Last Update February 10th 2023

Francesco Floris, Ph.D. in Physics

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Institutional webpage	https://fisica.unipv.it/personale/Persona.php?ID=325
ORCID Identifier	0000-0003-1576-6212
Scopus Author Id	55846201100
Web of Science Id	ABF-4796-2020
Google Scholar Profile	User=Io_0SSwAAAAJ&hl=it
LinkedIn Profile	francesco-floris-624b1647/

PROFESSIONAL TOPICS, INTERESTS AND SKILLS

Topics

Nanotechnologies:
Nanomaterials, Nanodevices and Nanoengineering.

Interests

Condensed Matter Physics for Optics, Photonics and Plasmonics: Research, Development, Modeling and Optimization; Spectroscopic Techniques; Microscopy Techniques; Conjugated Organic Materials and Metamaterials (especially Organic Nanofibers and Bragg Gratings); Surface Wave-Based Structures (in particular Bloch Surface Waves and Surface Plasmon Polaritons); Edge, Evanescent and Grating Couplers; Electromagnetic Computational Solving Methods.

Hard skills

- Fourier transform (FT) and dispersive spectroscopy, resolved in energy and time
- surface coating techniques
- vacuum and cryogenics related procedures
- atomic force microscopy (AFM) and scanning electron microscopy (SEM)
- finite-difference time-domain (FDTD) method based computational simulations
- data analysis

Computer Skills

- Good command of
  - operative system environment Microsoft® Windows™
  - operative system environment Linux
  - programming language C/C++
  - high performance Maxwell equations solver Lumerical® FDTD Solutions™
  - optical design software Zemax OpticStudio®
  - multiphysics finite element analysis and solver software COMSOL Multiphysics®
  - data analysis software Origin™
  - programming language LabVIEW™
  - high level environment for numerical computation Matlab™
  - Microsoft® Office™ tools
  - markup language LaTex
  - integrated devices design software KLayout
  - customized T-matrix and S-matrix codes for electromagnetic scattering calculations
  - customised Particle Swarm Optimized (PSO) Algorithm for photonic structure design
- Sufficient command of
  - engineering math software Matcad™
  - programming language Python

EDUCATION

2016 **Doctor of Philosophy Degree (Ph.D.)** in Physics, Curricula of Matter Physics

Thesis Title: *Surface Electromagnetic Modes Application in Plasmonic and Photonic Nanostructures for Emitting and Sensing Devices*
ISBN: 978-88-95767-90-1
Advisor Prof. Franco Marabelli (Photonics and Nanostructures Optics Laboratory)
Department of Physics - University of Pavia (Italy)

From July 2015 to January 2016 **Visiting Research Scholar**

Supervisor Prof. Luca Dal Negro (Ultrafast Nanomaterials and Nanostructure Optics Laboratory)
Photonics Center - Department of Electrical and Computer Engineering
College of Engineering – Boston University – Massachusetts (USA)
[Scholarship funded by the Italian Minister of the Instruction, University and Research through the "Pavia-Boston Exchange Project" Award]

2012 **Master's Degree** in Physical Science, Curricula of Matter Physics

Final Mark 109/110
Thesis Title: *Polarized Light Photoinduced Absorption on an High Crystallinity Thin-film of Poly(p-phenylene vinylene) (PPV)*
Advisor Prof. Franco Marabelli, Co-Advisor Prof. Davide Comoretto
Department of Physics - University of Pavia (Italy)

2010 **Bachelor's Degree** in Physics, Curricula of General Physics

Final Mark 102/110
Thesis Title: *Amplification of Spontaneous Emission and Laser Action in Heteroepitaxial Organic Nanofibers*
Advisor Prof. Giovanni Bongiovanni, Co-Advisor Dr. Francesco Quochi
Department of Physics - University of Cagliari (Italy)

1999 **Scientific A Level**

Final Mark 97/100
Liceo Scientifico Statale "Antonio Pacinotti", Cagliari (Italy)

PROFESSIONAL EXPERIENCE

2022/Present **Contract Researcher RTDa** at the Department of Physics
University of Pavia (Italy)

2017/2021 **Post-doctoral Research Fellow** at the Photonics Center of the Tyndall National Institute as Research Manager of the Photonics Packaging and Integration Group
Supervisor Prof. Peter O'Brien
University College Cork – Cork (Ireland)

Research Activities

Research Projects

2022/Present NFFA-Europe-Pilot (H2020 Project) - Feasibility study to scale up the fabrication process of a plasmonic nanostructure via displacement Talbot lithography
Project Leader, Proposal Co-Author and *Principal Investigator*

2020/2021 SPACEBEAM (H2020 Project) - Space SAR System with Integrated Photonic Beam Forming
Proposal Co-Author, Principal Investigator and *Work Package Leader*

2020/2021 ACTPHAST 4.0 & 4R (H2020 Project) – Access Center for Photonics Innovation Solutions and Technology Support
Project Leader, Scout and *Photonic Packaging and Integration Technical Supervisor*

Leader of the Research Projects:
- Compact Integrated Portable Optical System for the Detection of Contaminants
- ACTILABEL - Active Smart Label for Food Packaging Monitoring

2019/2021 PIXAPP (H2020 Project) - Photonic Integrated Circuits Assembly and Packaging Pilot Line
Educational Programme Manager

2019/2021 EUROPRACTICE IC Service Platform through NEXTS (H2020 Project) - Training, CAD and Prototyping Services for European Universities and Research Institutes
Educational & Training Programme on Photonic Packaging and Integration Coordinator

2019/2021 InPulse (H2020 Project) - Indium-Phosphide Pilot Line for up-scaled, low-barrier, self-sustained, PIC ecosystem
Work Package Leader and *Photonic Packaging and Integration Technical Coordinator*

2019/2021 Caladan (H2020 Project) - Micro Assembled Terabit/s Capable Optical Transceivers for Datacom Applications
Work Package Leader

2019/2021 OIP4NWE (H2020 Project) - Open-Innovation Photonics pilot for North-West Europe
Photonic Packaging and Integration Technical Supervisor

Academic Collaborations

Applied research projects strongly oriented to device optimization, prototyping and technology transfer developed with UCSD, Cornerstone and Scuola Normale Superiore Pisa

Process Design Kit (PDK)

