problem in complex biological environments characterized by dispersive properties, applied to brain stimulation techniques using broadband signals. Personal contribution: contribution to the design and implementation of the research; development of the methodology; implementation of the electromagnetic simulation software and performing simulations; data processing and analysis; manuscript writing and design of the figures.	2.742	5
10)	<u>A. Paffi</u>, F. Camera, F. Apollonio, G. d’Inzeo, M. Liberti, “Numerical characterization of intraoperative and chronic electrodes in deep brain stimulation,” <i>Frontiers in Computational Neuroscience</i>, vol. 9, art. 2, 2015. Context: product of the activities of the Bioelectromagnetics group of DIET, Sapienza University of Rome, in the field of electromagnetics applied to brain stimulation. Contribution to IING-02/A: numerical solution of the electromagnetic problem in a realistic biological environment to explain inconsistencies of clinical outcomes; sensitivity study of the EM solution to the electrode placement and to the electric properties of the electrode-tissue interface. Personal contribution: contribution to the conception of the work; supervision of the Ph.D. student Francesca Camera in the development of the dosimetric model of the intraoperative microelectrode and the metal-tissue interface; analysis and discussion of results; manuscript writing and design of the figures.	2.653	20
11)	<u>A. Paffi</u>, M. Liberti, F. Apollonio, A. Sheppard, Q. Balzano, “In vitro exposure: Linear and non-linear thermodynamic events in Petri dishes,” <i>Bioelectromagnetics</i>, vol. 36, n. 7, pp. 527-37, 2015. Context: product of the international collaboration with Prof. Q. Balzano, University of Maryland, USA, published in the bioelectromagnetism sector Journal. Contribution to IING-02/A: solution of a Multiphysics problem (electromagnetic and thermodynamic) for the calculation of the absorbed EM dose in <i>in vitro</i> samples under different impinging wave polarizations, with special attention to non-linear events. Personal contribution: contribution to the conception of the work; development of the methodology; planning and performing numerical simulations; analysis and discussion of results; manuscript writing and design of the figures.	1.583	15
12)	A. Denzi, C. Merla, C. Palego, <u>A. Paffi</u>, Y. Ning, C. R. Multari, X. Cheng, F. Apollonio, J. C. M. Hwang, M. Liberti, “Assessment of Cytoplasm Conductivity by Nanosecond Pulsed Electric Fields,” <i>IEEE Transactions on Biomedical Engineering</i>, vol. 62, n. 6,	2.468	47

pp. 1595-603, 2015.		
Context: product of an international collaboration with Prof. J. C. M. Hwang, Lehigh University, USA.		
Contribution to IING-02/A: setup of a methodology for the dielectric spectroscopy of single cells by comparing measurements from a BioChip, based on a CPW, and microdosimetric simulations.		
Personal contribution: supervision of the Ph.D. student Agnese Denzi; quantification of the uncertainty associated with the measurements; contribution to the data analysis and to the development of the procedure for extracting the conductivity of the cytoplasm starting from the experimental data; analysis and discussion of results.		

*the IF of 2023 was considered

XIIIB – All publications

International peer-reviewed journals

		IF (JCR)	Quartile (SJR/JCR)	Citations (Scopus)
1)	<u>A. Paffi</u> , F. Apollonio, M. Cadossi, V. D'Alessio, R. Fusco, A. Giannini, M. Liberti, "A fast 3-D Approach for Electroporation Treatment Planning: Optimal Electrodes Configuration," accepted for publication to <i>IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology</i> , 2024.	3*	Q1	–
2)	S. Fontana, S. D'Agostino, <u>A. Paffi</u> , P. Marracino, M. Balucani, G. Ruocco, S. M. Aglioti, F. Apollonio, M. Liberti, "State of the Art on Advancements in Wireless Capsule Endoscopy Telemetry: A Systematic Approach," accepted for publication to <i>IEEE Open Journal of Antennas and Propagation</i> , 2024.	3.5*	Q1	–
3)	G. Natale, M. Colella, M. De Carluccio, D. Lelli, <u>A. Paffi</u> , F. Carducci, F. Apollonio, D. Palacios, M. T. Viscomi, M. Liberti, V. Ghiglieri, "Astrocyte Responses Influence Local Effects of Whole-Brain Magnetic Stimulation in Parkinsonian Rats," <i>Movement Disorders</i> , vol. 38, n. 12, pp. 2173-2184, 2023.	7.4	Q1	2
4)	S. Fontana, L. Caramazza, P. Marracino, I. Cuenca Ortolà, M. Colella, N. Dolciotti, <u>A. Paffi</u> , F. Gisbert Roca, S. Ivashchenko, J. Mas Estrellés, C. Consales, M. Balucani, F. Apollonio, M. Liberti, "Electric field bridging-effect in electrified microfibrils' scaffolds," <i>Frontiers in Bioengineering and Biotechnology</i> , vol. 11, 2023, Article number 1264406.	4.3	Q1	1
5)	P. Marracino, <u>A. Paffi</u> , G., d'Inzeo, "A rationale for non-linear responses to strong electric fields in molecular dynamics simulations," <i>Physical Chemistry Chemical Physics</i> , vol. 24, n. 19, pp. 11654-11661, 2022.	3.3	Q1	2
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Part XIV – Attended Courses

<i>Year</i>	<i>Institution</i>	<i>Course</i>
2009	University of Ljubljana, Slovenia	International Scientific Workshop and Postgraduate Course "Electroporation based Technologies and Treatments"
2007	Consorzio interuniversitario per le Applicazioni di Supercalcolo Per Università e Ricerca (CASPUR)	"Productivity in UNIX environment"
	Ingegneri Romani	"Project Management"
2005	Center for the study of complex systems, Siena, Italy	"International Advanced School on Nonlinear Analysis of Complex Dynamical Systems"
2004	Center for Scientific Culture "Ettore Majorana", Erice, Italy	"Methodology in bioelectromagnetic experimental investigations", International School of Bioelectromagnetics "Alessandro Chiabrera"

Part XV – Hobbies

From 1994: Conductor of the St. John Singers Gospel Choir, with 5 CDs recorded and more than 400 concerts in prestigious venues, such as the European Parliament of Bruxelles, the "Paolina Chapel" at the Quirinale in the presence of the President G. Napolitano, the headquarter of the American Ambassador in Rome, the Campidoglio in the presence of the Mayor F. Rutelli, the San Pietro in Vincoli Faculty of Engineering at Sapienza University of Rome and several RAI programs.

La sottoscritta Alessandra Paffi,
nata a Roma, il 23/02/1971,
cittadinanza italiana, residenza in Manziana (RM), via Augusto Silvestrelli 37, c. a. p. 00066
Telefono: 06 99674066, cell: 3471500683, Codice Fiscale PFFLSN71B63H501E,
**consapevole delle sanzioni penali, nel caso di dichiarazioni mendaci, di formazione o uso di atti falsi, richiamate
dall'art. 76 del D.P.R. 28 dicembre 2000, n. 445,**

DICHIARA

che tutto quanto sopra dichiarato corrisponde a verità, ai sensi degli articoli 46 e 47 del D.P.R. 445 del 2000.

LUOGO E DATA

FIRMA

Manziana, 21-08-2024