



ROMA (RM)

11/2023 - TODAY

MOTHER TONGUE(S): Italian



ENGLISH

[Self-assessment gri](#)

EXCELLENT

C1 C2 C1 C1 C2



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Information processing **Independent user** Communication

**Independent user**

Content creation **Independent user**

Safety **Independent user**

Problem solving **Independent user**

INTENTION TO CONTINUE STUDIES: Yes / Graduate studies

PREFERRED DISTRICT TO WORK IN: 1.

ROMA

Education, training, research and development ROMA (RM)  
02/2023 - 09/2023

Education, training, research and development ROMA (RM)  
03/2015 - 10/2022

I would like to apply the knowledge and skills acquired in matter physics and materials science in the technological field for a simpler and cleaner future. In particular I want to exploit the experience in the field of nanospectroscopy to search for new solutions to problems concerning energy, communication and computation, through devices based on quantum technologies.

Main activities and responsibilities: I am currently in my first year of PhD in



mathematical models for engineering and nanosciences with a curriculum in materials science. In Professor M. De Luca's nanospectroscopy laboratory I deal with

microphotoluminescence and micro-Raman measurements on III-V semiconductor nanowires of various compositions to characterize their optical and optoelectronic properties. The measurements are carried out both at room temperature and at cryogenic temperatures to study the emission of embedded quantum dots. Furthermore, controlled hydrogenation and annealing procedures are used in order to create single photon sources, in such nanowires, with controlled emission energy and which exploit the various useful capabilities of nanowires (such as efficient carrier transport, control over the position of the emitter, the possibility of combining different elements to create new heterostructures and light confinement/waveguiding). Employed as: intern/trainee - internship

Main activities and responsibilities: Internship activity, from February 2023, in the nanospectroscopy laboratory of Prof. M. De Luca. I contributed to the realization of a micro-photoluminescence and micro-Raman experimental setup, actively participating in the installation and calibration of the spectrometer and the CCD detector, and in the design and alignment of the optical path, obtaining a final spectral resolution of  $0.5 \text{ cm}^{-1}$  for Raman, and a spatial resolution given by the diffraction limit. At the same time I learned the basic knowledge to install and configure the software needed to control the various instruments.

Acquired skills and achieved objectives: I used the setup, in the context of the thesis work, for spatially resolved measurements of photoluminescence and Raman at room temperature on single semiconductor nanowires. I also performed microphotoluminescence measurements at cryogenic temperatures, and identified possible single photon emitters in nanowires deposited on silicon. I then demonstrated the nature of quantum light with continuous and pulsed correlation measurements.

Employed as: intern/trainee - undergraduate internship

Main activities and responsibilities: Collaboration with prof C. Sigismondi (ICRANet Int. Center for Relativistic Astrophysics Network), from 2015 to 2022, in the observation and measurement of the variation of the solar diameter. The data were collected during solar eclipse and Mercury transit events in the aforementioned period.

Acquired skills and achieved objectives: I participated in the data gathering of the solar eclipse events of March 2015 and October 2022, and of the transit of Mercury on the solar disk in 2016 and 2019. The measurements were carried out using the sundial of S.Maria degli

## WORK EXPERIENCES

Angeli in Rome, refining the technique up to a resolution of less than one arc second. I measured the contact instants of celestial transit events and observed the effect of atmospheric turbulence on the error associated with estimating the solar diameter. Employed as: intern/trainee - undergraduate internship



## ACADEMIC STUDIES

Sapienza Università di Roma

2023 - 2026 Dottorato in MODELLI MATEMATICI PER L'INGEGNERIA, **ONGOING STUDIES** ELETTROMAGNETISMO E NANOSCIENZE



Expected graduation date: 31/10/2026

Sapienza Università di Roma

2021 - 2023

Facoltà di Scienze Matematiche Fisiche e Naturali



Corso di Laurea Magistrale in Fisica  
LM-17 - 2nd level degree in Physics

Dissertation/thesis title: Bandgap Engineering and Single-Photon  
Emission in Dilute Nitride GaAsN Nanowires | Thesis supervisor:  
Marta De Luca

Age at graduation: 24 | Official duration: 2 years  
Final degree mark: 108/110  
Graduation date: 30/10/2023

Sapienza Università di Roma  
Facoltà di Scienze Matematiche Fisiche e Naturali FISICA

2017 - 2021 **CERTIFIED  
TITLE**



L-30 - 1st level degree in Physics

Dissertation/thesis title: Studio Sulla Luminescenza delle Perovskiti  
Ibride | Dissertation/thesis subject: STRUTTURA DELLA MATERIA |  
Thesis supervisor: POSTORINO PAOLO

Age at graduation: 22 | Official duration: 3 years  
Final degree mark: 104/110  
Graduation date: 22/03/2021

Scientific High School, Applied Sciences option  
FEDERICO CAFFE', ROMA (RM)

School-leaving examination mark: 100/100

Kind of secondary school diploma: Italian secondary school diploma  
Kind of secondary school attended: Public school

ROMA  
2017



## OTHER POSTGRADUATE STUDIES

2024

SFO Thematic School 2024 - Thermics and Nanophotonics  
The Houches Physics School, France  
(France)  
Themed doctoral school with selection on a competitive basis.



## FOREIGN LANGUAGE SKILLS

English Certificate of Advanced English, Cambridge University, Jul  
2017, Europass level C1



## INFORMATION TECHNOLOGY SKILLS

Office Suite: (Advanced) | Presentation Software: (Intermediate) |  
Spreadsheets: (Advanced) | Web Browser: (Advanced) | Word  
Processors: (Advanced)  
Web Programming: (Foundation)

Network architecture: (Foundation) | Operating systems: (Advanced)

DBMS: (Foundation)

ICDL Profile Certificate ICDL, 2017



## PROFESSIONAL ACCOLADES AND AWARDS

Borsa di Studio DiSco Lazio 2022

Borsa di Studio DiSco Lazio 2021

Borsa di Studio DiSco Lazio 2019

Borsa di Studio DiSco Lazio 2018

Borsa di Studio DiSco Lazio

2017

Premio Fabio La Marca 2017

Premio Fabio La Marca

2013



## PUBLICATIONS

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C. Sigismondi, P. De Vincenzi, Eclipses: a brief history of celestial mechanics, astrometry and astrophysics

Review: The Universe (currentyl under review)

2024