Library realized in collaboration with Cornerstone, license free and open source silicon photonics for rapid prototyping foundry based in the University of Southampton (UK), to give open access to the generic process for fabrication of the apodized grating couplers structures published in *JLT* Vol. 39(15) - DOI: 10.1109/JLT.2021.3079575.
The designs are used for research purposes in collaboration with

- ASML – Veldhoven (Netherlands)
- Beamlet Sensors – Pasadena (USA)
- Nanophotonics Group at the Zhejiang University – Zhejiang (China)

Industrial Collaborations

R&D industrial projects covered by non-disclosure agreements (NDAs) developed with: Samsung, Boeing, Nvidia, Intel, Facebook

Didactic Activities

2022/Present

Coordinator and Lecturer in the Lecture Course (30 hours – 2 ECTS)
Medical physics and radiation protection
for the Master's Degree in Nursing
Department of Public Health, Experimental and Forensic Medicine - University of Pavia (Italy)

2021/Present

Coordinator and Lecturer - Lecture Course (30 hours - 3 ECTS)
Photonics– PIXAPP Advanced Integrated Photonic Education Programme
for the Master's Degree in Electrical and Electronic Engineering
Department of Electrical and Electronic Engineering – University of Cagliari (Italy)

2021/Present

Lecturer in the Lecture Course (70 hours – 7 ECTS)
Optoelectronics, Diagnostic and Aerospace Applications
Module: Optoelectronics (20 hours – 2 ECTS)
for the Master's Degree in Electrical and Electronic Engineering
Department of Electrical and Electronic Engineering – University of Cagliari (Italy)

2021/Present

Lecturer in the Lecture Course (60 hours – 6 ECTS)
Laboratorio di Strumentazioni Fisiche
Module: Grating Coupler Optimization for Integrated Photonics (10 hours –1 ECTS)
for the Master's Degree in Physical Science
Department of Physics - University of Pavia (Italy)

2021/2022

Coordinator and Lecturer - Lecture Course (30 hours - 3 ECTS)
Photonics– PIXAPP Advanced Integrated Photonic Education Programme
for the Master's Degree and Ph.D. in Electronics & Communication Engineering and Electrical & Electronics Engineering
Departments of Electronics & Communication Engineering and Electrical & electronics Engineering - Nitte Meenakshi Institute of Technology (NMIT), Bangalore (India)

2020/2022

Coordinator and Lecturer - Lecture Course (30 hours - 3 ECTS)
Photonics Integrated Circuits Assembly and Packaging – PIXAPP Advanced Integrated Photonic Education Programme
for the Master's Degree and Ph.D. in Electrical, Electronic and Computer Science Engineering
Departments of Electrical, Electronic and Computer Science Engineering - University of Cagliari (Italy)

2020/2022

Lecturer in the Lecture Course (48 hours – 5 ECTS)
Photonics Integrated Circuits Assembly and Packaging
Module: Integrated Optics and Photonics (12 hours – 2 ECTS)
for the Master's Degree and Ph.D. in Engineering Science
School of Electrical and Electronic Engineering – University College Cork (Ireland)

2020/2021

Lecturer in the Training Course
Design, Manufacturing, and Packaging of Opto-Electronic Modules
Module: Grating Coupler Design & Optimisation (12 hours)
for Huawei Technologies Co. Ltd. - Shenzhen, Guangdong (China)

2019/2021 **Coordinator and Lecturer** - Lecture Course (30 hours - 3 ECTS)
Integrated Photonic Devices – PIXAPP Advanced Integrated Photonic Education Programme
for the Bachelor's Degree, Master's Degree and Ph.D. in Electrical, Electronic and Computer Science Engineering
Departments of Electrical, Electronic and Computer Science Engineering - University of Cagliari (Italy)

2018/2020 **Coordinator and Lecturer** - Lecture Course (24 hours - 3 UCTS)
Integrated Photonics – PIXAPP Advanced Integrated Photonic Education Programme
for the Master's Degree and Ph.D. in Physics
Department of Physics - University of Cagliari (Italy)

2016/17 **Tutor** in the
1. *Medical Physics Course* at Department of Medicine & Surgery
2. *General Physics I Course* at Department of Civil Engineering
3. *Mathematics Course* at Department of Pharmacy and Department of Medicinal Chemistry and Pharmaceutical Technology
4. *Mathematics with Fundamentals of Statistics Course* at Department of Natural Science
5. *High School Teachers Upgrade Course in Quantum Mechanics* at Department of Physics
6. *Experimental Physics I Course* at Department of Chemistry
7. *Laboratory of Physics II Course* at Department of Physics
8. *General Physics II Course* at Department of Biomedical Engineering, Department of Mechanical Engineering and Department of Chemical Engineering

University of Cagliari (Italy)

Teacher in the
Orientation Course for High School Students at Department of Physics
University of Cagliari (Italy)

2015/16 **Tutor** in the
1. *General Physics I Course* at Department of Physics and Department of Mathematics
2. *Experimental Physics I Course* at Department of Chemistry
3. *General Physics II Course* at Department of Biomedical Engineering
4. *Fundamental of Structure of Matter Course* at Department of Physics
5. *Laboratory of Physics III Course* at Department of Physics

University of Cagliari (Italy)

2014/15 **Tutor** in the
Medical Physics Course (Harvey in English Language) at Department of Medicine & Surgery
University of Pavia (Italy)

Teacher in the
Orientation Course for High School Students at Department of Physics
University of Pavia (Italy)

2013/14 **Tutor** in the
General Physics Course at Department of Pharmacology
University of Pavia (Italy)

Teacher in the
Orientation Course for High School Students at Department of Physics
University of Pavia (Italy)

Student Supervision

2022/Present Margherita Angelini –– Ph.D. Student in the Optical spectroscopies and nanostructures Group at the Department of Physics - University of Pavia (Italy)
Thesis Title: *Plasmonic Nano-Hole Arrays for Plasmon–Enhanced Fluorescence*
Supervisors: Prof. Franco Marabelli and Dr. Francesco Floris

2017/2021 Luca Zagaglia –– Ph.D. Student in the Photonics Packaging and Integration Group at the Photonics Center of the Tyndall National Institute, University College Cork (Ireland)
Thesis Title: *Optimized Grating Coupler Designs for Integrated Photonics*
Supervisors: Prof. Peter O'Brien and Dr. Francesco Floris

