

PERSONAL INFORMATION

Sebania Libertino



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Sex Female | Nationality Italian

WORK EXPERIENCE

01/01/2007 – at present

Permanent staff member - Senior researcher

Institute for Microelectronics and Microsystems (IMM) Headquarters of the national Council of research (CNR), Strada VIII Z.I. n. 5 95121 Catania, Italy

- Responsible for CNR of the joint lab with the University of Catania, Dept. of Medical, surgical sciences and advanced technologies “G.F. Ingrassia”
- Coordinator of the IMM workgroup for the research area “Physical, Chemical and Biological sensors”
- Responsible for CNR-IMM of national (PON) or international projects (EU, or bilateral projects)
- **Research activities:** design and fabrication of Si-based microelectronic and optoelectronic device/systems for sensing applications. She has been working on the integration of biological molecules in Si to fabricate biosensors for both biomedical and environmental applications.
- **Expertise:** semiconductors materials characterization through deep level transient spectroscopy (DLTS) and low temperature photoluminescence; micro- and opto-electronic devices electro-optical characterization; optical monitoring of waveguide loss.

Business or sector Fundamental and Applied Research

28/12/2000 – 31/12/2006

Permanent staff member - Researcher

Institute for Microelectronics and Microsystems (IMM) Headquarters of the national Council of research (CNR), Strada VIII Z.I. n. 5 95121 Catania, Italy

- **Research activities:** design and fabrication of Si-based microelectronic and optoelectronic device/systems

Business or sector Fundamental and Applied Research

15/12/1997 – 27/12/2000

Temporary position – Researcher

Institute for Microelectronics and Microsystems (IMM) Headquarters of the national Council of research (CNR), Strada VIII Z.I. n. 5 95121 Catania, Italy

- **Research activities:** design and fabrication of Si-based microelectronic and optoelectronic device/systems

Business or sector Fundamental and Applied Research

EDUCATION AND TRAINING

01/11/1994 – 31/10/1997

Ph.D Course in Physics

University of Catania

Dept. of Physics, University of Catania, Italy

- Principal subjects covered and skills acquired: Si defects formation and evolution at room temperature and after thermal processes. Semiconductor materials electrical and optical characterization

01/07/1994 – 31/10/1994

Fellowship

INFM, Catania

Istituto Nazionale di Fisica della Materia, (INFM) Catania, Italy

- Principal subjects covered and skills acquired: Si defects formation and evolution at room temperature and after thermal processes. Semiconductor materials electrical and optical characterization

01/11/1988 – 29/03/1994

Degree in Physics (cum laude)

University of Catania

Dept. of Physics, University of Catania, Italy

- Principal subjects covered and skills acquired: Experimental approach and scientific knowledge

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Replace with name of language certificate. Enter level if known.					

Communication skills • good communication skills gained through my work presentation at conferences, teaching and group management experiences

Organisational / managerial skills • leadership (I coordinated heterogeneous groups of people during funded research project execution)

Computer skills • OS: Windows (from Windows 2.0 up to Windows 11)
• Software: Microsoft Office™ tools, Origin, Matlab, Adobe, Corel suite

ADDITIONAL INFORMATION

- Funded project coordination**
- 01/10/2022 – to present** Coordination for CNR of the scientific pillar “Smart systems for precision agriculture” within the project “SiciliAn MicronanOTech Research And Innovation Center (SAMOTHRACE)” funded within the action: Strengthening of research structures and creation of R&D “innovation ecosystems”, set up of “territorial leaders in R&D” — to be funded under the National Recovery and Resilience Plan (NRRP), Mission 4, Component 2 Investment 1.5, funded from the European Union – NextGeneration EU
 - 01/01/2021 – to present** Coordination for CNR-IMM of the national project PON “Tecnologie innovative per il controllo, il monitoraggio e la sicurezza in mare (TETI)”
 - 01/09/2020 – to present** Coordination for CNR-IMM Hq of the national project PON “ Sensoristica intelligente, infrastrutture e modelli gestionali per la sicurezza di soggetti fragili (4FRAILITY)”
 - 01/12/2017 – 30/05/2020** Coordination for CNR-IMM and Director of the Regional project “Sviluppo ed applicazione di tecnologie biosensoristiche in genomica”
 - 01/06/2016 – 31/05/2019** Coordination for CNR and WP leader of the Ecsel (Grant Agreement N. 692470) project “Advancing Smart Optical Imaging and Sensing for Health” (ASTONISH)
 - 14/04/2015 – 13/04/2017** Coordination of the bilateral project with Argentina “ Radiation effects on microelectronic devices for health and space applications”
 - 01/07/2012 – 31/12/2015** Scientific coordination for CNR (and for the IMM institute) and WP leader of the national project PON “Hyppocrates – Sviluppo di Micro e Nano-Tecnologie e Sistemi Avanzati per la Salute dell'uomo”
 - 01/01/2011 – 31/12/2013** Coordination of the large relevance project Caratterizzazione durante e post-irraggiamento di dispositivi microelettronici per applicazioni avioniche o spaziali” of the “programma esecutivo di Cooperazione Scientifica e Tecnologica fra Italia e Argentina per gli anni 2011 – 2013”
 - 01/01/2011 – 31/12/2013** Coordination for CNR-IMM of the bilateral project with Israel “ Radiation immune flash memory (RIFLASH)” awarded with EUREKA prize
- Technological transfer**
- 05/12/2017 – 04/12/2018** Scientific coordination of the industrial contract “ Studio di materiali e tecnologie avanzate per la Microelettronica” with ST microelectronics REF: CDR.ST.CNR-IMM.Studio.di.materiali.20.11.2017.018 (ST contract Number: 2017 4340)
 - 02/04/2001 – 01/04/2004** Responsible for the consultancy to STMicroelectronics within their funded project (law 488/1992) “ Dispositivi elettro-ottici per l’immagazzinamento di informazioni basati sul sistema Euglena Rodopsina/Silicio”
 - 09/02/2001 – 08/02/2004** Responsible for the consultancy to STMicroelectronics within their funded project (law 488/1992) “ Realizzazione di dimostratori di dispositivi di potenza con isolamento galvanico integrato”
 - 2002 – 2015** Responsible of 5 research activities in 4 contracts with STMicroelectronics
- Other responsibilities**
- 14/10/2022 – to present** Member of the scientific committee of the innovation ecosystems Samothrace funded under the National Recovery and Resilience Plan (NRRP), Mission 4, Component 2 Investment 1.5, funded from the European Union – NextGeneration EU
 - 01/11/2015 – to present** Member of the teaching board of the international Pd.D. “Information and Communication Technologies” of Palermo University
 - 25/01/2019 – 24/10/2022** Coordination of the IMM workgroup (and of the Hq group) within the research area “Physical, Chemical and Biological sensors”

