



Alessandro Paolo BRAMANTI

WORK EXPERIENCE

- July 2011 **Appointed member of the STMicroelectronics Technical Staff**
- June 2007 **Appointed leader of the eHealth team (micro- and nanotechnologies for health) of the STMicroelectronics Lecce laboratory**
- February 2004 **Hired as researcher with the Advanced System Technology R&I Division di STMicroelectronics, Lecce**
- November 2002–January 2004 **Post-doc researcher with the National Nanotechnology Laboratory (NNL) of the National Institute of Physics of Matter (INFM) at the University of Salento (Lecce, Italy)**
Supervision: prof. Roberto Cingolani, prof. Rosaria Rinaldi
- March 2001 – December 2001 **Consultant researcher on industrial optimization problems for Weidmann Electric Ltd., Rapperswil, CH**

EDUCATION AND TRAINING

- February 2010 **Laurea magistrale (M.Sc) cum laude in Physics of Matter**
University of Salento, Lecce, Italy
- April 2007 **Bachelor degree cum laude in Physics of Matter**
University of Salento, Lecce, Italy
- November 1999–October 2002 **Ph.D. in mathematics applied to multi-objective design**
Department of Electrical Engineering of the University of Pavia (Pavia, Italy)
Supervisors: prof. Antonio Savini, prof. Paolo Di Barba
Thesis: "Multi-objective Optimization in Electrical Engineering: a Bayesian Approach" defended in February 2003
- September 1999 **Laurea (Bachelor+MSc) cum laude in Electronic Engineering**
Thesis: "Potenziali di far-field in neurofisiologia: modelli, simulazioni, misure" (Far-field potentials in neurophysiology: models, simulations, measurements).

September 1994 Grant at the Almo Collegio Borromeo of Pavia, which was confirmed on an annual basis throughout the entire five-year laurea course, because of my University performance

July 1994 High-school Diploma in Information Technology at the Istituto Tecnico Industriale Statale "G. Cardano" di Pavia
Final mark: 60/60

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
German	A2	A2	A2	A2	A1
French	A1	A1	A2	A2	A1
Polish	A1	A1	A1	A1	A1
Spanish	A2	B2	B1	B1	A2

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills ▪ good communication skills gained through extensive teaching and conferencing

Computer skills ▪ good command of Windows /MacOSX operating systems
▪ good command of Microsoft Office™/ LibreOffice tools
▪ good command of MatLab for scientific programming