2021 Simone Argiolas–– M.Sc. Student at the Departments of Electrical, Electronic and Computer Science Engineering - University of Cagliari (Italy)
Project Title: *Vertical assisted directional-coupler from Silicon-on-Insulator to Silicon Nitride platforms*
Supervisors: Prof. Giovanna Mura and Dr. Francesco Floris

Scientific Divulgation and Outreach

- Orator since 2012 at several public events both in Italy, such as the "*European Researchers' Night*", the "*Scientific Culture Week*", the "*Science Festival*", the "*Pint of Science*", the "*PhDay*", and in Ireland such as the "*Ireland Science Festival*", the "*Science Week*", the "*Cork Science Festival*", the "*Pint of Science*" (Organizer since 2019; Theme Manager, Event Manager and Local Sponsorship Manager since 2020), the "*International Day of Light Festival*", the "*Mad Scientist Weekend*", the "*Irish Science Teacher Association Meeting*", the "*Tyndall Week*", the "*I am a Scientist stay at home*" and the "*Cork Discovers*", through the Education & Public Engagement (EPE) Programme of the Tyndall National Institute, supported by the Irish Photonic Integration Centre (IPIC)
- Guide at the Museum of Physics of Sardinia at the Department of Physics – University of Cagliari (Italy)
- EUROPRACTICE "Advanced Packaging Series" Webinars Coordinator, Supervisor, Presenter and Speaker

Endorsement

Training and lecturing endorsement from Lumerical

Entrepreneurial Activities

2022 UniVenture 2022 by UniPV for competing startups and entrepreneurs – Plasmore srl Project
Project Leader
(Second Place Award)

Lifelong Learning Activities

International Schools

[3] International Training School on Nanoparticles: NANOFACTS
2022 Novi Sad (Serbia)
(Invited Speaker and Trainer)

[2] International Summer School on Nanomedicine: ISSON14
2014 Thessaloniki (Greece)
(Contributed talk)

[1] International Summer School on Plasmonics: Plasmonics[#3]
2013 Cargèse (France)
(Contributed talk)

Certificates and Badges

2021
- Certificate – Nature Masterclasses Online Course in Focus on Peer Review
  All-virtual, web course by Springer Nature

2020
- Certificate – Nature Masterclasses Online Course in Scientific Writing and Publishing
  - Part 1: Writing a research paper
  - Part 2: Publishing a research paper
  - Part 3: Writing and publishing a review paper

  All-virtual, web course by Springer Nature
- Certificate – Publons Academy Practical Peer Review Course
  All-virtual, web course by Publons
- Certificate – Certificate of Service as Reviewer Board Member by MDPI
- Certificate – Epigeum Online Course "Reseach Integrity" by Oxford University Press
- Digital Badge in "LabVIEW Programming Fundamentals" by National Instruments

2019
- Certificate of completion for CPD1678 "RSS Research Skills Training Programme"
  University College Cork – Cork (Ireland)
- Certificate of completion for "The UCC Post Doc Development Hub Training"
  University College Cork – Cork (Ireland)
- Digital Badge in "Universal Design for Learning"
  University College Cork – Cork (Ireland)

2018
Digital Badge in "Postgraduate Research Supervision"
University College Cork – Cork (Ireland)

Development Activities and Professional Training Courses

- Nocturno Project Training Program 2022:
  - Scientific Challenges in Agriculture
  - Communication Skills and Soft Skills for Scientists

  2022 All-virtual, web training course provided by the BioSense Institute - Novi Sad (Serbia)
- National Digital Research Centre (NDRC):
  Pre-Commercialization Training Course
  2020 All-virtual, web training course
- UCC Online Sessions for Research Staff Programme 2020:
  - Transition to a Leadership Role & Different Leadership Styles
  - Career Planning for you & Listening to your Team
  - Managing a Research Team
  - How to Prepare a Non-Academic CV
  - Planning for a Career Beyond Academia?
  - Interview Skills
  - Mentoring
  - Commercial Awareness and Knowledge Transfer

  2020 University College Cork - Cork (Ireland)
- UCC Research Skills Training Programme 2019:
  - Finding Funding - Navigating the Funding Landscape
  - Applying for funding – Panel discussion with evaluators

- Proposal Writing and Costing Workshop - Panel discussion with successful applicants
- Dissemination and Outreach
- Maximising the Impact of your Research through Commercial Exploitation
- F.A.I.R. Data Management
- Maximising and Measuring Citation Performance

2019 University College Cork - Cork (Ireland)

- Hyperion LTD. Training Course:
  How to Write a Competitive Proposal for Horizon 2020
  2019 University College Cork - Cork (Ireland)

- Tyndall Trainings:

  Courses 2019
  - Negotiation & Influencing Skills
  - Unconscious Bias
  - Risk Assessment

  2019 Tyndall National Institute - Cork (Ireland)

  Courses 2018
  - Horizon 2020 Training:
    Part 1/3 - Introduction to the Suite of EU Programmes
    Part 2/3 - An introductory course for Proposal Writing for H2020
    Part 3/3 - An advanced course on Proposal Writing for H2020
  - Conducting Effective Meetings
  - Time Management & Personal Effectiveness
  - Effective Networking
  - LinkedIn - Build your own LinkedIn profile

  2018 Tyndall National Institute - Cork (Ireland)

- UCC Post-Doc Development Hub Training Courses 2018:
  - Grant and Scientific Writing
  - Communication and Presentation Skills
  - Teaching and Learning Skills
  - Commercial Awareness and Knowledge Transfer
  - Innovation and Entrepreneurship
  - Developing and Consolidating Your Research Career
  - Statistics for Research
  - Leading a Research Team
  - Communicating Your Research
  - Managing Yourself Through Change
  - Funding Your Research
  - Project Management Skills

  2018 University College Cork - Cork (Ireland)

- Science Foundation Ireland (SFI) Training Course:
  Communication & Public Engagement Training
  2018 Tyndall National Institute - Cork (Ireland)

Conferences, Meetings and Workshops

[33] *Conference* PRIME 2022
2022 Villasimius (Italy)
(Invited talk)

[32] *Conference* IONS 2021
2021 All-virtual, web conference format
(Contributed talk)

[31] *Workshop* Enterprise Ireland:
"Innovation Commercialisation"
2021 All-virtual, web workshop provided by the New Venture Office of University College Cork - Cork (Ireland)