- 11/03/2018 – 25/01/2019** Coordination of the IMM workgroup (and of the Hq group) within the technological area “Characterization”
11/03/2016 – 10/03/2018 Coordination of the IMM Hq workgroup within the technological area “Characterization”
19/09/2003 – to present responsible for the DLTS lab at CNR-IMM Hq
19/09/2003 – to present responsible for the optical lab at CNR-IMM Hq

Participation to national and International funded projects

- 2 EU projects (TELEGRAM; SCOOP)
 1 Bilateral project with Israel (RHESSA)
 5 National projects (2 PON; 2 FIRB; 1 POR, 1 PRIMA)
 2 projects with Industry (STMicroelectronics)

Keynote Speeches

1. Nanoltaly 2017, Roma (Italy) 26-29/09/2017. Speech title “*Miniaturized sensors for organic and inorganic contaminants detection*”
2. Smart Chem 2017, Catania (Italy) 02-03/02/2017. Speech title “*Optical and electrical transduction methods for bio-sensing applications*”
3. STMicroelectronics Technical Staff Meeting, 28/09/2015, Catania (Italy). Speech title “*Silicon Technologies for Sensor Applications*”
4. 5th International Conference and Exhibition on Analytical & Bioanalytical Techniques, 18-20/08/2014, Beijing (China). Speech title “*Optical Si-based biosensors: first results*”
5. 4th International Conference and Exhibition on Analytical & Bioanalytical Techniques, 15-17/10/2013, Las Vegas (Nevada, USA). Speech title “*Optical and electrical Si-based biosensors: fabrication and transduction issues*”
6. AnalytiX2013 – Frontiers of Analytical Technology and Instruments, 21-23/03/2013, Suzhou (China). Speech title “*Optical and electrical Si-based biosensors: fabrication and transduction issues*”
7. Invited Speech at the University of Alicante (Spain), 28/02/2008, Speech title “*Immobilization of biological molecule on Si-based surfaces*”
8. 3rd Optoelectronic & Photonic winter school – Optical interconnects, Sardinia (Trento, Italy), 28/02 al 5/03/2005, lecture title “*Electro optical modulators in Si*”.
9. IPMM Invited Sessional Presentation, 18-23/05/2003, Sendai e Matsushima (Japan), Speech title “*Materials for Si-based biosensors*”
10. 17th International Conference on the Application of Accelerators in Research and Industry (CAARI 2002), 12-16/11/2002, Denton (Texas, USA). Speech title “*Formation, evolution and thermal stability of interstitial clusters in ion implanted Si*”
11. Summer school TMR “ENDEASD”, 6-12/10/2001, Greece. Lecture title “*Transient Enhanced Diffusion*”
12. International Conference MRS Spring Meeting 2001 organized by Material Research Society, San Francisco (California, USA). Speech title “*Damage Evolution in Ion Implanted c-Si*”
13. International Conference EMRS 2000 organized by European Material Research Society, 30/05 - 2/06/2000. Strasbourg (France). Speech title “*Point Defect Diffusion and Clustering in Ion Implanted c-Si*”
14. International Conference “Materials Processes far from equilibrium” organized by Gordon Research Conferences, 11 – 16/07/1999, Plymouth State College, Plymouth (New Hampshire, USA). Speech title: “*Point Defect Diffusion and Clustering in Ion Implanted Si*”
15. International Conference MRS Fall Meeting 1997 organized by Material Research Society, 2-6/12/1997, Boston (Massachusetts, USA). Speech title “*Impurity and Clustering Effects on Defect Evolution in Ion Implanted Si*”