Driving licence ▪ B

ADDITIONAL INFORMATION

Publications

- O.A. Olumodeji, A.P. Bramanti, M. Gottardi, A Memristive Pixel Architecture for Real-Time Tracking, *IEEE Sensors Journal*, Vol. 16, n. 22, pp. 7911 – 7918, 2016
- O.A. Olumodeji, A.P. Bramanti, M. Gottardi, A memristor-based pixel implementing light-to-resistance conversion, *Opt. Eng.* 55(2), 020501, 2016
- A.P. Bramanti, A. Santana-Bonilla, R. Rinaldi, Quantum-dot Cellular Automata with Real-world Molecules, *Int. J. Unconv. Comp.* Vol. 11 Issue 1, p63-82 2015
- A. Santana-Bonilla, R. Gutierrez, L. Medrano Sandonas, D. Nozaki, A.P. Bramanti, G. Cuniberti, Structural distortions in molecular-based quantum cellular automata: A minimal model based study, *Phys. Chem. Chem. Phys.*, 16, pp. 17777-17785, 2014.
- S. Karmakar, S. Kumar, P. Marzo, E. Primiceri, R. Di Corato, R. Rinaldi, P.G. Cozzi, A.P. Bramanti, G. Maruccio, Single electron tunneling in large scale nanojunction arrays with bisferrocene–nanoparticle hybrids. *Nanoscale* 4, 2311-2316, 2012
- V. Arima, M. Iurlo, L. Zoli, S. Kumar, M. Piacenza, F. Della Sala, F. Matino, G. Maruccio, R. Rinaldi, F. Paolucci, M. Marcaccio, P.G. Cozzi, A.P. Bramanti, Toward Quantum-Dot Cellular Automata Units: Thiolated-Carbazole Linked Bisferrocenes. *Nanoscale*, 4, 813 – 823, 2012
- V. Maiorano, A. Bramanti, S. Carallo, and G. Gigli. Organic light emitting field effect transistors based on an ambipolar p-i-n. *Appl. Phys. Lett.*, 96:133305–1–3, 2010.
- A. Bramanti, G. Maruccio, P. Visconti, S. D’Amico, R. Cingolani, and R. Rinaldi. Field-emission breakdown and electromigration in insulated planar nanoscopic contact. *IEEE Trans. Elec. Dev.*, 53(12):2958–2964, 2006.
- P.P. Pompa, A. Della Torre, L.L. del Mercato, R. Chiuri, A. Bramanti, F. Calabi, G. Maruccio, R. Cingolani, and R. Rinaldi. Charge transport in disordered films of non-redox proteins. *J. Chem. Phys.*, 125:021103–1–4, 2006.
- A. Bramanti, P.P. Pompa, G. Maruccio, F. Calabi, V. Arima, R. Cingolani, S. Corni, R. Di Felice, F. De Rienzo, and R. Rinaldi. Azurin for biomolecular electronics: a reliability study. *J. Appl. Phys.*, 44(9A):6864–6866, 2005.
- P.P. Pompa, A. Bramanti, G. Maruccio, L.L. Del Mercato, R. Cingolani, and R. Rinaldi. Aging of solid-state protein films: Behavior of azurin at ambient conditions. *Chem. Phys. Lett.*, 404:59–63, 2005.
- P.P. Pompa, A. Bramanti, G. Maruccio, R. Cingolani, F. De Rienzo, S. Corni, R. Di Felice, and R. Rinaldi. Retention of nativelike conformation by proteins embedded in high external electric fields. *J. Chem. Phys.*, 122:181102–1–4, 2005.
- G. Maruccio, A. Biasco, P. Visconti, A. Bramanti, P.P. Pompa, F. Calabi, R. Cingolani, R. Rinaldi, S. Corni, R. Di Felice, E. Molinari, M.P. Verbeet, and G.W. Canters. Towards protein field-effect transistors: Report and model of a prototype. *Adv. Mater.*, 17(7):816–822, April 2005.
- G. Maruccio, P. Visconti, A. Biasco and A. Bramanti, A. Della Torre, P.P. Pompa, V. Frascerra, V. Arima, E. D’Amone, R. Cingolani, and R. Rinaldi. Nano-scaled biomolecular field-effect transistors: Prototypes and evaluations. *Electroanalysis*, 16(22):1853–1862, 2004. Review.
- S. D’Amico, G. Maruccio, P. Visconti, E. D’Amone and A. Bramanti, R. Cingolani, and R. Rinaldi. Ambipolar transistors based on azurin proteins. *IEE Proceedings on Nanobiotechnology*, 11/2004; 151(5):173-5.
- P. Visconti, A. Della Torre, G. Maruccio, E. D’Amone and A. Bramanti, R. Cingolani, and R. Rinaldi. The fabrication of sub-10nm planar electrodes and their use for a molecule-based transistor. *Nanotechnology*, 15:807–811, 2004.
- M. Farina, A. Bramanti, and P. Di Barba. A GRS method for Pareto-optimal front identification in electromagnetic synthesis. *IEE Proceedings–Science, Measurement and Technology*, 149(5):207–213, September 2002.
- A. Bramanti, P. Di Barba, M. Farina, and A. Savini. Combining response surfaces and evolutionary strategies for multiobjective pareto optimization in electromagnetics. *International Journal of Applied Electromagnetics and Mechanics*, 11:231–236, 2000.
- P.P. Pompa, A. Bramanti, G. Maruccio, L.L. del Mercato, R. Chiuri, R. Cingolani, and R. Rinaldi. Effects of high external electric fields on protein conformation. In *Proceedings of SPIE-5838*, pages 171–81, 2005.