[30] *Workshop* European Commission:
"How to prepare a successful proposal in Horizon Europe"
2021 All-virtual, web workshop provided by the Directorate-General for Research & Innovation of the European Commission

[29] *Workshop* Tyndall National Institute:
"Managing My Workplace Stress"
2021 All-virtual, web workshop provided by Beckinridge

[28] *Workshop* Human Resources and Research Support Service - University College Cork:
"Video Production and Training Workshop"
2020 All-virtual, web workshop provided by The Vidacademy

[27] *Workshop* Tyndall National Institute:
"Social Media Workshop (Intro + Advanced)"
2020 University College Cork - Cork (Ireland)

[26] *Workshop* Human Resources and Research Support Service - University College Cork:
"Getting Ready for Horizon Europe"
2020 University College Cork - Cork (Ireland)

[25] *Conference* 2020 Conference on Lasers and Electro–Optics ("CLEO")
2020 All-virtual, web conference format

[24] *Workshop* Irish Photonic Integration Centre (IPIC):
"IPIC 2020 Industry Workshop"
2020 University College Cork - Cork (Ireland)

[23] *Workshop* Enterprise Ireland:
"Stimulating Industry-Academic Innovation"
2019 Tyndall National Institute - Cork (Ireland)

[22] *Workshop* PIXAPP:
"Photonic Integrated Circuit Manufacturing"
2019 ECOC – Dublin (Ireland)

[21] *Workshop* Sense about Science:
"Standing Up for Science EU"
2019 University College Cork - Cork (Ireland)

[20] *Conference* PIERS2019
Organizer and Chairman of the Special Session
Photonics Packaging & Integration 1 and 2
2019 University of Rome "La Sapienza" – Rome (Italy)

[19] *Workshop* Dean of Graduate Studies - University College Cork:
"Communicating the impact of your research"
2019 University College Cork - Cork (Ireland)

[18] *Workshop* Dean of Graduate Studies - University College Cork:
"Masterclass: Research Supervision"
2019 University College Cork - Cork (Ireland)

[17] *Workshop* Irish MSCA Office - Irish Universities Association (IUA):
"MSCA Individual Fellowship"
2019 Irish Universities Association (IUA) - Dublin (Ireland)

[16] *Workshop* Campus Engage Team -
Irish Universities Association (IUA) and Science Foundation Ireland (SFI):
"Engaged Research Training"
2019 University College Cork - Cork (Ireland)

[15] *Conference* Human Resources and Research Support Service -
University College Cork:
"Human Resources Researcher Conference 2018 - The Politics of Research"
2018 University College Cork - Cork (Ireland)

[14] *Workshop* Dean of Graduate Studies - University College Cork:
"Viva Voce Supervisor Training for Academic and Research Staff"
2018 University College Cork - Cork (Ireland)

[13] *Workshop* Dean of Graduate Studies - University College Cork:
"Ph.D. Supervisor Training"
2018 University College Cork - Cork (Ireland)

[12] *Workshop* Erc=science^2:
"Science Communication Through Storytelling and Humor"
2018 University College Cork - Cork (Ireland)

[11] *Workshop* COMSOL Workshop at Tyndall:
"Introduction to COMSOL 5.3 & Application Builder"
2017 Tyndall National Institute - Cork (Ireland)

[10] *Workshop* Elsevier Author Workshop:
"How to publish a scientific work"
2017 University of Cagliari - Cagliari (Italy)

[9] *Meeting* 13th ETSF Young Researchers' Meeting
2016 King's College - London (UK)
(Poster presentation)

[8] *Workshop* BU Materials Day 2015 - Nanomaterials in Medicine:
Improving Healthcare Through SMALL Innovations
2015 Boston University - Boston (USA)

[7] *Conference* Surface Plasmon and Plasmonics SPP2015
2015 Santa Margherita Ligure (Italy)
(Poster presentations – Funded by a DAAD Scholarship for Conferences)

[6] *Workshop* Communicating Science
2014 SISSA - Trieste (Italy)

[5] *Meeting* 5th Young Research Meeting
2014 SISSA - Trieste (Italy)
(Contributed talk)

[4] *Conference* Nanotexnology 2014 NN14
2014 Thessaloniki (Greece)
(Contributed talk)

[3] *Conference* 2013 MRS Fall Meeting & Exhibit
2013 Boston (USA)
(Poster presentation and contributed talks)

[2] *Conference* FisMat 2013
2013 Polytechnic of Milan (Italy)
(Poster presentations and contributed talk)

[1] *Workshop* Plasmonica 2013
2013 Polytechnic of Milan (Italy)
(Poster presentations)

Affiliations and Memberships

- Member of the B.Sc. and M. Sc. Graduate Commissions at the Physics Department of the University of Pavia
- Irish Photonic Integration Centre (IPIC) Fellow
- Tyndall's Early Career Researcher Network (ECRN) Board Member
- Young European Associated Researchers (YEAR) Network - Tyndall's Board Member

Awards, Grants and Acknowledgements

- EPE Demo of the Year Award
@ *IPIC 2020 Industry Workshop* - **2020** Cork (Ireland)
- DAAD Scholarship for Conference Grants
@ *SPP2015 Conference* – **2015** Santa Margherita Ligure (Italy)
- Scholarship funded by the Italian Minister of the Instruction, University and Research through the "Pavia-Boston Exchange Project" Award for a six-months exchange period at the Boston University in Boston, Massachusetts (USA)
@ *University of Pavia* – **2015** Pavia (Italy)

PERSONAL SKILLS

Mother Tongue **Italian**

Other Language

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken Interaction	Spoken Production	
English	C2	C2	C2	C2	C2

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

High level language skills acquired:

- taking part in several courses at the Centro Linguistico di Ateneo (CLA) of the University of Cagliari in the environment of the project called "Sardegna Speaks English" sponsored by Regione Autonoma della Sardegna – Cagliari (Italy);
- during a six-months exchange period at the Boston University – Boston, Massachusetts (USA);
- working as a Post-Doctoral Research Fellow at the Photonics Center of the Tyndall National Institute - University College Cork - Cork (Ireland) since July 20172017 till December 2021.

