

PERSONAL INFORMATION

Fabrizio Roccaforte



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Sex Male | Date of birth 05/09/1973 | Nationality Italian

Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input checked="" type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist
<input type="checkbox"/> Mid-Management Level	<input type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

From 15.10.2020 up to now	Research Director ("Dirigente di Ricerca, I Livello, matr. 8848") at the Institute for the Microelectronics and Microsystems of the National Research Council (CNR-IMM) of Catania, Italy
From 02.05.2007 to 14.10.2020	Senior Scientist ("Primo Ricercatore, II Livello, matr. 8848") at the Institute for the Microelectronics and Microsystems of the National Research Council (CNR-IMM) of Catania, Italy
From 27.12.2001 to 01.05.2007	Research Scientist ("Ricercatore, III livello, matr. 8848") at the Institute for the Microelectronics and Microsystems of the National Research Council (CNR-IMM) of Catania, Italy
From 01.11.2001 to 26.12.2001	Post Doc ("Assegno di ricerca") at the Institute for Methodology and Technology for Microelectronics of the National Research Council (CNR-IMETEM) of Catania, Italy
From 01.11.2000 to 31.10.2001	Scientific Consultant ("Contratto di Collaborazione") at ST Microelectronics, Catania, Italy
From 01.06.2000 to 30.06.2000	Visiting Guest Scientist at the II. Physikalisches Institut, University of Göttingen, Germany
From 01.02.2000 to 30.04.2000	Scientific Consultant ("Contratto di Collaborazione") at the Physics Department, University of Catania, Italy
From 01.01.1997 to 31.12.1999	Scientific Employee ("Wissenschaftlicher Mitarbeiter") at the II. Physikalisches Institut, University of Göttingen, Germany
From 15.06.1996 to 31.08.1996	Scientific Consultant ("Contratto di Collaborazione") of the Istituto Nazionale per la Fisica della Materia (INFN), at the Physics Department, University of Catania, Italy

EDUCATION AND TRAINING

01.11.1999	Ph.D Physics (Dottorato di Ricerca) , <i>summa cum laude</i> University of Göttingen (Germany) ▪ Thesis: "Solid Phase Epitaxial Regrowth of Ion-Beam Amorphized α -Quartz", Referent Prof. K.P. Lieb, Korreferent Prof. K. Samwer	EQF level 8
01.04.1996	M. Sc. Physics (Diploma di Laurea in Fisica) , <i>summa cum laude (110/110 e lode)</i> University of Catania (Italy) ▪ Thesis: "Proprietà ottiche di semiconduttori disomogenei", tutor Prof. G.Foti, Prof. L. Calcagno	EQF level 7

PERSONAL SKILLS

Mother tongue(s)	Italian
Other language(s)	English (fluent), German (fluent)
Research Interests	His research activity is focused on the physical aspects related to the processing for wide band gap semiconductors (SiC and GaN) power devices. In the past, he has worked on the development of power Schottky diodes on SiC, studying the transport properties at metal/SiC interfaces and at inhomogeneous Schottky barriers. Since 2004 he works on GaN, with specific focus on the transport phenomena at metal/GaN interface (Ohmic and Schottky) for applications in the field of Schottky and HEMTs devices. Presently, he works on interfaces in wide band gap devices, among them the limiting mechanisms for the channel mobility in 4H-SiC MOSFETs and the development of processing for MISHFETs and normally-off GaN HEMTs. He is co-author of about 350 papers in peer reviewed international journals and conference proceedings, several review articles, 10 book chapters, he holds 5 patents, and he has given several invited talks and lectures on SiC and GaN at international conferences. He was chairman of the international conferences Hetero-SiC-WASMPE 2009, WOCSDICE2011 and ICSCRM 2015. He is or has been responsible for the CNR-IMM unit of several European and national projects, bilateral collaborations with other European institutions, and industrial contracts.

He is referee of the major international journals on semiconductor materials and devices physics, and has worked several times as independent expert for the European Commission in the review process of European projects.