Oral communications

30 oral presentations, mostly to international conferences

Member of national committees

National reviewer of Italian MISE projects
 About **60** participations as Member or President of local committees for the evaluation of fellowships and temporary contracts (AR, BS, co.co.co)

Member of international committees

More than **20** participations as program or conference committee (mostly international conferences)

Tutoring

- 21** bachelor thesis (Italian laurea)
4 Ph.D. thesis
1 master thesis (Italian specializzazione)
9 fellowships

Patents

1. S. A. Lombardo, G. A. Maira, S. Libertino, A. Merla, A. M. Chiarelli, *Circuit, procedure, and algorithm to operate SiPMs in optimal conditions for fNIRS / DOT systems*. Italian application number 102019000016424, Application date 16/09/2019,

2. M. Mazzillo, P.G. Fallica, S. Libertino, *A tunable optoelectronic device and blood pressure sensor including the same*, Italian application number : 102017000053528, application date: 17/05/2017
3. S. Libertino, R. A. Puglisi, M. Fichera, S. A. Lombardo, *Nanometric device for the measurement of the conductivity and quantum effects of individual molecules and methods for the manufacture and use thereof*, EP 1 811 524 A1 18/01/2006
4. Coffa, Salvatore; Libertino, Sebania; Frisina, Ferruccio; *High-gain photodetector with separated PN junction and rare earth doped region and a method of forming the same*, US Patent 6,943,390 2005
5. Coffa, Salvatore; Libertino, Sebania; Saggio, Mario; Frisina, Ferruccio; *Semiconductor device for electro-optic applications, method for manufacturing said device and corresponding semiconductor laser device*, US Patent 6,828,598 2004
6. S. Coffa, S. Libertino, F. Frisina, *High gain photodetector of semiconductor material and manufacturing process thereof*, EP 1 258 927 20/11/2002
7. S. Coffa, S. Libertino, M. Saggio, F. Frisina, *Semiconductor device for electro-optic applications, method for manufacturing said device and corresponding semiconductor laser device*, EP1210752 (in substitution of EP 1 081 812 registered 02/09/1999)

Guest editor 2023 Special Issue "Sensors for Environmental Monitoring and Food-Safety Analysis" edited by MDPI
 2023 Special issue "Functional hybrid nanomaterials as crucial tools for sustainable enabling technologies: What are they, and why are they important?" edited by MDPI
 2021 Special Issue "Materials for health care" edited by MDPI
 2020 Special Issue "Optical biosensing" edited by MDPI
 2015 Special Issue Vol. 6 of the journal Sensing and Bio-sensing Research (edited by Elsevier)

Publications 91 on ISI Journals
 3 Other Journals
 60 Proceedings papers
 4 Book chapters