SCIENTIFIC PRODUCTION

Journal Papers

[22] Refractive Index Dependence of Fluorescence Enhancement in a Nanostructured Plasmonic Grating

M. Angelini, E. Manobianco, P. Pellacani, F. Floris and F. Marabelli

Materials Volume 16, Pages 1289-1/11
February 2023
DOI: 10.3390/ma16031289

[21] Plasmonic Modes and Fluorescence Enhancement Coupling Mechanism: A Case with a Nanostructured Grating

M. Angelini, E. Manobianco, P. Pellacani, F. Floris and F. Marabelli

Nanomaterials Volume 12, Pages 4339-1/16
December 2022
DOI: 10.3390/nano12234339

[20] Particle Swarm Optimization of GaAs-AlGaAS Nanowire Photonic Crystals as Two-Dimensional Diffraction Gratings for Light Trapping

L. Zagaglia, V. Demontis, F. Rossella and F. Floris

Nano Express Volume 3, Pages 021001-1/6
April 2022
DOI: 10.1088/2632-959X/ac61ec

[19] Wavelength Selection in Focusing Non-Uniform Grating Couplers: a Coupling Efficiency Curve Asymmetry and Bandwidth Analysis

L. Zagaglia, F. Floris and P. O'Brien

Photonics and Nanostructures Volume 50, Pages 101019-1/6
March 2022
DOI: 10.1016/j.photonics.2022.101019

[18] Design and Performance Estimation of a Photonic Integrated Beamforming Receiver for Scan-On-Receive Synthetic Aperture Radar

M. Reza, G. Serafino, T. Otto, A. Mohammad, H. Mohammadhosseini, L. Shiramin, F. Floris, M. Kolb, D. Bale, S. Gabrielli, C. Roeloffzen, P. van Dijk, A. Abbasi, B. Desoete and P. Ghelfi

Journal of Lightwave Technology Volume 39(24), Pages 7588-7599
October 2021
DOI: 10.1109/JLT.2021.3119225

[17] Experimental Characterization of Particle Swarm Optimized Focusing Non-Uniform Grating Coupler for Multiple SOI Thicknesses

L. Zagaglia, F. Floris and P. O'Brien

Journal of Lightwave Technology Volume 39(15), Pages 5028-5034
August 2021
DOI: 10.1109/JLT.2021.3079575

[16] A Non-Mechanical Multi-Wavelength Integrated Photonic Beam Steering System

N. Alshamrani, A. Grieco, A. Friedman, K. Johnson, M. Kim, F. Floris, P. O'Brien, and Y. Fainman

Journal of Lightwave Technology Volume 39(12), Pages 4201-4208

June 2021
DOI: 10.1109/JLT.2020.3034580

[15] Semiconductor nanowire arrays for optical sensing: a numerical insight on the impact of array periodicity and density

L. Zagaglia, V. Demontis, F. Rossella and F. Floris

Nanotechnology Volume 32(33), Pages 335502-1/12
May 2021
DOI: 10.1088/1361-6528/abff8b

[14] CORNERSTONE's Silicon Photonics Rapid Prototyping Platforms: Current Status and Future Outlook

C. G. Littlejohns, D. J. Rowe, H. Du, K. Li, W. Zhang, W. Cao, T. Dominguez Bucio, X. Yan, M. Banakar, D. Tran, S. Liu, F. Meng, B. Chen, Y. Qi, X. Chen, M. Nedeljkovic, L. Mastronardi, R. Maharjan, S. Bohora, A. Dhaka, I. Crowe, A. Khurana, K. C. Balram, L. Zagaglia, F. Floris, P. O'Brien, E. Di Gaetano , H. Chong, F. Y. Gardes, D. J. Thomson, G. Z. Mashanovich, M. Sore and G. T. Reed

Applied Science Volume 10(22), Pages 08201-1/34
November 2020
DOI: 10.3390/app10228201

[13] Fluorescence Spectroscopy Study of Protoporphyrin IX in Optical Tissue Simulating Liquid Phantoms

H. Lu, F. Floris, M. Rensing and S. Andersson-Engels

Materials Volume 13, Pages: 2105-1/10
May 2020
DOI: 10.3390/ma13092105

[12] Una proposta di Laboratorio di Meccanica Quantistica per le Scuole Secondarie Superiori

C. M. Carbonaro, V. Fanti, F. Floris, M.B. Maccioni and A. Zurru

Le Scuole di Storia della Fisica Quaderno 28 – La Fisica nella Scuola
March 2020
ISSN: 1120-6527

[11] Strong Modulations of Optical Reflectance in Tapered Core–Shell Nanowires

F. Floris, L. Fornasari, A. Marini, V. Bellani, F. Banfi, S. Roddaro, D. Ercolani, M. Rocci, F. Beltram, M. Cecchini, L. Sorba and F. Rossella

Materials Volume 12, Pages: 3572-1/11
October 2019
DOI: 10.3390/ma12213572

[10] Comparing Laser Hybrid-Integration and Fiber Coupling with Standard Grating Couplers on Si-PICs

L. Zagaglia, F. Floris, L. Carroll and P. O'Brian

IEEE Photonics Technology Letters Volume 31, Pages: 66-69
November 2018
DOI: 10.1109/LPT.2018.2883211

[9] Co-optimizing grating couplers for hybrid integration of InP and SOI photonic platforms

M. Passoni, F. Floris, H.Y. Hwang, L. Zagaglia, L. Carroll, L.C. Andreani and P. O'Brian

AIP Advances Volume 8, Pages: 095109-1/8
September 2018
DOI: 10.1063/1.5046164

[8] Self-Assembled InAs Nanowires as Optical Reflectors

F. Floris, L. Fornasari, A. Marini, V. Bellani, F. Banfi, S. Roddaro, D. Ercolani, M. Rocci, F. Beltram, M. Cecchini, L. Sorba and F. Rossella

Nanomaterials Volume 7, Pages: 400-410
November 2017
DOI: 10.3390/nano7110400

[7] Photo-induced absorption spectra of a poly(*p*-phenylenevinylene) polymer with fluorinated double bonds

M. Burger, F. Floris, A. Cardone, G.M. Farinola, V. Morandi, F. Marabelli and D. Comoretto

Organic Electronics Volume 43, Pages: 214-221
January 2017
DOI: 10.1016/j.orgel.2017.01.023

[6] Demonstration of Fluorescence Enhancement via Bloch Surface Waves in All-Polymer Multilayer Structures

