

CURRICULUM VITAE

Mario Ferraro

09/07/19

Actual position

- *PhD student at “Université Nice Sophia Antipolis” (France), working at CRHEA-CNRS*
Since 15th, December 2016
Thesis title: Integration of metasurfaces based optical devices for optoelectronic application and laser emission control.
Subjects:
 1. *Multisubband plasmon based hyperbolic metamaterials*
 2. *Lidar*
 3. *Cherenkov light source via hyperbolic dispersion*
 4. *Engineered polariton bands*
- *PhD student charged of teaching at “Polytech Nice Sophia Antipolis” (France)*
Since 1st, October 2017 to 30th, September 2019
Courses:
 1. *Laboratory of mechanics (2017-2019)*
 2. *Laboratory of electromagnetism (2017-2019)*
 3. *Lectures (exercises) of mechanics (2018-2019)*

Previous working experience

- *Assistant Global Risk Management at “Credito Emiliano” Bank*
Function: Internal Models Validation
Duration: October 15th, 2015 - October 14th, 2015

Academic education

- *Bachelor degree in physics at “Università della Calabria” (Italy).*
Degree mark: 110/100 with honors.
Title of the thesis: “Introduction to plasmon in metamaterials (an experiment to mitigate optical losses)”
Advisors: Prof. Roberto Bartolino, Dr. Antonio De Luca
Type of thesis: Experimental
Subject: Physic of matter
Defence date: October 1st, 2013
- *Master degree in physics at “Università degli studi di Roma La Sapienza”*
Curriculum: Structure of matter
Degree mark: 110/110 with honors
Title of the thesis: “Scale-free optics in periodically microstructured ferroelectrics”
Advisor: Prof. Eugenio Del Re
Type of thesis: Experimental

Subject: Nonlinear Optics

Defence: July 17th,, 2015

Other activities: Study of Graphene's structural properties at LOTUS laboratory (physics department of University of Rome "La Sapienza")

- *Visiting PhD student at Postech, Pohang (South Korea) in November 2017*

Pre-university studies

- *Scientific high school diploma at "Liceo Scientifico E.Fermi", Cosenza (Italy)*
Diploma mark: 100/100
Date of final exam: July 10th , 2010

Informatic skills

- *Programming languages: C++, Fortran 90, VBA*
- *Programs for scientific data analysis: Matlab, R*
- *Programs to make 3D images: Blender*
- *Programs for simulations in optics: Lumerical FDTD Solutions, Reticolo (Matlab based)*

Languages

- *Italian: Native proficiency*
- *French: Full professional proficiency*
 - *French language course organized by CNRS at Valbonne, France (6 month)*
- *English: Full professional proficiency*
 - *English language course at "English now" school, Bethesda, Maryland, USA (4 weeks)*
 - *English language course at "Glasgow school of English", Glasgow, Scotland (1 week)*
 - *English language course at "Oxford" school, Rome (32 weeks)*

Honors & Awards

- *"Excellent graduate" 2014/2015 of University of Rome "La Sapienza" (Italy).*
- *"Excellence path" at University of Rome "La Sapienza" (Italy).*
Title: "Nonlinear Schrödinger equation and its solitonic solutions: resolution by the spectral transformation method"
Supervisor: Prof. P.M. Santini
- *"Mention of honor for the brilliant curriculum" at the bachelor graduation session at University of Calabria (Italy).*
- *First place at the olympics of physics (regional level) and participation at national level (2009).*
- *Fifth place at the olympics of physics (regional level) and participation at national level (2010).*

Organizations

- *"Associazione italiana per l'insegnamento della fisica" since December 2013 to December 2015.*
- *"Société française physique" since July 2017.*

Publications

- *D. Pierangeli, M. Ferraro, F. Di Mei, G. Di Domenico, C. E. M. de Oliveira, A. J. Agranat & E. DelRe, Super-crystals in composite ferroelectrics, Nat. Commun. 7, 10674 (2016).*
(Journal paper; DOI: 10.1038/ncomms10674)