Publications on ISI journals

1. S. Filice, S. Boscarino, M. Scuderi, S. Libertino, C. Galati, A. Terrasi, S. Scalese, AZO Nanoparticles-Decorated CNTs for UV Light Sensing: A Structural, Chemical, and Electro-Optical Investigation, *Nanomaterials* 2023, 13, 215. <https://doi.org/10.3390/nano13010215>
2. S. Filice, V. Scuderi, S. Libertino, M. Zimbone, C. Galati, N. Spinella, L. Gradon, L. Falqui, S. Scalese, Sulfonated Pentablock Copolymer Coating of Polypropylene Filters for Dye and Metal Ions Effective Removal by Integrated Adsorption and Filtration Process, *Int. J. Mol. Sci.* 2022, 23, 11777 <https://doi.org/10.3390/ijms231911777>
3. V. Trovato, S. Sfameni, G. Rando, G. Rosace, S. Libertino, A. Ferri, and M. R. Plutino, *A Review of Stimuli-Responsive Smart Materials for Wearable Technology in Healthcare: Retrospective, Perspective, and Prospective*, *Molecules* 2022, 27, 5709, <https://doi.org/10.3390/molecules27175709>
4. S. Filice, E. L. Sciuto, S. Scalese, G. Faro, S. Libertino, D. Corso, R. M. Timpanaro, P. Laganà, M. A. Coniglio, *Innovative Antibiofilm Smart Surface against Legionella for Water Systems*, *Microorganisms* 2022, 10, 870, <https://doi.org/10.3390/microorganisms10050870>
5. S. Filice, C. Bongiorno, S. Libertino, G. Compagnini, L. Gradon, D. Iannazzo, A. La Magna, and S. Scalese, *Structural characterization and adsorption properties of Dunino raw halloysite mineral for dyes removal from water*. *Materials* 2021, 14, 3676 <https://doi.org/10.3390/ma14133676>
6. S. Filice, C. Bongiorno, S. Libertino, L. Gradon, D. Iannazzo, and S. Scalese, *Photo-Fenton Degradation of Methyl Orange with Dunino Halloysite as a Source of Iron*, *Catalysts* 2022, 12, 257. Doi: 10.3390/catal12030257
7. E. L. Sciuto, D. Corso, S. Libertino, J. R. van der Meer, G. Faro, and M. A. Coniglio, *A Miniaturized Microbe-Silicon-Chip Based on Bioluminescent Engineered Escherichia coli for the Evaluation of Water Quality and Safety*, *International Journal of Environmental Research and Public Health*, 2021, 18, 7580. <https://doi.org/10.3390/ijerph18147580>
8. E.L. Sciuto, P. Laganà, S. Filice, S. Scalese, S. Libertino, D. Corso, G. Faro, and M.A. Coniglio, *Environmental Management of Legionella in Domestic Water Systems: Consolidated and Innovative Approaches for Disinfection Methods and Risk Assessment*, *Microorganisms* 2021, 9, 577. Doi: 10.3390/microorganisms9030577,
9. E. L. Sciuto, S. Filice, M. A. Coniglio, G. Faro, L. Gradon, C. Galati, N. Spinella, S. Libertino, and S. Scalese, *Antimicrobial s-PBC Coatings for Innovative Multifunctional Water Filters*, *Molecules* 2020, 25, 5196; doi:10.3390/molecules25215196,
10. G. Maira, A. M. Chiarelli, S. Brafa, S. Libertino, G. Fallica, A. Merla, and S. Lombardo, *Imaging System Based on Silicon Photomultipliers and Light Emitting Diodes for Functional Near-Infrared Spectroscopy*, *Appl. Sci.* 2020, 10, 1068; doi:10.3390/app10031068
11. E. L. Sciuto, M. A. Coniglio, D. Corso, J. R. van der Meer, F. Acerbi, A. Gola, and S. Libertino, *Biosensor in monitoring water quality and safety: an example of miniaturizable whole-cell based sensor for Hg²⁺ optical detection in water*, *Water* 11, 1986, 2019 doi:10.3390/w11101986
12. S. Boscarino, S. Filice, A. Sciuto, S. Libertino, M. Scuderi, C. Galati, S. Scalese, *Investigation of ZnO-decorated CNTs for UV light detection applications*, *Nanomaterials* 9(8), August 2019, Art. n. 1099, doi:10.3390/nano9081099
13. E.L. Sciuto, G. Villaggio, M.F. Santangelo, S. Laudani, C. Federico, S. Saccone, F. Sinatra, S. Libertino, *Study of a miniaturizable system for optical sensing application to human cells*, *Applied Sciences* 9 (5), 2019, Art. n. 975, doi:10.3390/app9050975
14. E. L. Sciuto, C. Bongiorno, A. Scandurra, S. Petralia, T. Cosentino, S. Conoci, F. Sinatra, S. Libertino, *Functionalization of bulk SiO₂ surface with biomolecules for sensing applications: structural and functional characterizations*, *Chemosensors* 6, 59, 2018 doi:10.3390/chemosensors6040059
15. G. Maira, M. Mazzillo, S. Libertino, G. Fallica, and S. Lombardo, *Crucial aspects for the use of silicon photomultiplier devices in Continuous Wave functional Near Infrared Spectroscopy*, *Biomedical Optics Express* 9 (10), pag. 4679-4688, 2018