L. Fornasari, F. Floris, M. Patrini, D. Comoretto and F. Marabelli

Physical Chemistry Chemical Physics Volume 18, Pages: 14086-14093
April 2016
DOI: 10.1039/c5cp07660a

[5] Synergic Combination of the Sol-gel Method with Dip-coating for Plasmonic Devices

C. Figus, M. Patrini, F. Floris, L. Fornasari, P. Pellacani, G. Marchesini, A. Valsesia, F. Artizzu, D. Marongiu, M. Saba, F. Marabelli, A. Mura, G. Bongiovanni and F. Quochi

Beilstein Journal of Nanotechnology Volume 6, Pages: 500-507
February 2015
DOI: 10.3762/bjnano.6.52

[4] Thermal Evolution of Tetramethylammonium Tetrafluoborate and Perchlorate Investigated through Dielectric and IR Spectroscopy

G.B. Parravicini, F. Marabelli, F. Floris, V. Pasquali, J. Parravicini and P. Ferloni

Materials Chemistry and Physics Volume 147, Pages:120–126
September 2014
DOI: 10.1016/j.matchemphys.2014.04.018

[3] Optical Sensitivity Gain in Silica-coated Plasmonic Nanostructures

F. Floris, C. Figus, L. Fornasari, M. Patrini, P. Pellacani, G. Marchesini, A. Valsesia, F. Artizzu, D. Marongiu, M. Saba, A. Mura, G. Bongiovanni, F. Marabelli and F. Quochi

The Journal of Physical Chemistry Letters Volume 5, Pages:2935–2940
August 2014
DOI: 10.1021/jz501443c

[2] Fluorescence Excitation Enhancement by Bloch Surface Wave in All-polymer One-dimensional Photonic Structure

L. Fornasari, F. Floris, M. Patrini, G. Canazza, G. Guizzetti, D. Comoretto and F. Marabelli

Applied Physics Letters Volume 105, Pages: 0533031-0533035
August 2014
DOI: 10.1063/1.4892423

[1] Extending the Lasing Wavelength Coverage of Organic Semiconductor Nanofibers by Periodic Organic–Organic Heteroepitaxy

F. Quochi, G. Schwabegger, C. Simbrunner, F. Floris, M. Saba, A. Mura, H. Sitter and G. Bongiovanni

Advanced Optical Materials Volume 1, Pages:117–122
February 2013
DOI: 10.1002/adom.201200005

Journal Covers

[1] Organic Nanofibers: Extending the Lasing Wavelength Coverage of Organic Semiconductor Nanofibers by Periodic Organic–Organic Heteroepitaxy

F. Quochi, G. Schwabegger, C. Simbrunner, F. Floris, M. Saba, A. Mura, H. Sitter and G. Bongiovanni

Advanced Optical Materials Volume 1, Page:116
February 2013
DOI: 10.1002/adom.201370015

Conference Papers

[14] Modelling of a Plasmonic Metasurface for Optical Sensing Applications by a Custom Particle Swarm Optimization Algorithm Implemented in the FDTD Method

M. Angelini, L. Zagaglia, F. Marabelli and F. Floris

IEEE Xplore 2022 Sixteenth International Congress on Artificial Materials for Novel Wave Phenomena (METAMATERIALS 2022)
September 2022
DOI: 10.1109/Metamaterials54993.2022.9920774

[13] A Case of Plasmonic Nanostructure for Plasmon-Enhanced Fluorescence

M. Angelini, E. Manobianco, P. Pellacani, F. Floris and F. Marabelli

IEEE Xplore 2022 Sixteenth International Congress on Artificial Materials for Novel Wave Phenomena (METAMATERIALS 2022)
September 2022
DOI: 10.1109/Metamaterials54993.2022.9920780

[12] Microwave Photonics Beamformer for Spaceborne SAR

T. Otto, S. Gabrielli, P. Ghelfi, G. Serafino, M. Reza, A. Mohammad, C. Roeloffzen, P. Van Dijk, H. Mohammadhosseini, D. Saladukha, F. Floris and R. Roggan

IEEE Xplore European Conference on Synthetic Aperture Radar, EUSAR 2022
July 2022
ISBN: 978-3-8007-5823-4

[11] Vertical assisted directional-coupler from Silicon-on-Insulator to Silicon Nitride platforms

L. Zagaglia, S. Argiolas, S. Iadanza, G. Mura, F. Floris and P. O'Brien

META 2021 Warsaw – Poland Proceeding
September 2021

ISSN: 2429-1390

[10] Advancement of Photonic Integration Technology for Space Applications: a X-band Scan-on-Receive Synthetic Aperture Radar Receiver with Electro-Photonic Beamforming and Frequency Down-Conversion Capability

H. Mohammadhoseini, P. Ghelfi, B. Desoete, S. Gabrielli, T. Otto, A. W. Mohammad, C. Roeloffzen, P. Van Dijk, M. Reza, G. Serafino and F. Floris

Proceeding of SPIE Volume11852, 118522W(1-8)
June 2021
DOI: 0.1117/12.2601247

[9] Engineering the optical reflectance of randomly arranged self-assembled semiconductor nanowires

V. Demontis, A. Marini, F. Floris, L. Sorba and F. Rossella

AIP Conference Proceeding Volume2257, 1
September 2020
DOI: 10.1063/5.0023675

[8] Analysis in reciprocal space of the band-pass filter effect in uniform and non-uniform grating couplers

L. Zagaglia, F. Floris and P. O'Brien

IOP Journal of Physics: Conference Series Volume1548, 012031
May 2020
DOI: 10.1088/1742-6596/1548/1/012031

[7] Optimized Design Procedure for Low-cost Grating-couplers in Photonics-packaging

L. Zagaglia, F. Floris and P. O'Brien

IEEE Xplore 2019 PIERS Symposium - Spring, pp. 234-241
March 2020
DOI: 10.1109/PIERS-Spring46901.2019.9017442

[6] Fluorescence spectroscopy study of protoporphyrin IX in tissue-like phantoms

H. Lu, F. Floris, M. Rensing and S. Andersson-Engels

Proceeding of SPIE Volume11190, 111901S(1-8)
November 2019
DOI: 10.1117/12.2537000

[5] A Multiplexed Label Free Plasmonic Nano-device for Near Infrared Applications