PROJECTS COORDINATION

From 01.06.2021 to now	Scientific Coordinator for the Research Unit of CNR-IMM of the European Project GaN4AP (GaN for Advanced Power Applications) - Grant Agreement Number 101007310 –Horizon2020–ECSEL-2020-1-IA
From 05.05.2021 to now	Scientific Responsible for the research contract between ST Microelectronics – Catania and CNR-IMM “Process development and characterizations for SiC power devices” (Rif.CDR.ST.CNR-IMM.Studio.SiC.26.03.2021.003 ST contract number: 2021-1760)
From 01.01.2019 to 30.06.2022	Scientific Coordinator of the National Project PON EleGaNTe (Electronics on GaN-based Technologies) - Grant Agreement Number PON #ARS01_01007 –Progetti di Ricerca Industriale e Sviluppo Sperimentale nelle 12 aree di specializzazione individuate dal PNR 2015 - 2020)
From 01.11.2018 to now	Scientific Coordinator for the Research Unit of CNR-IMM of the European Project REACTION (first and euRoPEAn siC eigTh Inches pilOt liNe) - Grant Agreement Number 783158 –Horizon2020–ECSEL-2017-1-IA
From 06.12.2017 to 05.12.2020	Scientific Responsible for the research contract between ST Microelectronics – Catania and CNR-IMM “Study and realization of active electronic components on SiC power device” (CDR.ST.CNR-IMM.07.04.2017.017 ST contract number 2017-4860).
From 01.06.2017 to 31.03.2021	Scientific Coordinator for the Research Unit of CNR-IMM of the European Project WinSiC4AP “Wide band gap Innovative SiC for Advanced Power” – (Horizon2020-ECSEL-2016-1-RIA Grant Agreement Number 737483)
From 01.01.2018 to 30.06.2021	Project Risk Manager and task leader (task 4.3 “metallization and oxidation”) in the European Project CHALLENGE - “3C-SiC Hetero-epitaxially grown on silicon compliant substrates and 3C-SiC substrates for sustainable wide-band-gap power devices” (Horizon2020- NMPB2016 Grant Agreement Number 720827)
From 01.01.2014 to 31.12.2022	Scientific Coordinator for CNR-IMM of the Agreement for Scientific Cooperation between CNR (Italy) and PAS (Poland) for the years 2014-2016, 2017-2019, 2020-2021 project ETNA (Energy efficiency Through Novel AlGaIn/GaN heterostructures).
From 01.02.2011 to 31.01.2015	Scientific Coordinator for the Research Unit of CNR-IMM of the European project Marie Curie Initial Training Network NetFISiC - “Training Network on Functional Interfaces for Silicon Carbide”. FP7 grant agreement n. 264613.
From 01.10.2010 to 30.09.2014	Scientific Coordinator for the Research Unit of CNR-IMM of the National Project PON Ambition Power (PON01_00700).
From 01.04.2010 to 30.09.2014	Scientific Coordinator for the Research Unit of CNR-IMM of the European project Last Power “Large Area silicon-carbide Substrates and heteroepitaxial GaN for POWER device applications”. (ENIAC JU grant agreement n. 120218)
From 01.01.2007 to 31.12.2010	Scientific Coordinator for the Research Unit of CNR-IMM of the European project Marie Curie Research Training Network MANSIC –“Multidisciplinary Academic-Industrial Network through the hetero-polytype growth, characterisation and applications of 3C-SiC on hexagonal substrates” (MRTN-CT-2006-035735).
From 01.01.2007 to 31.12.2007	Scientific Coordinator for CNR-IMM of the Cooperation Project GALILEO between CNR-IMM of Catania and LMP-Tours (France) , entitled “Nanostructured processes for wide-band gap semiconductors”, funded by the Italian-French University.

ADDITIONAL INFORMATION

Selected Publications
(last 5 years)

1. **F. Roccaforte**, P. Fiorenza, G. Greco, R. Lo Nigro, F. Giannazzo, F. Iucolano, M. Saggio, *Emerging trends in wide band gap semiconductors (SiC and GaN) technology for power devices*, Microelectronic Engineering **187-188**, (2018) 66-77.
2. **F. Roccaforte**, P. Fiorenza, R. Lo Nigro, F. Giannazzo, G. Greco, *Physics and technology of gallium nitride materials for power electronics*, Riv. Nuovo Cimento **41** (2018) 625-681 (DOI: 10.1393/ncr/2018-10154-x)
3. **F. Roccaforte**, F. Giannazzo, A. Alberti, M. Spera, M. Cannas, I. Cora, B. Pécz, F. Iucolano, G. Greco, *Barrier inhomogeneity in vertical Schottky diodes on free standing gallium nitride*, Mater. Sci. Semicond. Proc. **94**, (2019) 164-170.
4. **F. Roccaforte**, G. Greco, P. Fiorenza, F. Iucolano, *An overview of normally-off GaN-based high electron mobility transistors*, Materials **12**, (2019) 1599.
5. **F. Roccaforte**, P. Fiorenza, M. Vivona, G. Greco, F. Giannazzo, *Selective Doping in Silicon Carbide Power Devices*, Materials **14**, (2021) 3923.

Bibliometric index and
Summary of Scientific Production

Scopus: H-index=43, Citations = 5829

Scholar: H-index=47, Citations = 7211

For the complete List of the Publications :

<https://www.scopus.com/authid/detail.uri?authorId=7003320753>

Catania, January 26th, 2023