16. M. Mazzillo, L. Maddiona, F. Rundo, A. Sciuto, S. Libertino, S. Lombardo, G. Fallica, *Characterization of SiPMs with NIR Long-Pass Interferential and Plastic Filters*, IEEE Photonics Journal 10(3) pag. 1-12 DOI: 10.1109/JPHOT.2018.2834738 2018
17. S. Petralia, E.L. Sciuto, M. F. Santangelo, S. Libertino, M.A. Messina, and S. Conoci, *Sulfide Species Optical Monitoring by a Miniaturized Silicon Photomultiplier*, Sensors 18, pag. 727–734, 2018
18. M. Mazzillo, A. Sciuto, S. Libertino, S. Lombardo, G. Fallica, *Impact of Long-Pass Interferential Filters on Dark Current and Background Light Rejection in Silicon Photomultipliers*, Journal of Instrumentation 13, P020016, 2018
19. M.F. Santangelo, S. Libertino, A.P.F. Turner, D. Filippini and W.C. Mak, *Integrating printed microfluidics with silicon photomultipliers for miniaturised and highly sensitive ATP bioluminescence detection*, Biosensors and Bioelectronics 99 pag. 464-470, 2018 DOI: 10.1016/j.bios.2017.07.055
20. A. M. Chiarelli, S. Libertino, F. Zappasodi, M. Mazzillo, F. Di Pompeo, A. Merla, S. Lombardo & G. Fallica, *Characterization of a fiberless, multichannel optical probe for continuous-wave functional near-infrared spectroscopy based on silicon photomultipliers detectors: in-vivo assessment of primary sensorimotor response*, Neurophotonics 4(3), 035002 (2017), doi: 10.1117/1.NPh.4.3.035002.
21. M. Mazzillo, D. Mello, P. P. Barbarino, M. Romeo, Y. Musienko, A. Sciuto, S. Libertino, S. Lombardo and G. Fallica, *Electro-Optical Characterization of SiPMs with Green Bandpass Dichroic Filters*, IEEE Sensors Journal 17(13), pag. 4075 – 4082, 2017, DOI: 10.1109/JSEN.2017.2699202
22. S. Petralia, T. Cosentino, F. Sinatra, M. Favetta, P. Fiorenza, C. Bongiorno, E.L. Sciuto, S. Conoci and S. Libertino, *Silicon Nitride Surfaces as Active Substrate for Electrical DNA Biosensors*, Sensors and Actuators B 252, pag. 492–502, 2017
23. M. Mazzillo, D. Mello, P. P. Barbarino, M. Romeo, Y. Musienko, A. Sciuto, S. Libertino, S. Lombardo and G. Fallica, *Noise Reduction in Silicon Photomultipliers for Use in Functional Near-Infrared Spectroscopy*, IEEE Transactions on Radiation and Medical Plasma Sciences 1(3), pag. 212-220, 2017, DOI: 10.1109/TRPMS.2017.2679003
24. M.F. Santangelo, E.L. Sciuto, A.C. Busacca, S. Petralia, S. Conoci and S. Libertino, *Si-photomultipliers for bio-sensing applications*, IEEE Journal of Selected Topics in Quantum Electronics 22(3) (2016) 6900307
25. S. Scalese, I. Nicotera, D. D'Angelo, S. Filice, S. Libertino, C. Simari, V. Privitera, *Cationic and Anionic Azo-Dye Removal from Water by Sulfonated Graphene Oxide Nanosheets in Nafion Membranes*, New J. Chem. 40 (4) 3654-3663, 2016 DOI: 10.1039/C5NJ03096J
26. R. Pagano, S. Libertino, D. Sanfilippo, G. Fallica, S. Lombardo, *Improvement of Sensitivity in Continuous Wave Near Infra-Red Spectroscopy Systems by using Silicon Photo-Multipliers*, Biomedical Optics Express 7(4), 1183-1192, 2016
27. Scalese, S; Scuderì, V; D'Angelo, D; Buscema, MMG; Libertino, S; Puglisi, RA; Miritello, M; Privitera, V; *Photocatalytic properties of carbon nanotubes/titania nanoparticles composite layers deposited by electrophoresis*, Materials Science in Semiconductor Processing 42, pp. 45-49 2016
28. Santangelo, MF; Sciuto, EL; Busacca, AC; Petralia, S; Conoci, S; Libertino, S; *SiPM as miniaturised optical biosensor for DNA-microarray applications*, Sensing & Biosensing Research 6, pp. 95–98, 2015
29. Sciuto, EL; Santangelo, MF; Villaggio, G; Sinatra, F; Bongiorno, C; Nicotra, G; Libertino, S; *Photo-physical characterization of fluorophore Ru(bpy)₃²⁺ for optical biosensing applications*, Sensing & Biosensing Research 6, pp. 67–71, 2015
30. M. Favetta, A. Valletta, G. Fortunato, M.E. Castagna, S. Conoci, E.L. Sciuto, T. Cosentino, F. Sinatra, S. Libertino, *Development of Si-based Electrical Biosensors: simulations and first experimental results*, Sensing & Biosensing Research 6 72–78, 2015
