



**Mahdi  
Asgari**

DATE OF BIRTH:

**CONTACT**

Location icon

Envelope icon

Phone icon

Mobile phone icon

Handwritten text: mahdi@normale.it

Handwritten text: mahdi@normale.it

Handwritten text: mahdi@normale.it

**ABOUT ME**

I am a Marie Curie fellow who is a PhD student in NanoScience faculty of Scuola Normale Superiore as well as a researcher member of CNR-Nano Institute, living in Pisa, Italy. Moreover, I am an Early Stage Researcher (ESR) in TeraApps project which has received funding from European Union Horizon 2020, organized by University of Glasgow, being linked to the different beneficiaries including companies, universities, and research institutes all over the Europe to develop Terahertz based technologies.

**WORK EXPERIENCE**

01/11/2018 – CURRENT – PISA, Italy

**P.h.D Student**

Scuola Normale Superiore

Currently, I am a PhD student in NanoScience focused on photonic and optoelectronic devices operating in THz bandwidth. Along my project which is dedicated to development of quantum nanodetectors in THz range, I am working upon nanofabrication as well as characterization of Field Effect Transistors (FETs) based on different materials such as epitaxially grown group III-V Nano Wires (NWs), semiconducting Quantum Dots (QDs), and new layered materials significantly Single Layer Graphene (SLG). Furthermore, I am a member of an European project titled TeraApps which aims to support THz related application scientifically and industrially as well.

01/09/2013 – 01/02/2016 – Tehran, Iran

**Master in Solid State Physics**

K.N.Toosi University of Technology

During my master thesis, I got involved in Evaluation of Thermodynamics Properties of Unconventional Nanosuperconductor Strontium Ruthenate Considering Energy Gap Fluctuations

01/06/2014 – 01/07/2018 – Tehran, Iran

**Physics teacher**

Private institutes

**EDUCATION AND TRAINING**

01/11/2016 – 31/01/2021 – PISA, Italy

**P.h.D in Nanoscience**

Scuola Normale Superiore

Supervisor: Prof. Miriam Serena Vitiello

01/09/2013 – 01/02/2016 – Tehran, Iran

**Master in Solid State Physics**

K.N.Toosi University of Technology

01/09/2008 – 01/06/2013 – Tehran, Iran

**Bachelor of Science in Atomic and Molecular Physics**

Kharazmi University

**MAHDI ASGARI**  
Pisa 26.05.2021

## JOB-RELATED SKILLS

### ● Job-related skills

#### 1. Nanofabrication

- Electron beam lithography
- Optical beam lithography
- Atomic layer deposition
- Metal evaporator
- Scanning electron microscopy
- Optical microscopy
- Profilometer
- Reactive ion etching
- Wet etching
- Sample bonder
- Sputtering
- Oxygen plasma
- Spin coating
- Developing
- Lift-off
- Chemical lab activities

#### 2. Characterization techniques

##### Experiences of work with:

- Laser and optics
- High Vacuum facilities
- Current nanoscopy via scanning near field microscopy (SNOM)
- Low temperature quantum transport measurement
- Room temperature electrical measurements
- Optical characterization via quantum cascade laser and other THz sources
- Cryogenic optical facilities
- Spectrum analyzer
- Oscilloscope
- Lock-in amplifier

#### 4. Other relevant skills

- Strong experience in cleanroom ambient ISO 6 and ISO 7

## LANGUAGE SKILLS

**MOTHER TONGUE(S):** Persian

**OTHER LANGUAGE(S):**

**English**

**Listening**  
C2

**Reading**  
C2

**Spoken  
production**  
C2

**Spoken  
interaction**  
C2

**Writing**  
C2

## DIGITAL SKILLS

Microsoft Word / Microsoft Excel / Power Point / Origin Pro / Inkscape / COMSOL Multiphysics (Advanced) / ELPHY CAD design software / Assembling and hardware engineering / Programmin language MATLAB / labVIEW / Carl Zeiss Axio Vision / Merlin

## PUBLICATIONS

### ● Publications

#### **Quantum-dot single-electron transistor as thermoelectric quantum detectors at terahertz frequencies**

Mahdi Asgari, Dominique Coquillat, Guido Menichetti, Valentina Zannier, Nina Dyakonova, Wojciech Knap, Lucia Sorba, Leonardo Viti, Miriam Serena Vitiello, 2021, Submitted.

#### **Scalable and ultrafast nanodetectors at THz frequencies exploiting large area single crystal CVD-grown graphene**

2021, to be submitted.

#### Unveiling the detection dynamics of semiconductor nanowire photodetectors by terahertz near-field nanoscopy

EAA Pogna, M Asgari, V Zannier, L Sorba, L Viti, M S Vitiello - Light: Science & Applications, 2020

#### Tracing photodetection of THz frequency light in InAs nanowire field effect transistors via near-field THz nanoscopy

EAA Pogna, M Asgari, V Zannier, L Sorba, L Viti, M S Vitiello - 2020 45th international conference on infrared millimeter and terahertz waves, 2020

#### Laser therapy of human choroidal melanoma in the presence of gold nanoparticles-Monte Carlo and in vitro study

S Asadi, F Rezaeai, M Asgari, M Vahidian, MF Samavat, M Olfat-Radiotherapy and Oncology, 2016

## HONOURS AND AWARDS

### ● Honours and awards

1- Marie Skłodowska-Curie fellowship for doctoral degree, 2018

2- Awarded a full four years scholarship for the Ph.D. program in Nanosciences from Scuola Normale Superiore, Pisa, Italy, 2018

3- Got 1<sup>st</sup> Position in Master (Solid State Physics) among 22 students (2013-2016)

## CONFERENCES AND SEMINARS

### Conferences

**IRMMW-THz 2021, "Highly Sensitive Photodetectors At 0.6 THz Based On Quantum Dot Single Electron Transistors" has been accepted as an ORAL, Chengdu, China, 2021**

**SPIE Photonics West OPTO 2021, "Quantum Dot Far Infrared Detectors" has been accepted as an ORAL Presentation, San Francisco, ,USA 2021**

**TeraApps MSCA ITN – 2nd Transferrable Skills Course, Keysight, Leuven, Belgium, 2020**

- IMEC lab tour and presentations
  - o IMEC introduction
  - o Overview of available technology via Europractice
  - o Photonics
  - o THz research in IMEC
  - o Fab Tour
- Strategies to protect IP in today's world
- 2D and 3DEM simulation best practices
- From idea to product development, how is industry working typically

**Joint ITN CELTA & TeraApps Summer School and 29th International Travelling Summer School (ITSS) on Microwaves and Lightwaves, Frankfurt am Main, Germany, 2019**

**TeraApps MSCA ITN – Introductory course on Terahertz technology and applications, National Physical laboratory, London, UK, 2019**

- Optical components and materials for THz frequencies
- THz broadband measurements (TDS & FTS, VNA)
- Electronic sources & detectors for THz frequencies
- THz resonant tunnelling diodes
- THz communications
- THz applications in industry
- THz applications in biology & medicine

**TeraApps MSCA ITN – 1st Transferrable Skills Course, University of Glasgow, Scotland, 2019**

- Creative thinking strategies and techniques
- Responsible research and innovation
- Presenting with impact
- Research integrity
- Data management