

**EUROPEAN
CURRICULUM VITAE
FORMAT**



PERSONAL INFORMATION

Name **SCUDERI MARIO**
Address [REDACTED]
Telephone [REDACTED]
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E-mail [REDACTED]
Nationality Italian
Date of birth [REDACTED]

WORK EXPERIENCE

- Dates (28 Dic 2018 – to date)
• Name and address of employer Istituto Microelettronica e Microsistemi - CNR. Zona industriale, strada VIII, 5 – 95121 Catania (Prot. N.0009803 16/12/2014 e Prot. N.0007009 09/12/2015)
• Occupation or position held Permanent Staff Reasercher

 - Dates (07 Gen 2015 – 27 Dic 2018)
2y 11m
• Name and address of employer Istituto Microelettronica e Microsistemi - CNR. Zona industriale, strada VIII, 5 – 95121 Catania (Prot. N.0009803 16/12/2014 e Prot. N.0007009 09/12/2015)
 - Type of business or sector Materials science
 - Occupation or position held Transmission electron microscopist - Main activities and responsibilities Materials characterization by means of electron microscopy related techniques.
Development of techniques aimed to recover the chemical contrast at high spatial resolution and high sensitivity with transmission electron microscopes equipped with spherical aberration corrector.
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- Dates (07 Nov 2012 – 06 Gen 2015)
2y 2m
• Name and address of employer Istituto Microelettronica e Microsistemi - CNR. Zona industriale, strada VIII, 5 – 95121 Catania (Prot. N.0005209 23/10/2012 e Prot. N.0006525 01/09/2014)
Beyond-nano Project (Cod.PONa3_00362-F)
 - Type of business or sector Materials science
 - Occupation or position held Transmission electron microscopist- Main activities and responsibilities Advanced training course on transmission electron microscopy at atomic resolution

- Dates (01 Dec 2010 – 30 Nov 2012)
2y
- Name and address of employer
Università degli studi di Catania, Facoltà di scienze MM. FF. NN. Dipartimento di Fisica ed Astronomia (Ufficio Ricerca Prot. N.82408/111/16)
- Type of business or sector
High-energy physics
- Occupation or position held
Assegno per la collaborazione ad attività di ricerca on Experimental physics - Ultra-high energy cosmic ray studies
- Main activities and responsibilities
Code development, simulations and data analysis to unravel the role of galactic and intergalactic magnetic field on cosmic ray propagation

- Dates (04 May 2009 – 03 Apr 2010)
1y
- Name and address of employer
Università degli studi di Catania, Facoltà di scienze MM. FF. NN. Dipartimento di Fisica ed Astronomia (Ufficio Ricerca Prot. N.32509/111/9)
- Type of business or sector
High-energy physics
- Occupation or position held
Assegno per la collaborazione ad attività di ricerca on Experimental physics - Ultra-high energy cosmic ray studies
- Main activities and responsibilities
Pierre Auger observatory fluorescence detectors, relative and absolute calibration (Malargue - Argentina).

- Dates (02 Gen 2009 – 30 Apr 2009)
1y
- Name and address of employer
Università degli studi di Catania, Facoltà di scienze MM. FF. NN. Dipartimento di Fisica ed Astronomia
- Type of business or sector
High-energy physics
- Occupation or position held
Contratto di collaborazione alla ricerca scientifica - Ultra-high energy cosmic ray studies
- Main activities and responsibilities
Development of computational methodologies to study cosmic ray anisotropy at the small scale.

- Dates (2014-2015
2013-2014
2010-2011)
3y
- Name and address of employer
Università degli studi di Catania, Facoltà di scienze MM. FF. NN., Dipartimento di Scienze Biologiche, Geologiche ed Ambientali
- Type of business or sector
University teaching
- Occupation or position held
Teacher
- Main activities and responsibilities
Physics

- Dates (2011-2012
2008-2009)
2y
- Name and address of employer Università degli studi di Catania, Facoltà di scienze MM. FF. NN., Dipartimento di Fisica ed Astronomia
- Type of business or sector University teaching
- Occupation or position held Teacher
- Main activities and responsibilities Experimental physics

BIBLIOMETRIC INDICATORS

H-index: 36 (scopus)
 Citations: 6587
 Referred Journal: 97
 Proceedings: 27
 Orcid ID: orcid.org/0000-0001-9026-5317
 Scopus ID: 36348836400