31. Mannino, Giovanni; Alberti, Alessandra; Ruggeri, Rosa; Libertino, Sebania; Pennisi, Agata R; Faraci, Giuseppe; *Octahedral faceted Si nanoparticles as optical traps with enormous yield amplification*, Scientific Reports 5, 8354, (DOI: 10.1038/srep08354) 2015
32. Nicotra, G; Sciuto, EL; Santangelo, MF; Villaggio, G; Sinatra, F; Bongiorno, C; Libertino, S; *Single Atom Detection Through HAADF-STEM and EELS/EDX Characterization of Fluorophore Ru(bpy)₃²⁺ for Optical DNA-Chip Applications*, Microscopy and Microanalysis 21 (S3), pp. 1429-1430, 2015, Cambridge University Press DOI: 10.1017/S1431927615007928
33. S. Filice, D. D'Angelo, S. Libertino, I. Nicotera, V. Kosma, V. Privitera, S. Scalese, *Graphene oxide and titania hybrid Nafion membranes for efficient removal of methyl orange dye from water*, Carbon 82, Issue C, 2015, Pages 489-499
34. Pagano, R; Lombardo, S; Palumbo, F; Sanfilippo, D; Valvo, G; Fallica, G; Libertino, S; *Radiation hardness of Silicon Photomultipliers under 60Co γ-ray irradiation*, Nuclear Inst. and Methods in Physics Research A 767, 347-352, 2014
35. Pagano, R; Valvo, G; Sanfilippo, D; Libertino, S; Corso, D; Fallica, PG; Lombardo, S; *Silicon Photomultiplier Device Architecture with Dark Current Improved to the Ultimate Physical Limit*, Applied Physics Letters Vol. 102 (18), 183502, 2013
36. S. Libertino, S. Conoci, A. Scandurra, C. Spinella, *Biosensor integration on Si-based devices: Feasibility studies and examples*, Sensors and Actuators, B: Chemical Vol. 179, 2013, Pages 240-251
37. D. Corso, S. Libertino, M. Lisiansky, Y. Roizin, F. Palumbo, F. Principato, C. Pace, P. Finocchiaro, S. Lombardo, *Threshold Voltage Variability of NROM memories after exposure to ionizing radiation*, IEEE Transaction on Electron Devices Vol 59(10), pag. 2597 - 2602, 2012
38. S. Libertino, G. Cannella, V. Aiello, A. Busacca, S. Lombardo, *Electrical characterization of deoxyribonucleic acid hybridization in metal-oxide-semiconductor-like structures*, Applied Physics Letters Vol. 101, Issue 9, 27 August 2012, Article number 093703
39. R. Pagano, D. Corso, S. Lombardo, G. Valvo, D. N. Sanfilippo, G. Fallica, S. Libertino, *Dark current in silicon photomultiplier pixels: Data and model*, IEEE Transactions on Electron Devices Vol. 59, Issue 9, 2012, Article number 6262467, Pages 2410-2416
40. Libertino, S.; Corso, D.; Lisiansky, M.; Roizin, Y.; Palumbo, F.; Principato, F.; Pace, C.; Finocchiaro, P.; Lombardo, S.; *Ionizing radiation effects on Non Volatile Read Only Memory cells*, IEEE transaction on Nuclear Science Vol. 59 (6), pag. 3016-3020, 2012
41. Alberti, A.; Roccaforte, F.; Libertino, S.; Bongiorno, C.; La Magna, A.; *Schottky barrier inhomogeneities in Nickel Silicide transrotational layers*, Applied Physics Express 4, art. N. 115701, 2011
42. Libertino, S; Corso, D; Murè, G; Marino, A; Palumbo, F; Principato, F; Cannella, G; Schillaci, T; Giarusso, S; Celi, F; Lisiansky, M.; Roizin, Y.; Lombardo, S.; *Radiation effects in nitride read-only memories*, Microelectronics Reliability 50, pag. 1857–1860, 2010
43. M. Lisiansky, G. Cassuto, Y. Roizin, D. Corso, S. Libertino, A. Marino, S. Lombardo, I. Crupi, C. Pace, F. Crupi, *Radiation tolerance of NROM embedded products*, IEEE Transactions on Nuclear Science 57 (4), pag. 2309-2317, 2010
44. Arrabito, G; Musumeci, C; Aiello, V; Libertino, S; Compagnini, G; Pignataro, B; *On the relationship between jetted inks and printed bio-patterns: molecular-thin functional micro-arrays of glucose oxidase*, Langmuir 25 (11), pag. 6312–6318, 2009
45. S. Libertino, V. Aiello, A. Scandurra, M. Renis, F. Sinatra, S. Lombardo, *Feasibility studies on Si-based biosensors*, Sensors Vol. 9, Issue 5, 27 April 2009, Pages 3469-3490
46. S. Libertino, V. Aiello, A. Scandurra, M. Renis, F. Sinatra, *Immobilization of the enzyme glucose oxidase on both bulk and porous SiO₂ surfaces*, Sensors Volume 8, Issue 9, September 2008, Pages 5637-5648

