

Mauro Mosca

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PERSONAL DETAILS

Name: Mauro MOSCA

Fiscal Code: MSCMRA68C06G273Z

Birth place: Palermo, Italy

Date of birth: 06/03/1968

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Nationality: Italian

EDUCATION AND TRAINING

22/02/2000 - Ph.D. in Electronic Engineering, Computer Science, and Telecommunications at the University of Palermo, Dissertation on "ITO thin films-based optoelectronic devices"

10/04/1996 - 5-years Degree in Electronic Engineering at the University of Palermo, grade 110/110 with honors.

LANGUAGES

English (Reading C1, Writing B2, Oral, B2), French (Reading C1, Writing C1, Oral, C1), Russian (basic knowledge), Italian (mother tongue)

PROFESSIONAL EXPERIENCES

PERMANENT POSITIONS:

31/12/2017 to date - Associate Professor (scientific disciplinary sector ING-INF/01 - Electronics), at the Department of Engineering of the University of Palermo.

31/12/2004-31/12/2017 - Assistant Professor (Electronics) at the Department of Energy, Information Engineering and Mathematical Models of the University of Palermo.

ACADEMIC GUEST:

01/01/2018-30/09/2018 - Visiting professor, at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland. Laboratory of Advanced Semiconductors for Photonics and Electronics (LASPE). Research activity: Tunnel junction transparent contacts on GaN-based LEDs. Host Professor: Prof. N. Grandjean, head of LASPE

01/01/2017-30/09/2017, 01/01/2016-30/09/2016, 15/05/2015-30/06/2015, 01/09/2015-30/09/2015 - Visiting scientist, at the Ecole Polytechnique Fédérale de Lausanne (EPFL),

Lausanne, Switzerland, LASPE. Research activity: Advanced technologies for the fabrication of GaN-based LED/Biological applications of blue LEDs (cochlear implants)/White lasers

2009 - Visiting scientist, at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, LASPE. Research activity: ZnO-GaN heterostructure devices

01/02/2005-31/07/2006 - Scientific collaborator at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, LASPE. Research activity: GaN-based intersubband photodetectors/GaN-based electroluminescent devices

FELLOWSHIPS AND POST-DOC POSITIONS:

01/08/2004-31/12/2004 - Post-Doctoral researcher at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, LASPE. Research activity: Microfabrication of optoelectronic devices in GaN. Funds: EPFL

01/02/2002-31/01/2004 – MARIE CURIE FELLOWSHIP at the Research Laboratories of THALES Research and Technology, Orsay, France (5th Framework Programme 1999-2002 - European Commission). Contract n.G5TR-CT-2001-00064. Subject: “Solar-Blind Detectors by Epitaxial Growth of AlGaIn on sapphire”. Funds: European Commission

01/06/2000-31/05/2002 - Post-Doctoral position at the University of Palermo. Research activity: Laser technologies for thin film deposition and related surface treatments. Funds: Italian Ministry of University and Scientific Research.

01/01/1999–30/10/1999 - 10-months internship at the Laboratoire Central de Recherches de THOMSON-CSF, Orsay, France. Research activity: Laser deposition of ITO thin films for organic LEDs. Funds: Italian Ministry of University and Scientific Research.

BIBLIOMETRIC INDICATORS

1. Total number of publications indexed by Scopus: 53
2. Number of academic years: 23 (1998-2021)
3. Total number of citations: 1074 (SCOPUS), 1306 (GOOGLE SCHOLAR)
4. h-index: 18 (last update: January 15th, 2021).

ABILITY TO MANAGE RESEARCH TEAMS

The ability to direct (and participate) in research groups and to promote technology transfer activities are attested by:

- Publications in international peer-reviewed scientific journals and books of high prestige (Applied Physics Letters, Applied Physics Express, Semiconductor Science technology, Journal of Applied Physics, etc. Publishers: Scrivener-Wiley, NATO Science Series, SPIE, MRS, Kluwer)
- Head of the Thin Films Laboratory (TFL) of the Engineering Department of University of Palermo
- Speaker at International Conferences
- Chairman at International Conferences and member of local organizing committee
- Topic Editor of the international journal “Electronics” (MDPI – Switzerland)

- Member of international and national research projects
- Consulting for industries and for national and international research institutes (EVATEC, LUMILOG)
- National and international scientific collaborations (EXALOS, NOVAGAN, 3D-OXIDES)
- Thesis supervisor of PhD students and Master's degree students (>50) in Italy and Switzerland.

PROCESS ENGINEERING SKILLS

- Clean-room processing and microfabrication
- Optical lithography and mask preparation
- GaN-based LED and laser fabrication
- Nitride-based detector fabrication
- Organic LED fabrication

RESEARCH PROJECTS

FINANCED PROJECTS:

2018-19 - Ordinary and extraordinary maintenance of research laboratories.

Financing: University of Palermo. Role: Responsible for the funds

2015-16 - Next-generation auditory brainstem implants: Translation to clinical implementation

Financing: Bertarelli grant. Role: Head of LED microfabrication. Academic guest

2015 - Integrated Network of Technological Laboratories of Sicilian Universities (RILTUS).

