

# CURRICULUM VITAE



## PERSONAL INFORMATION

Name	<b>FRANCESCO DE ANGELIS</b>
Address	<b>VIA G. ROCCA, 2</b>
Telephone	<b>+39 3936824093</b>
Fax	
Work Email	<b>francesco.deangelis@uniroma3.it</b>
Personal Email	<b>dng.fnc@gmail.com</b>
Nationality	Italian
Date of birth	27/02/1996

## WORK EXPERIENCE

Gen 2023 – Present

Ph.D. in Science of Matter and Nanomaterials at Roma Tre University.

Currently working on XAS Spectroscopy and Teaching activity in physics for Biology and Science in enogastronomy.

2019 – 2022 Master Degree at "La Sapienza" University of Rome, score (110/110)

*Student in the Condensed Matter Physics course and lab researcher for all the thesis project period of 1 year.*

The thesis, entitled "Optical Properties of Icosahedral Quasicrystals", concerns the investigation of the optical properties in a broad spectral range from the terahertz to the visible of a icosahedral  $Al_{65}Cu_{23}Fe_{12}$  quasicrystal (QC), i.e. of a solid state system showing an ordered macroscopic structure without the translational periodicity. Although QCs have been studied for a long time their metallic behavior does not associated to a Drude term in the optical conductivity is still a puzzling anomaly. The origin of this anomaly is studied by investigating the optical conductivity of this QC at high temperature up to 700 C and showing the presence of a pseudogap in the electronic density of states probably generated by lack of translational symmetry.

2018 – Dec

Information Technology (IT) assistant at Alidea s.r.l.

Position of computer technical assistant and consultant in computer management of accounting and warehouse resources at the above-mentioned company.

April 2019 – September 2019

Internship at the ESRF Internship period at the international laboratories of the European facility of the ESRF.

During my master's degree I had the opportunity to participate in an internship, for a period of about five months, at the European Synchrotron Radiation Facility (ESRF) laboratories at the ID24 (with the group Matter at Extremes) beamline dealing with X-ray spectroscopy and

diffraction techniques applied to geophysics, the results of which have already been published in Phys. Rev. B 105, 144103, <https://doi.org/10.1103/PhysRevB.105.144103>. During this period I worked with the group of Sakura Pascarelli (now at the XFEL facility in Hamburg) and my tutor Angelika Rosa.

## EDUCATION AND TRAINING

2019 – Oct 2022 Master Degree at "La Sapienza" University of Rome, score (110/110)  
*Student in the Condensed Matter Physics course and lab researcher for all the thesis project period of 1 year.*

The thesis, entitled "Optical Properties of Icosahedral Quasicrystals", concerns the investigation of the optical properties in a broad spectral range from the terahertz to the visible of a icosahedral Al<sub>65</sub>Cu<sub>23</sub>Fe<sub>12</sub> quasicrystal (QC), i.e. of a solid state system showing an ordered macroscopic structure without the translational periodicity. Although QCs have been studied for a long time their metallic behavior does not associated to a Drude term in the optical conductivity is still a puzzling anomaly. The origin of this anomaly is studied by investigating the optical conductivity of this QC at high temperature up to 700 C and showing the presence of a pseudogap in the electronic density of states probably generated by lack of translational symmetry.

2015 – 2018

Bachelor in General Physics at "La Sapienza" University of Rome, score (107/110)  
 Course in general physics from mechanics, thermodynamics and electromagnetism to quantum mechanics and complex systems. The course featured programming and simulation exams mainly in C, C++ and Mathworks languages.

2011 - 2015

High School with Scientific Background at Liceo G. De Sanctis

## PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE

ITALIAN

OTHER LANGUAGE

ENGLISH

- Reading skills
- Writing skills
- Oral expression skills

EXCELLENT

GOOD

GOOD

## RELATIONAL SKILLS AND COMPETENCES

Throughout my university studies, I attended research laboratories where I actively collaborated in a multicultural environment where teamwork and cooperation are essential, along with commitment and perseverance in pursuing objectives. Moreover, during university I had the opportunity to manage lectures and to teach physics to other students and colleagues. The Ph.D. I'm currently working on is essential for developing and enhancing my relational skills, since I will be working with many foreign researchers and in foreign countries. Moreover, the tutoring activities will be critical in improving my skill in dealing with students and teaching activities.

## ORGANIZATIONAL SKILLS AND COMPETENCES

In my experience as an assistant computer technician and manager of the computer management of the warehouse and accounting for Alidea s.r.l. I had the opportunity to work with people dependent on me and to organize the work and the schedule for the business activities of my division. Even during my time as a student, laboratory project management had my contribution in organizing the equipment and instrumentation. For what concerns my Ph.D. I'm now in charge of organizing my research activity and the mission/proposals to foreign countries as well as the direct relationship with other researchers.