47. Libertino, S; Fichera, M; Aiello, V; Lombardo, S; Scandurra, A; Renis, M; Sinatra, F; *Electrical characterization of biological molecules deposition in MOS capacitors*, Sensor Letters 6 (4), pp. 531-536, 2008
48. S. Libertino, F. Giannazzo, V. Aiello, A. Scandurra, F. Sinatra, M. Renis, M. Fichera, *XPS and AFM characterization of the enzyme glucose oxidase immobilized on SiO₂ surfaces*, Langmuir Volume 24, Issue 5, 4 March 2008, Pages 1965-1972
49. S. Libertino, A. Scandurra, V. Aiello, F. Giannazzo, F. Sinatra, M. Renis, M. Fichera, *Layer uniformity in glucose oxidase immobilization on SiO₂ surfaces*, Applied Surface Science Volume 253, Issue 23, 30 September 2007, Pages 9116-9123
50. Libertino, S; Fichera, M; Aiello, V; Statello, G; Fiorenza, P; Sinatra, F; *Experimental characterization of proteins immobilized on Si-based materials*, Microelect. Eng. 84 (3), pag. 468-473, 2007
51. Sciuto, A; Libertino, S; *Experimental analyses of a BMFET light intensity modulator: from the static distributions to the carriers plasma dynamic and the electro-optical device performances*, Semicond. Sci. Technol. 21 (7), pag. 890-897, 2006
52. Sciuto, A; Libertino, S; *Miniaturizable Si-Based Light Intensity Modulator for integrated sensing applications*, J. of Lightwave Technology 24 (3), pag. 1403-1408, 2006
53. Ruggiero, A; Libertino, S; Roccaforte, F; La Via, F; Calcagno, L; *Effects of implantation defects on the carrier concentration of 6H-SiC*, Appl. Phys. A-Mat. Sci. & Proc. 82 (3), pag. 543-547, 2006
54. Roccaforte, F; Libertino, S; Raineri, V; Ruggiero, A; Massimino, V; Calcagno, L; *Defects and electrical behavior in 1 MeV Si⁺-ion-irradiated 4H-SiC Schottky diodes*, J. Appl. Phys. 99 (1), Art. n° 013515, 2006
55. Roccaforte, F; Giannazzo, F; Bongiorno, C; Libertino, S; La Via, F; Raineri, V; *Ion-beam Induced Modifications of Titanium Schottky Barrier on 4H-SiC* Materials Science Forum Vols. 483-485, pag. 729-732 Part of the book: Silicon Carbide and Related Materials 2004, Edited by: R. Nipoti, A. Poggi and A. Scorzoni
56. Ruggiero, A; Zimbone, M; Roccaforte, F; Libertino, S; La Via, F; Reitano, R; Calcagno, L; *Defect Evolution in Ion Irradiated 6H-SiC Epitaxial Layers*, Materials Science Forum Vols. 483-485, pag. 485-488, Part of the book: Silicon Carbide and Related Materials 2004, Edited by: R. Nipoti, A. Poggi and A. Scorzoni
57. Sciuto, A; Libertino, S; Coffa, S; Coppola, G; Iodice, M; *Experimental evidences of carrier distribution and behavior in frequency in a BMFET Modulator*, IEEE Transactions on Electron Devices, 52,(11), pag. 2374 – 2378, 2005
58. Roccaforte, F; Libertino, S; Giannazzo, F; Bongiorno, C; La Via, F; Raineri, V; *Ion irradiation of inhomogeneous Schottky barriers on silicon carbide*, J. of Appl. Phys. 97 (12), Art. n° 123502, 2005
59. Sciuto, A; Libertino, S; Coffa, S; Coppola, G; *Miniaturizable Si-based electro-optical modulator working at 1.5µm*, Appl. Phys. Lett. 86 (20), Art. n° 201115, 2005
60. Mannino, G; Privitera, V; Scalese, S; Libertino, S; Napolitani, E; Pichler, P; Cowern, NEB; *Effect of oxygen on the diffusion of Nitrogen implanted in Silicon*, Electrochem. and Solid-State Lett. 7 (8), , pag. G161 – G163, 2004
61. Libertino, S; Fichera, M; La Mantia, A; Ricceri, D; *Optical and structural characterization of bacterio-rhodopsin films on Si-based materials*, Synthetic Metals 138 (1-2), pag. 141-144, 2003
62. Libertino, S; Fichera, M; D'Arrigo, G; La Mantia, A; Ricceri, D; *Characterization and patterning of bacteriorhodopsin films on Si-based materials*, Synthetic Metals 138 (1-2), pag. 71-74, 2003
63. Sciuto, A; Libertino, S; Alessandria, A; Coffa, S; Coppola, G; *Design, fabrication, and testing of an integrated Si-based light modulator*, Journal of Lightwave Technology 21 (1), pag. 228-235, 2003
64. Kik, PG; Polman, A; Libertino, S; Coffa, S; *Design and performance of an erbium doped silicon waveguide detector operating at 1.5 µm*, Journal of Lightwave Technology 20 (5), pag. 834 – 839, 2002
65. La Magna, A; Coffa, S; Libertino, S; Strobel, Matthias; Colombo, L; *Atomistic simulations and the requirements of process simulator for novel semiconductor devices*, Comp. Mat. Sci. 24 (1-2), pag. 213-222, 2002
66. Libertino, S; Coffa, S; La Magna, A; *Room temperature defect diffusion in ion implanted c-Si*, Nucl. Instr. and Meth. in Phys. Res. B 186, pag. 265-270, 2002
67. Libertino, S; Coffa, S; Spinella, C; La Magna, A; Privitera, V; *Point defect diffusion and clustering in ion implanted c-Si*, Nucl. Instr. and Meth. in Phys. Res. B 178, pag. 25-32, 2001
68. La Magna, A; Coffa, S; Libertino, S; Brambilla, L; Alippi, P; Colombo, L; *A multi-scale atomistic study of the interstitials agglomeration in crystalline Si*, Nucl. Instr. and Meth. in Phys. Res. B 178, pag. 154-159, 2001
69. S. Libertino, S. Coffa, J.L. Benton, *Formation, evolution, and annihilation of interstitial clusters in ion-implanted Si*, Physical Review B - Condensed Matter and Materials Physics Volume 63, Issue 19, 20 April 2001, 14p
70. Libertino, S; Coffa, S; Saggio, M; *Design and fabrication of integrated Si-based optoelectronic devices*, Material Science in Semiconductor Processing, 3 (5-6), pag. 375-381, 2000
71. Coffa, S; Libertino, S; Coppola, G; Cutolo, A; *Feasibility analysis of laser action in erbium doped silicon waveguides*, IEEE Journal of quantum electronics 36 (10), pag. 1206-1213, 2000
72. Libertino, S; Coffa, S; Spinella, C; Benton, JL; Arcifa, D; *Cluster formation and growth in Si ion implanted c-Si*, Mat. Science and Engineering B71, pag. 137-142, 2000
73. S. Coffa, S. Libertino, C. Spinella, *Transition from small interstitial clusters to extended {311} defects in ion-implanted Si*, Applied Physics Letters Volume 76, Issue 3, 17 January 2000, Pages 321-323
74. Libertino, S; Coffa, S; Mosca, R; Gombia, E; *The electrical properties of terbium ions in crystalline Si*, J. Appl. Phys. 85 (4), pag. 2093-2099, 1999
75. Libertino, S; Coffa, S; *Migration and interaction properties of ion beam generated point defects in c-Si*, Nucl. Instr. and Methods in Phys. Research B 147 (1-4), pag. 23-28, 1999
76. Libertino, S; Coffa, S; Benton, JL; Halliburton, K; Eaglesham, DJ; *Formation, evolution and annihilation of interstitial clusters in ion implanted Si*, Nucl. Instr. and Meth. in Phys. Research B 148 (1-4), pag. 247-251, 1999
77. S. Coffa, S. Libertino, *Room-temperature diffusivity of self-interstitials and vacancies in ion-implanted Si probed by in situ measurements*, Applied Physics Letters Volume 73, Issue 23, 1998, Pages 3369-3371,
78. S. Libertino, J. L. Benton, S. Coffa, D. J. Eaglesham, *Impurity and clustering effects on defect evolution in ion implanted Si*, Il Nuovo Cimento D - Condensed Matter Atom. Mol. and Chem. Phys. Fluids Plasmas Biophys. Vol. 20, (10), pag. 1529-1548, 1998