- *M. Ferraro, D. Pierangeli, M. Flammini, F. Di Mei, G. Di Domenico, L. Falsi, A. J. Agranat & E. DelRe, Observation of polarization-maintaining light propagation in depoled compositionally disordered ferroelectrics, Opt. Let. 42, 19 (2017).*
(Journal paper; DOI: 10.1364/OL.42.003856)
- *A. Hierro, M. Montes Bajo, M. Ferraro, J. Tamayo-Arriola, N. Le Biavan, M. Hugues, J. M. Ulloa, M. Giudici, J. M. Chauveau, and Patrice Genevet, Optical phase transition in semiconductor quantum metamaterials*
(PRL, accepted)
- *D. Pierangeli, M. Ferraro, F. Di Mei, G. Di Domenico, C.E.M. de Oliveira, A.J. Agranat, and E. DelRe, Spontaneous photonic super-crystals in composite ferroelectrics, 2016 CLEO: QELS_Fundamental Science*
(Conference paper 10.1364/CLEO_QELS.2016.FM1A.4)
- *M. Ferraro, D. Pierangeli, M. Flammini, F. Di Mei, G. Di Domenico, A. J. Agranat, E. DelRe, Binary birefringence in ferroelectric super-crystals, 2017 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO/Europe-EQEC)*
(Conference paper; 10.1109/CLEOE-EQEC.2017.8087160)
- *M. Ferraro, M. Giudici, A. Vasanelli, M. Montes Bajo, J. Tamayo-Arriola, A. Hierro, J. M. Chauveau and P. Genevet, Intersubband plasmons induced negative refraction at mid-IR frequency in heterostructured semiconductor metamaterials, Phys.: Conf. Ser. 1092 012034 (2018)*
(Conference paper; DOI: 10.1088/1742-6596/1092/1/012034)
- *M. Ferraro, A. Hierro, M. Montes Bajo, J. Tamayo-Arriola, N. Le Biavan, M. Hugues, J. M. Ulloa, M. Giudici, J. M. Chauveau, and Patrice Genevet, Intersubband plasmons induced negative refraction at mid-IR frequency in heterostructured semiconductor metamaterials, (2019)*
(Conference paper; DOI: 10.1364/CLEO_QELS.2019.FTh4M.1)

Conferences and seminars

- International mini-workshop “Nanostrukturierte Halbleiter mit Bandlückenmodulationen”, *Resonant hyperbolic metamaterials make negative refraction*, Bochum (Ruhr-Universität), Germany, December 14th, 2018.
- Colloque doctorants 2ème année EDSFA, *Intersubband plasmons induced negative refraction at THz frequency in heterostructured semiconductor metamaterials*, Université de Nice Sophia Antipolis, Nice, France, May 28th, 2018.
- Assemblée Générale du GDR ONDES 2017, Campus SophiaTech – Université Côte d’Azur, France, October 23th – 25th, 2017 (Only attended).
- Journées doctorales de la Physique Niçoise, *Intersubband plasmons induced negative refraction at mid-infrared frequency in heterostructured semiconductor metamaterials (Poster)*, Salles sur Verdon, France, May 22th – 25th, 2018.
- Journées Nano, Micro et Optoélectronique (JNMO), *Intersubband plasmons induced negative refraction at mid-infrared frequency in heterostructured semiconductor metamaterials (Poster)*, Agay, France, June 13th – 15th, 2018.
- L’ère du temps, Nice, France, June 7th – 9th, 2018 (Only attended).

- Nanophotonics and Micro/Nano Optics International Conference 2018, *Intersubband Plasmons Induced Negative Refraction At Mid-Ir Frequency In Heterostructured Semiconductor Metamaterials*, Rome, Italy, October 1st – 3rd, 2018.
- International Conference on Metamaterials and Nanophotonics METANANO 2018, *Intersubband Plasmons Induced Negative Refraction At Mid-Ir Frequency In Heterostructured Semiconductor Metamaterials*, Sochi, Russia, September 17th – 21th, 2018.
- CLEO US 2019, *Intersubband Plasmons Induced Negative Refraction At Mid-Ir Frequency In Heterostructured Semiconductor Metamaterials*, San José, CA, May 5th – 10th, 2019.
- EMRS Spring meeting 2019, *Intersubband Plasmons Induced Negative Refraction At Mid-Ir Frequency In Heterostructured Semiconductor Metamaterials*, Nice, France, May 27th – 31th, 2019.

PhD schools

- Ganex Winter School, Autran, France, March 12th- 17th, 2018.
- 4th Summer School On plasmonics, Porquerolles, France, September 3rd- 8th, 2017.
- Ganex Summer School, Agay, France, June 10th- 14th, 2019.