## TECHNICAL SKILLS AND COMPETENCES

Technical skills mainly concern the area of physics: excellent knowledge of basic and advanced mathematics and physics, use of specific instrumentation for visible and thz laser spectroscopy, basic cryogenics, classical electronic phenomena and quantum phenomena, x-ray absorption spectroscopy (xas) technique and general knowledge about physics lab instrumentation (for the complete list of subjects studied during the physics course (see the next section). Specifically, during my academic career i focused my studies towards the understanding of condensed matter physics, from the simple structure of matter (bravais lattices, symmetries, diffraction patterns..) , electrodynamics and band structure (drude and sommerfield models, bloch electrons, tight binding model ...), to specific competences in thz and visible spectroscopy, raman spectroscopy, and also the theoretical aspects of the condensed matter physics of the many body relation between electrons (green functions, hubbard model and landau-fermi liquid theory). Other technical skills i have a good knowledge of computers at both hardware and software levels, having taken courses in pc architecture and programming (c, c++ and matlab language). Hardware knowledge ranges from simple logic devices in the simplest circuits to the complex structure of processors and memory systems. The software part includes a general knowledge of office as well as the latex system. I also have a good knowledge of data analysis and simulation programs such as matlab and originlab, as well as knowledge of windows, linux and virtual machine operating systems.

## COURSES ATTENDED DURING UNIVERSITY CAREER

COMPLETE LIST OF SUBJECTS STUDIES:  
COMPUTER SKILLS  
qualified

LABORATORY OF COMPUTING(FIS/01)  
29/30

GEOMETRY(MAT/03)  
25/30

ANALYSIS(MAT/05)  
27/30

LABORATORY OF MECHANICS(FIS/01)  
29/30

CHEMISTRY(CHIM/03)  
24/30

MECHANICS(FIS/01)  
24/30

LABORATORY OF COMPUTATIONAL PHYSICS I(INF/01)

30/30

RELATIVISTIC QUANTUM MECHANICS(FIS/02)

25/30

THERMODYNAMICS AND LABORATORY(FIS/01)

25/30

LABORATORY OF ELECTROMAGNETISM AND CIRCUITS(FIS/01)

30/30

ELETTROMAGNETISM(FIS/01)

29/30

MATHEMATICAL MODELS AND METHODS OF PHYSICS(FIS/02)

23/30

VECTORIAL ANALYSIS(MAT/05)

25/30

LABORATORY OF SIGNALS AND SYSTEMS(FIS/01)

28/30

ASTROPHYSICS(FIS/05)

28/30

ENGLISH LANGUAGE(- )

qualified

NUCLEAR AND SUBNUCLEAR PHYSICS I(FIS/04)

28/30

GENERAL ELECTRONICS(FIS/01)

28/30

OPTICS AND LABORATORY(FIS/01)

27/30

STATISTICAL MECHANICS(FIS/02)

19/30

QUANTUM MECHANICS(FIS/02)

21/30

STRUCTURE OF MATTER(FIS/03)

28/30

NONLINEAR AND QUANTUM OPTICS(FIS/03)

30/30

PHYSICS LABORATORY I(FIS/01)

29/30

ENGLISH LANGUAGE(- )

qualified

PHYSICS OF LIQUIDS(FIS/03)

29/30

COMPUTING METHODS FOR PHYSICS(INF/01)

28/30

PHYSICS LABORATORY II(FIS/01)

30/30

SOLID STATE PHYSICS(FIS/03)

28/30

RELATIVISTIC QUANTUM MECHANICS(FIS/02)

30/30

SURFACE PHYSICS AND NANOSTRUCTURES(FIS/03)

29/30

SPECTROSCOPY METHODS AND NANOPHOTONICS(FIS/03)

30/30

COMPUTER ARCHITECTURE FOR PHYSICS(INF/01)

30/30

CONDENSED MATTER PHYSICS(FIS/03)

27/30

MANY BODY PHYSICS(FIS/03)

28/30

#### ARTISTIC SKILLS AND COMPETENCES

ALTHOUGH IT'S NOT A PRACTICAL SKILL, I REACHED THE MAXIMUM SCORE ON THE TEST  
"PROGRESSIVE MATRICES 38 SERIES A-B-C-D-E" BY J.C. RAVEN ACHIEVING THE 98°  
PERCENTILE CORRESPONDING TO A 128 IQ. THE RESULT CAN BE CERTIFIED BY A DOCUMENT  
(IN ITALIAN)

#### PUBLICATIONS

Martensitic fcc-hcp transformation pathway in solid krypton and xenon and its effect on their  
equations of state.

DOI:<https://doi.org/10.1103/PhysRevB.105.144103>

#### DRIVING LICENSE OR DRIVING LICENCES

I posses a type B driving licence.