F. Floris, L. Fornasari, A. Frangolho, S. Giudicatti, G. Marchesini, P. Pellacani, A. Valsesia and F. Marabelli

AIP Conference Proceeding Volume1646, 46
February 2015
DOI: 10.1063/1.4908581

[4] Plasmonic Structures for Sensing and Emitting Devices

F. Floris, L. Fornasari, M. Patrini, C. Figus, A. Mura, G. Bongiovanni, F. Quochi, P. Pellacani, A. Valsesia and F. Marabelli

IOP Journal of Physics: Conference Series Volume566, 012015
December 2014
DOI: 10.1088/1742-6596/566/1/012015

[3] Thickness Controlled Sol-gel Silica Films for Plasmonic Bio-sensing Devices

C. Figus, F. Quochi, F. Artizzu, M. Saba, D. Marongiu, F. Floris, F. Marabelli, M. Patrini, L. Fornasari, P. Pellacani, A. Valsesia, A. Mura and G. Bongiovanni

AIP Conference Proceeding Volume1624, 43
October 2014
DOI: 10.1063/1.4900455

[2] Multiband Laser Action from Organic-Organic Heteroepitaxial Nanofibers

F. Quochi, G. Schwabegger, C. Simbrunner, F. Floris, M. Saba, A. Mura, H. Sitter and G. Bongiovanni

MRS Proceeding Volume1632, Symposium Q
February 2014
DOI: 10.1557/opl.2014.115

[1] Plasmonic Structures for Near Infrared Applications

F. Floris, F. Marabelli, M. Patrini, L. Fornasari, F. Quochi, C. Figus, G. Bongiovanni, A. Mura, M. Saba, P. Pellacani and A. Valsesia

MRS Proceeding Volume1629, Symposium N
January 2014
DOI: 10.1557/opl.2014.80

Conference Session

[1] Organizer and Chairman of the Special Session
Photonics Packaging & Integration 1 and 2 at the PIERS2019 Conference
2019 University of Rome “La Sapienza” – Rome (Italy)

Talks

[26] Introduction to Co-Packaged Opto-Electronic Design
[17th International Conference PRIME 2022 – **2022** Villasimius (Italy)]
(Invited Speaker)

[25] Gold nanohole arrays: from structural optimization to biosensing applications
[International School of Physics "Enrico Fermi" – **2022** Varenna (Italy)]
(winner of the Best Oral Presentation Award)

[24] Workshop: Bio-chemical analyzer based on imaging surface plasmon resonance
[International Training School on Nanoparticles: NANOFACTS – **2022** Novi Sad (Serbia)]
(Invited Hands-on Trainer)

[23] Multiplexing detection of biomarkers through SPR imaging and kinetics analysis
[International Training School on Nanoparticles: NANOFACTS – **2022** Novi Sad (Serbia)]
(Invited Speaker)

[22] Microwave Photonics Beamformer for Spaceborne SAR
[EUSAR 2022 – **2022** Leipzig (Germany)]

[21] SPACEBEAM optical beamformer for SAR – A potential enabler for the SKADI mission
[7th Workshop on RF and Microwave Systems, Instruments & Sub-systems + 5th Ka-band Workshop – **2022** ESA-ESTEC, Noordwijk (Netherlands)]

[20] Semiconductor nanowire arrays for optical sensing: a numerical insight on the Impact of periodicity and density
[IONS Ireland *2021* – **2021** University College Cork, Cork (Ireland)

All-virtual, web conference format]
(Presenting Author)

[19] Experimental characterization of particle swarm optimized focusing non-uniform grating couplers
[IONS Ireland *2021* – **2021** University College Cork, Cork (Ireland)
All-virtual, web conference format]
(winner of the Best Oral Presentation Award)

[18] Optimization of a silicon-to-silicon nitride vertical coupler
[IONS Ireland *2021* – **2021** University College Cork, Cork (Ireland)
All-virtual, web conference format]

[17] Vertical assisted directional-coupler from Silicon-on-Insulator to Silicon Nitride platforms
[META *2021* – **2021** University of Warsaw, Warsaw (Poland)
All-virtual, web conference format]

[16] Advancement of Photonic Integration Technology for Space Applications: a X-band Scan-on-Receive Synthetic Aperture Radar Receiver with Electro-Photonic Beamforming and Frequency Down-Conversion Capability
[ICSO *2020* – **2021** All-virtual, web conference format]

[15] Anomalous effective permittivity of Vogel spiral metamaterials
[*PLASMONICA 2019* – **2019** Naples (Italy)]

[14] Analysis in reciprocal space of the band-pass filter effect in uniform and non-uniform grating couplers
[10th *Young Research Meeting* – **2019** University of Rome "Tor Vergata" - Rome (Italy)]

[13] The Integrated Photonics Education Kit
[*PIERS2019* – **2019** University of Rome "La Sapienza" - Rome (Italy)]

[12] Optimized Design Procedure for Low-cost Grating couplers in Photonics-packaging
[*PIERS2019* – **2019** University of Rome "La Sapienza" - Rome (Italy)]

[11] Pluggable Free-space Connectors Enabling Consumable Photonics
[*PIERS2019* – **2019** University of Rome "La Sapienza" - Rome (Italy)]

[10] Wafer-level Packaging of Photonics and Electronics for Terabit-scale Optical Interconnects
[*PIERS2019* – **2019** University of Rome "La Sapienza" - Rome (Italy)]

[9] From Pluggable Freespace Connectors to Consumable Photonics Sensors
[*Photonics Ireland 2018* – **2018** Cork (Ireland)]

[8] Spectral redistribution of fluorescence intensity in all-polymer microcavities and distributed Bragg reflectors
[*GISR2016* – **2016** Padova (Italy)]

[7] A Plasmonic Structure for Emitting and Sensing Devices
[5th *Young Research Meeting* – **2014** SISSA – Trieste (Italy)]
(Presenting Author)

[6] A Plasmonic Nano-Device for Near Infrared Applications
[*2014 Nanotexnology NN14 Conference* – **2014** Thessaloniki (Greece)]
(Presenting Author)

[5] Multiband Laser Action from Organic-Organic Heteroepitaxial Nanofibers
[*2013 MRS Fall Meeting & Exhibit* – **2013** Boston (USA)]
(Presenting Author)

[4] Plasmonic Structures Coupled to Rare-Earth Fluorophores for Near Infrared Applications
[*2013 MRS Fall Meeting & Exhibit* – **2013** Boston (USA)]
(Presenting Author)