79. Benton, JL; Halliburton, K; Libertino, S; Eaglesham, DJ; Coffa, S; *Electrical signatures and thermal stability of interstitial clusters in ion implanted Si*, J. Appl. Phys. 84 (9), pag. 4749-4756, 1998
80. S. Libertino, J.L. Benton, D.C. Jacobson, D.J. Eaglesham, J.M. Poate, S. Coffa, P. Kringhøj, P.G. Fuochi, M. Lavalle, *Evolution of interstitial- and vacancy-type defects upon thermal annealing in ion-implanted Si*, Applied Physics Letters Volume 71, Issue 3, 21 July 1997, Pages 389-391
81. Benton, JL; Libertino, S; Kringho, P; Eaglesham, DJ; Poate, JM; Coffa, S; *Evolution from point to extended defects in ion implanted Si*, J. Appl. Phys. 82 (1), pag. 120-125, 1997
82. Libertino, S; Benton, JL; Jacobson, DC; Eaglesham, DJ; Poate, JM; Coffa, S; Fuochi, PG; Lavalle, M; *The effect of impurity content on point defect evolution in ion implanted and electron irradiated Si*, Appl. Phys. Lett. 70 (22), pag. 3002-3004, 1997,
83. Coffa, S; Privitera, V; Priolo, F; Libertino, S; Mannino, G; *Depth profiles of vacancy- and interstitial-type defects in MeV implanted Si*, J. Appl. Phys. 81 (4), pag. 1639-1644, 1997
84. Raineri, V; Fallica, G; Libertino, S; *Lifetime control in silicon devices by voids induced by He ion implantation*, J. Appl. Phys. 79 (12), pag. 9012-9016, 1996
85. Privitera, V; Coffa, S; Priolo, F; Larsen, K K; Libertino, S; Carnera, A; *Room temperature migration of ion beam injected point defects in crystalline silicon*, Nucl. Instr. and Meth. in Phys. Res. B 120 (1-4), pag. 9-13, 1996
86. Coffa, S; Franzo, G; Priolo, F; Libertino, S; Mosca, R; Gombia, E; Spinella, C; *Ion implantation doping for optoelectronic applications*, Nucl. Instr. and Meth. in Phys. Res. B 120 (1-4), pag. 74-80, 1996
87. Priolo, F; Franzo, G; Coffa, S; Polman, A; Snoeks, E; van den Hoven, GN; Libertino, S; Lombardo, S; Campisano, SU; Carnera, A; *Optical doping of materials by erbium ion implantation*, Nucl. Instr. and Meth. in Phys. Res. B 116 (1), pag. 77-84, 1996
88. Coffa, S; Priolo, F; Franzo, G; Polman, A; Libertino, S; Saggio, M; Carnera, A; *Material issues and device performances for of light emitting Er-implanted Si*, Nucl. Instr. and Meth. in Phys. Res. B 106 (1-4), pag. 386-392, 1995,
89. S. Libertino, S. Coffa, G. Franzó, F. Priolo, *The effects of oxygen and defects on the deep-level properties of Er in crystalline Si*, Journal of Applied Physics Volume 78, Issue 6, 1995, Pages 3867-3873
90. Priolo, F; Franzo, G; Coffa, S; Polman, A; Libertino, S; Barklie, R; Carey, D; *The Erbium-impurity interaction and its effects on the 1.54 μ m luminescence of Er³⁺ in crystalline Silicon*, J. Appl. Phys. 78 (6), pag. 3874-3882, 1995
91. Battaglia, A; Coffa, S; Priolo, F; Spinella, C; Libertino, S; *Defect evolution in ion implanted crystalline Si probed by in situ conductivity measurements*, Nucl. Instr. and Meth. in Phys. Res. B 96 (1-2), pag. 219-222, 1995

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Catania 09/06/2022