SELECTED PUBLICATIONS

- Phase Change Ge-Rich Ge–Sb–Te/Sb₂Te₃ Core-Shell Nanowires by Metal Organic Chemical Vapor Deposition
A Kumar, et al.
Nanomaterials 11 (12), 3358
- Nanoscale analysis of superconducting Fe (Se, Te) epitaxial thin films and relationship with pinning
M Scuderi, et al.
Scientific reports 11 (1), 1-9
- Localized Energy Band Bending in ZnO Nanorods Decorated with Au Nanoparticles
L Bruno et al.
Nanomaterials 11 (10), 2718
- MOCVD Growth of GeTe/Sb₂Te₃ Core–Shell Nanowires
A Kumar, R Cecchini, C Wiemer, V Mussi, S De Simone, R Calarco, ...
Coatings 11 (6), 718
- Effective Magnetic Field Dependence of the Flux Pinning Energy in FeSe_{0.5}Te_{0.5} Superconductor
MR Khan et al.
Materials 14 (18), 5289
- Gallium chiral nanoshaping for circular polarization handling
M Cuscunà, et.al
Materials Horizons 8 (1), 187-196, 2021
- Eco-Friendly 1, 3-Dipolar Cycloaddition Reactions on Graphene Quantum Dots in Natural Deep Eutectic Solvent
SV Giofrè, et. al.
Nanomaterials 10 (12), 2549, 2020
- Self-Formed, Conducting LaAlO₃/SrTiO₃ Micro-Membranes
A Sambri, et. al
Advanced Functional Materials 30 (45), 1909964, 2020
- Near-field enhancement in oxidized close gap aluminum dimers
D Simeone, et.al
Nanotechnology 32 (2), 025305, 2020
- Free carrier enhanced depletion in ZnO nanorods decorated with bimetallic AuPt nanoclusters
R Bahariqushchi et al.
Nanoscale 12 (37), 19213-19222
- Control of Electron-State Coupling in Asymmetric Quantum Wells
C Ciano, et. al
Physical Review Applied 11 (1), 014003, 2019
- Low-cost synthesis of pure ZnO nanowalls showing three-fold symmetry
M Scuderi, et. al.
Nanotechnology 29 (13), 135707, 2018
- Effects of VLS and VS mechanisms during shell growth in GaAs-AlGaAs core-shell nanowires investigated by transmission electron microscopy
M Scuderi, et. al
Materials Science in Semiconductor Processing 65, 108-112, 2017
- Site-Selective Surface-Enhanced Raman Detection of Proteins
P Matteini, M Cottat, F Tavanti, E Panfilova, M Scuderi, G Nicotra, et. al
ACS nano 11 (1), 918-926, 2016

Nanoscale Study of the Tarnishing Process in Electron Beam Lithography-Fabricated Silver Nanoparticles for Plasmonic Applications

M Scuderi, M Esposito, F Todisco, D Simeone, I Tarantini, L De Marco, et. al
The Journal of Physical Chemistry C 120 (42), 24314-24323, 2016

Programmable Extreme Chirality in the Visible by Helix-Shaped Metamaterial Platform

M Esposito, V Tasco, F Todisco, M Cuscunà, A Benedetti, M Scuderi, et. al
Nano letters 16 (9), 5823-5828, 2016

A forest of SiO₂ nanowires covered by a TiO₂ thin film for an efficient photocatalytic water treatment

A Convertino, L Maiolo, V Scuderi, A Di Mauro, M Scuderi, G Nicotra, et. al
RSC Advances 6 (94), 91121-91126, 2016

Atomic layer deposition of ZnO/TiO₂ multilayers: towards the understanding of Ti-doping in ZnO thin films

G Torrisi, A Di Mauro, M Scuderi, G Nicotra, G Impellizzeri
RSC Advances 6 (91), 88886-88895, 2016

Effect of Pt nanoparticles on the photocatalytic activity of ZnO nanofibers

A Di Mauro, M Zimbone, M Scuderi, G Nicotra, ME Fragalà, G Impellizzeri
Nanoscale research letters 10 (1), 484, 2015

Interface disorder probed at the atomic scale for graphene grown on the C face of SiC

G Nicotra, I Deretzis, M Scuderi, C Spinella, P Longo, R Yakimova, et. al
Physical Review B 91 (15), 155411, 2015

UV-black rutile TiO₂: An antireflective photocatalytic nanostructure

R Sanz, L Romano, M Zimbone, MA Buccheri, V Scuderi, G Impellizzeri, M Scuderi, G Nicotra, J Jensen, V Privitera
Journal of Applied Physics 117 (7), 074903, 2015

Thermodynamic stability of high phosphorus concentration in silicon nanostructures

M Perego, G Seguini, E Arduca, J Frascaroli, D De Salvador, Massimo Mastromatteo, Alberto Carnera, Giuseppe Nicotra, Mario Scuderi, Corrado Spinella, Giuliana Impellizzeri, Cristina Lenardi, Enrico Napolitani
Nanoscale 7 (34), 14469-14475, 2015

TiO₂-coated nanostructures for dye photo-degradation in water

V Scuderi, G Impellizzeri, L Romano, M Scuderi, G Nicotra, K Bergum, et. al
Nanoscale research letters 9 (1), 458, 2014

Double role of HMTA in ZnO nanorods grown by chemical bath deposition

V Strano, RG Urso, M Scuderi, KO Iwu, F Simone, E Ciliberto, C Spinella, et. al
The Journal of Physical Chemistry C 118 (48), 28189-28195, 2014