[3] Quantum Dot Infrared Photodetectors Integrated on Si
[*EOS 2013 Topical Meetings* – **2013** Capri (Italy)]

[2] Multilayer Structures, π-conjugated Polymers and Optical Detection of Nitro-aromatic Compounds
[*FisMat 2013* – **2013** Milan (Italy)]
(Presenting Author)

[1] Plasmonic Structures for Near Infrared Applications
[*Summer School on Plasmonics*$^{\#3}$ – **2013** Cargèse (France)]
(Presenting Author)

Posters

[29] Modelling of a Plasmonic Metasurface for Optical Sensing Applications by a Custom Particle Swarm Optimization Algorithm Implemented in the FDTD Method
[METAMATERIALS *2022* – **2022** Siena (Italy)]

[28] A Case of Plasmonic Nanostructure for Plasmon-Enhanced Fluorescence
[METAMATERIALS *2022* – **2022** Siena (Italy)]

[27] Compact Integrated Portable Optical System for the Detection of Contaminants
[IONS Ireland *2021* – **2021** University College Cork, Cork (Ireland)
All-virtual, web conference format]

[26] Optimized focusing non-uniform grating couplers for the horizontal fiber light coupling scheme
[*IPIC 2021 Industry Workshop* – **2021** All-virtual, web workshop
and
Photonics Ireland 2021 – **2021** Cork (Ireland)]

[25] The Integrated Photonics Education Kit (IPEK) – Promoting integrated photonics as emerging technology to the next generation of college students
[OFC *2020* – **2020** San Diego (USA)]

[24] Micro-lens for Relaxed Alignment-tolerances in Photonics Packaging
[*IPIC 2020 Industry Workshop* - **2020** Cork (Ireland)]

[23] Heat Dissipation Through Copper Thermal Vias in Glass interposers for Packaging of Integrated Electronic/ Photonic Devices
[*IPIC 2020 Industry Workshop* - **2020** Cork (Ireland)]

[22] Fluorescence Spectroscopy Study of Protoporphyrin IX in Tissue-like Phantoms
[Photonics Asia 2019 Conference - **2019** Hangzhou (China)]

[21] Self-Assembled InAs Nanowires as Optical Reflectors
[Nanowire Week 2019 Conference - **2019** Pisa (Italy)]

[20] Tailoring of a Particle Swarm Optimization Procedure for Grating-coupler Design
[*ePIXfab Silicon Photonics Summer School* - **2019** Pisa (Italy)]

[19] Photonic Chip Interconnects: PIC-to-PIC Grating Coupling
[*IPIC 2019 Industry Workshop* - **2019** Cork (Ireland)]

[18] Optimized Grating Design
[*IPIC 2019 Industry Workshop* - **2019** Cork (Ireland)]
(winner of the Best Poster Award)

[17] Integrated CMOS-Manufacturable Fourier Transform Spectrometer
[ISUPT/SSPhF 2019 – **2019** Davis (USA)]

[16] The Integrated Photonics Education Kit
[OFC *2019* – **2019** San Diego (USA)]

[15] Co-optimizing grating couplers for hybrid integration of InP and SOI photonic platforms
[*Photonics Ireland 2018* – **2018** Cork (Ireland)]

[14] Comparing Laser-Hybrid Integration and Direct Fiber-Coupling on Si-PICs
[*Photonics Ireland 2018* – **2018** Cork (Ireland)]

[13] Photophysical Properties of a Fluorinated Poly(p-phenylenevinylene) Derivative
[*ETSF YRM 2016* – **2016** King's College - London (UK)]
(Presenting Author)

[12] Characterization of Hybrid Systems of Plasmonic Nanoantennas Coupled to Porous Silicon Multilayers
[*PSST 2016* – **2016** Tarragona (Spain)]

[11] Wine Traceability by Species and Quantification of Lanthanides Atoms
[*IVAS 2015* – **2015** Trento (Italy)]

[10] Silica Coated Plasmonic Nanosurfaces for Photoluminescence Enhancement
[*PLASMONICA 2015* – **2015** Padova (Italy)]
(Presenting Author)

[9] Hybrid Plasmonic-Photonic Nanostructure:
Noble-Metal Nanocrescents over Self-Ordered Monolayer of Fluorescence Microspheres
[*PLASMONICA 2015* – **2015** Padova (Italy)]

[8] Silica Coated Plasmonic Nanosurfaces for Biosensing and Light Emission Applications
[*SPP2015* – **2015** Santa Margherita Ligure (Italy)]
(Presenting Author)

[7] Hybrid Plasmonic-Photonic Application-Oriented Platform
[*SPP2015* – **2015** Santa Margherita Ligure (Italy)]

[6] Thickness Controlled Sol-Gel Silica Films for Plasmonic Device:
A Synergic Combination for Bio-Sensing
[*2014 Symposium SiO_2, Advanced Dielectrics and Related Devices* – **2014** Cagliari (Italy)]

[5] Organic Flexible Photonic Structures for Amplified Light Emission
[*EOSAM2014* – **2014** Berlin (Germany)
and
2013 MRS Fall Meeting & Exhibit – **2013** Boston (USA)]

[4] Extending the Lasing Wavelength Coverage of Periodically Grown Semiconductor Nanofibers by Organic-Organic Heteroepitaxy
[*FisMat 2013* – **2013** Milan (Italy)]
(Presenting Author)

[3] Plasmonic Structures For Near Infrared Applications
[*FisMat 2013* – **2013** Milan (Italy)]
(Presenting Author)

[2] Plasmonic Structures and Interaction with Fluorophores for Near Infrared Applications
[*Plasmonica 2013* – **2013** Milan (Italy)]
(Presenting Author)

[1] Lasing Performance of Organic Heteroepitaxial Nanofibers Realized by Periodic Deposition of Para-Sexiphenyl and Sexithiophene on Muscovite Mica
[*EXCON 2012* – **2012** Groningen (Netherlands)]

Referee Activities

MDPI – Optics
MDPI – Nanomaterials
MDPI – Symmetry [*Reviewer Board Component*]
MDPI – Mathematics
MDPI – Applied Nano
AIP – AIP Advances
Scholars.Direct – Recent Advances in Photonics and Optics
HSPC – International Journal of Physics Research and Applications
PIERS2019 Conference
MRS Online Proceeding Library