Conference Publications and Talks

- G. Maruccio, P. Visconti, A. Biasco, A.P. Bramanti, E. D'Amone, R. Cingolani, R. Rinaldi. Metalloprotein-based field-effect transistor: a prototype. In Nanotechnology 2004. 4th IEEE Conference on, pages 113–115, August 2004.
- A. Biasco, G. Maruccio, P. Visconti, A. Bramanti, P. Calogiuri, R. Cingolani, and R. Rinaldi. Self-chemisorption of azurin on functionalized oxide surfaces for the implementation of biomolecular devices. In Mat. Sci. Engin. C, volume 24, pages 563–567, 2004.
- R. Rinaldi, G. Maruccio, A. Bramanti, P. Visconti, A. Biasco, V. Arima, S. D'Amico, and R. Cingolani. Nano-bio Electronic Devices Based on DNA Bases and Proteins. In E. Buzaneva and P. Scharff, editors, Frontiers of Multifunctional Integrated Nanosystems, pages 225–250. Kluwer Academic Publishers, 2004.
- A. Bramanti, P. Di Barba, A. Savini, and U. Anselmi Tamburini and F. Maglia. Identification of Conductivity Distribution in a Au-Al Junction for Application to Integrated Circuits. In M. Rudnicki and S. Wiak, editors, Optimization and Inverse Problems in Electromagnetism. Kluwer Academic Press, 2003.
- Nanobioelectronic devices based on DNA bases and proteins, July 12–16 2003. Invited talk at the NATO ARW Summer School “Frontiers in Molecular-scale Science and Technology of Nanocarbon, Nanosilicon, and Biopolymer Integrated Nanosystems”, Ilmenau, Germany.
- Biomolecular electronics - Building devices with DNAbases and proteins, October 21–24 2003. Invited talk at the EU-China Workshop on Multifunctionals Materials by Design, Bologna, Italy.
- P. Visconti, G. Maruccio, E. D'Amone, A. Della Torre, A. Bramanti, R. Cingolani, and R. Rinaldi. Fabrication of sub-10nm planar nanotips for transport experiments of biomolecules. In Materials Science and Engineering C, volume 23, pages 889–892. Elsevier, 2003.
- Biomolecular devices: an experimental and theoretical study, June 9–13 2003. Invited talk at the European Material Research Society (E-MRS) Spring Meeting, Strasbourg, France.
- Chairman at Symposium B, session :“Theory, modeling” of the European Material Research Society (E-MRS) Spring Meeting, Strasbourg, France, June 2003.
- A Bayesian imaging-inspired method for pareto optimisation in electromagnetics, September 12–14 2002. Invited talk at the Optimisation and Inverse Problems in Electromagnetism workshop, OIPE 2002, Lodz, Poland.
- Design optimization of transformer insulation, September 2002. Invited talk at the Conference on Computation in Electromagnetism, CEM 2002, Bournemouth, UK.
- Modelling small brushless motors: an alternative approach using conformal transformations, August 2001. Talk at the 11th International Symposium on Theoretical Electrical Engineering, ISTET 2001, Linz, Austria.
- M. Farina, A. Bramanti, and P. Di Barba. Combining global and local search of non-dominated solutions in inverse electromagnetism. volume Proceedings of the EUROGEN'2001 Conference, pages 196–201, International Center for Numerical Methods in Engineering (CIMNE), Barcelona, Spain, March 2001.
- Far-field potentials in neurophysiology and their origin: Computational aspects, September 23–25 1999. Orally presented at the International Symposium on Electromagnetic Fields in Electrical Engineering, Pavia, Italy.

Patents

- US20210103631, A.P. Bramanti, Bitwise digital circuit and method for performing approximate operations, 2021
- US20210119630, A.P. Bramanti, Low-power digital signal processing

- US20210117501, A.P. Bramanti, System and method for performing vector rotation, 2021
- US20210104626, A.P. Bramanti, A. Pagani, A. Santangelo, Power device, system including the power device, method for manufacturing the power device, and method for controlling the power device, 2021
- US20200321457, A.P. Bramanti, A. Pagani, Two-dimensional electron gas (2DEG)-confined devices and methods , 2020
- US20200371169, A.P. Bramanti, A. Pagani, Triaxial magnetic sensor for measuring magnetic fields, and manufacturing process thereof, 2020
- US20190201899, M. Cereda, L. Raia, A.P. Bramanti, Solid reagent containment unit, in particular for a transportable microfluidic device for sample preparation and molecule analysis, 2019
- US20190312136, A.P. Bramanti, A. Pagani, Ballistic transport device and corresponding component, 2019
- US20190201898 D. Cucchi, M.A. Bianchessi, A. Cocci, L.Raia, L. Bruno, N. Serina, M. Cereda, D. Pirola, P. Ferrari, F. Ferrara, A.P. Bramanti, Cartridge for sample preparation and molecule analysis, cartridge control machine, sample preparation system and method using the cartridge, 2019
- US20170369943, A.P. Bramanti, M.A. Bianchessi, Method and device for nucleic acid sequencing, 2017
- US20160167046, A.P. Bramanti, Rigid mask for protecting selective portions of a chip, and use of the rigid mask, 2016
- US20150075988, A.P. Bramanti, Integrated microfluidic circuit with electrowetting-based operation and corresponding microfluidic system, 2015
- US20140145751, A.P. Bramanti, Electronic device for implementing digital functions through molecular functional elements, 2014
- US20110155996, P.G. Cozzi, L. Zoli, A.P. Bramanti, Bistable carbazole compounds, 2011.