Financing: POR ERDF Sicily 2007-2013 axis IV. Role: Researcher

2012-14 - Growth and characterization of metal/oxide, metal/polymer, and metal/oxide/polymer interfaces for engineering applications. Financing: University of Palermo. Role: Researcher

2013 - Ambition Power. Financing: PON 01. Role: Researcher

2012 - Smart Cities and Communities: Innovation for green Exchange in Transportation (i-NEXT)

Financing: PON 04. Role: Researcher

2004-07 - Laser photoablation aimed at the deposition of non-linear optical materials. Financing: PRIN – MIUR. Role: Research activity on the deposition of YIG and YAG films by pulsed laser ablation

2007 - Blue and UV ZnO-based LEDs. Financing: University of Palermo. Role: Principal investigator

PROJECTS SUCCESSFULLY EVALUATED BUT NOT FINANCED:

2015-16 - Micro-sensor array for foot pressure measurements based on piezo-phototronic p-GaN/n-ZnO LEDs and flexible organic photodetectors. Financing: PRIN – MIUR. Role: Principal investigator

ORGANIZATIONAL AND MANAGEMENT ACTIVITIES

CONFERENCE AND SCHOOL ORGANIZER:

2018 - Organization of the 4th IEEE-RTSI International Forum, 10-13 September, 2018, Italy.

Track Chair for the “Smart emerging technologies for Industry 4.0” section.

Moderator of the Panel discussion on “Smart Technologies and Best Practices for Industry 4.0 and Digital Transformation”.

2017 - Organizer and Head of the International Graduate School for PhD students in Electronics of the Italian Society of Electronics (SIE), 19-21 June, 2017, Palermo, Italy.

LABORATORY HEAD:

2017 to date - Head of the Thin Films Laboratory (TFL), www.dieet.unipa.it/tfl, of the Department of Engineering of the University of Palermo.

TEACHING ACTIVITY

LECTURER:

AYs 2013 to 2021 - Course of Optoelectronic Devices, for students of the Master in Electronic Engineering of the University of Palermo, (6-9 credits, equivalent to 54-81 hours).

AYs 2006-07, 2008 to 2013, 2018 to 2021 - Course of Fundamentals of Electronics, for students of the Bachelor in Electrical Engineering/Computer Engineering of the University of Palermo (6-9 credits, equivalent to 54-81 hours)

Quality index (based on students' answers survey) ranges between 9.2/10 and 9.4/10.

TEACHING ASSISTANT:

AYs 2012-13 - Experimental and Practical Exercises of the course of Electronics I, for students of the Bachelor in Electronic Engineering of the University of Palermo, 36 hours.

Ays 2005 to 2012 - Exercises of the course of Electronic Devices, for students of the Bachelor in Electronic Engineering of the University of Palermo, 72 hours.

TEACHING ASSISTANT AT EPFL, SWITZERLAND:

AYs 2004-05 - Theoretical and experimental exercises (in French) on Electronic Signals Treatment at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland, 72 hours. Responsible: Prof. R. Sanjines. Member of the Examination Board

TEACHING IN 2ND LEVEL UNIVERSITY MASTER'S DEGREE:

AYs 2011 to 2013 - Frontal lessons for the 2nd level Master's Degree: “Expert in Home and Building Automation Systems” (in English) (University of Palermo), 50 hours. Teachings: Electronic devices, Fundamentals of Electronics

AYs 2007-08 - Frontal lessons and experimental exercises for the 2nd level Master's Degree: in “Nanotechnologies for cultural heritage” (University of Palermo, Coordinator: Prof. P. Livreri), 15 hours. Teachings: Properties, technologies, and applications of thin films

SPEAKER TO NATIONAL AND INTERNATIONAL CONFERENCES. MAIN ORAL PRESENTATIONS

- "Chemical bath deposition as a simple way to grow isolated and coalesced ZnO nanorods for light-emitting diodes fabrication", IEEE-RTSI 4th International Forum (Palermo, Italy, September 10-13, 2018).
- "Warm white LED light by frequency downconversion of mixed perylene-based dyes", SPIE Microtechnologies (Grenoble, France, April 24-26, 2013).
- "Growth of Device-Quality ZnO Films by Pulsed-Laser Deposition", 14th EL2008 (Tivoli, Italy, September 9-12, 2008).
- "Al(In)N/GaN heterostructures for intersubband transitions", 32nd International Symposium on Compound Semiconductors (ISCS) (Rust, Germany, September 18-22, 2005).
- "Effects of the Electrode Geometry on (Al,Ga)N Ultraviolet Photodetectors Performances", 12th heTech'03 (San Rafael, Spain, October 12-15, 2003).
- "Contact reporting in solar blind Al_xGa_{1-x}N metal-semiconductor-metal devices for low-current flame detection", MRS (Material Research Society) Spring Meeting (San Francisco, CA, US, April 21-25, 2003)

(CV updated to February 2021)