Fe ion-implanted TiO₂ thin film for efficient visible-light photocatalysis

G Impellizzeri, V Scuderi, L Romano, PM Sberna, E Arcadipane, R Sanz, M Scuderi, G Nicotra, M Bayle, R Carles, F Simone, V Privitera
Journal of Applied Physics 116 (17), 173507, 2014

Quantification of phosphorus diffusion and incorporation in silicon nanocrystals embedded in silicon oxide

M Mastromatteo, E Arduca, E Napolitani, G Nicotra, D De Salvador, L Bacci, J Frascaroli, G Seguini, M Scuderi, G Impellizzeri, C Spinella, M Perego, A Carnera
Surface and Interface Analysis 46 (S1), 393-396, 2014

Manipulating surface diffusion and elastic interactions to obtain quantum dot multilayer arrangements over different length scales

E Placidi, F Arciprete, V Latini, S Latini, R Magri, M Scuderi, G Nicotra, et. al

Applied Physics Letters 105 (11), 111905, 2014

Thin Metal Film Ni₂Si/4H—SiC Vertical Schottky Photodiodes
A Sciuto, M Mazzillo, P Badala, M Scuderi, B Carbone, S Coffa
IEEE Photonics Technology Letters 26 (17), 1782-1785, 2014

Observation of layer by layer graphitization of 4H-SiC, through atomic-EELS at low energy
G Nicotra, P Longo, I Deretzis, M Scuderi, A La Magna, F Giannazzo, et. al
Microscopy and Microanalysis 20 (S3), 560-561

An enhanced photocatalytic response of nanometric TiO₂ wrapping of Au nanoparticles for eco-friendly water applications
V Scuderi, G Impellizzeri, L Romano, M Scuderi, MV Brundo, K Bergum, et. al
Nanoscale 6 (19), 11189-11195, 2014

Onset of plastic relaxation in the growth of Ge on Si (001) at low temperatures: Atomic-scale microscopy and dislocation modeling
A Marzegalli, M Brunetto, M Salvalaglio, F Montalenti, G Nicotra, M Scuderi, C Spinella, M De Seta, G Capellini
Physical Review B 88 (16), 165418, 2013

EDUCATION AND TRAINING

- Dates (28 Nov 2013)
- Name and type of organisation providing education and training
 - Title of qualification awarded
 - Level in national classification

Università degli studi di Catania, Facoltà di Ingegneria

Bachelor's Degree on Engineering (summa cum laude)
6 level QEQ o EQF

- Dates (20 Feb 2009)
- Name and type of organisation providing education and training
 - Title of qualification awarded
 - Level in national classification

Università degli studi di Catania, Facoltà di Scienze MM. FF. NN. Dipartimento di Fisica ed Astronomia

Ph.D on Physics (summa cum laude)
8 level QEQ o EQF

- Dates (21 Nov 2005)
- Name and type of organisation providing education and training
 - Title of qualification awarded
 - Level in national classification

Università degli studi di Catania, Facoltà di Scienze MM. FF. NN. Dipartimento di Fisica ed Astronomia

Master's degree on Physic (summa cum laude)
7 level QEQ o EQF

PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE

ITALIAN

OTHER LANGUAGE

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	Proficient user	Proficient user	Independent user	Independent user	Proficient user

SOCIAL SKILLS
AND COMPETENCES

Living and working with other people, in multicultural environments: from April to June 2007 I was visiting scientist at the Institute of theoretical Astrophysics Wuerzburg (Germany)
Teamwork: on April-May 2006 and November-October 2007 I was member of the team for the Pierre Auger fluorescence detectors monitoring and data acquisition (Malargue - Argentina).

ORGANISATIONAL SKILLS
AND COMPETENCES

Coordination and administration of people, projects and budgets: from 2008 to 2012 I was reference person for software management under the collaboration agreement between the COMETA consortium and the Pierre Auger collaboration.
Work organization: on February 2005 I participate to the absolute calibration campaign of the Pierre Auger fluorescence telescopes (Malargue – Argentina). These measures were conducted on the telescopes of the observatory located in the Argentinian pampas in non-anthropoc territory, far from civilization. This required a great preparation and organization of work that was conducted in unmanaged territory.

TECHNICAL SKILLS
AND COMPETENCES

Operating systems:
Linux, Windows, Mac OS and main applications

Data processing and visualization:
ROOT, IDL, gnuplot, ggplot, Origin

Specific software for electron microscopy:
Gatan Digital Micrograph, TEM Tomography, EM3D, Carine, JEMS

Computer graphics:
Image processing (Photoshop, Gimp, ImageJ, TomoJ)
pacchetti CAD 2d/3d (Autocad, Archicad, Sketch Up)
3D graphics and rendering (autodesk 3ds max, kerkythea)

System programming and management:
Bash Scripting, C/C++, fortran, R/code, MySQL, HTML, CSS and application integration on GRID, Backup, Restore, users administration, hardware and software installation/configuration

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

DATE, 20/06/2022

Signature

