



ALESSIA MAZZUCATO

PHYSICS PHD STUDENT

ABOUT ME

I am a physicist with a background in experimental optics. After completing my Master's degree in Physics, I joined LENS (European Laboratory for Non-Linear Spectroscopy) as a research scholar, and subsequently started a PhD there, focusing on the design and development of miniaturized optical systems for in vivo imaging and biosensing.

PERSONAL INFORMATIONS

Birth date: May 27th 1994
Birth place: Pescia, Tuscany, Italy
Address: Via Gora e Barbatole 144 -Pistoia, Italia

CONTACT DETAILS

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Email:
mazzucato@lens.unifi.it
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LANGUAGE

Native language: Italian
Further language known: English
Level: C1

COMPETENCIES

- **Optical design and simulation (Zemax)**
- **CAD modeling for mechanical design**
- **Data analysis and signal processing (Python, MATLAB)**
- **In vivo experimentation and animal handling**

EDUCATION

International doctorate in Atomic and Molecular Photonics

Nov 2023 - currently

Project: A new miniaturized wire-free microscope for studying complex social group dynamics
Supervisor: Prof. F. S. Pavone, Co-Advisor: A. Scaglione

European Laboratory for Nonlinear Spectroscopy (LENS) University of Florence (UniFi)

Master in Physical and Astrophysical Sciences

Curriculum Physics of Matter

Apr 2019 - Jun 2023

Thesis: A Miniaturized head-mounted Microscope to monitor Mesoscale Cortical Activity in freely-moving mice
Supervisor: Prof. F. S. Pavone, Co-Advisor: A. Scaglione

University of Florence (UniFi)

Bachelor in Physics and Astrophysics

Sept 2013 - Apr 2019

Thesis: Attenuation of striping artifacts in light-sheet microscopy through the use of an acousto-optic deflector

Supervisor: Prof. F. S. Pavone, Co-Advisor: A. Scaglione

University of Florence (UniFi)

EXPERIENCES

Research Scholar

Jun - Nov 2023

Project: Development of a miniaturized widefield fluorescence microscope for monitoring cortical activity in freely moving subjects

Supervisor: Prof. F. S. Pavone, Co-Advisor: A. Scaglione

European Laboratory for Nonlinear Spectroscopy (LENS)

Science Communicator

Mar 2022 - May 2022

Scienza in Fabula, Comune di Sesto Fiorentino

Dynamo Camp Volunteer

Sept 2013 - Dec 2019

Amici sub per Dynamo, Dynamo Camp

PUBLICATIONS

MiCe- μ Scope to Conduct Hyperscanning Experiment in Awake Freely Moving Animals

2024

J. Lucchesi, A. Scaglione, G. Barbera, A. Mazzucato, A. L. A. Mascaro, D. T. Lin, F. S. Pavone

Optics and the Brain, Optica Publishing Group, <https://doi.org/10.1364/BRAIN.2024.BM3C.7>

Optical device for the detection of analytes in a material sample by means of evanescent wave

2025

Patent application No. 102025000018169, filed July 18, 2025.

Inventors: C. Credi, C. Dallari, A. Mazzucato, F. S. Pavone, A. Scaglione.

Applicants: LENS – European Laboratory for Nonlinear Spectroscopy; University of Florence; National Research Council (CNR).

AWARDS

Datathon winner

Sept 2022

Biophotonics & Artificial Intelligence School BPAI

Best poster pitch

Jun 2025

Summer School on Biophotonics, AI and Data analysis

organized within the framework of the Cost Action CA23125 - The mETamaterial foRmalism approach to recognize cAncer (TETRA)

SCHOOLS AND CONFERENCES

Neuroscience 2025

Talk: MiCe- μ Scope: Dual-Wavelength Cortical Imaging of Social Interaction in Freely Moving Mice

J. Lucchesi, A. Scaglione, A. Mazzucato, G. Barbera, A. L. A. Mascaro, D. T. Lin, F. S. Pavone

Nov 2025

Society for Neuroscience (SfN)

San Diego

Workshop on Latest advances in imaging neural activity in freely moving animals

Oct 2025

Institut national de la santé et de la recherche médicale (Inserm)

Montpellier

Summer School on Biophotonics, AI and Data analysis

Poster: Dual-Channel Imaging of Cortical Dynamics in Freely Behaving Mice Using a Miniaturized Microscope

A. Mazzucato, J. Lucchesi, A. Scaglione, G. Barbera, A. L. A. Mascaro, D. T. Lin, F. S. Pavone

Jun 2025

Cost Action CA23125 - The mETamaterial foRmalism approach to recognize cAncer (TETRA)

Alghero

Co-organizer Physics PhD Day

May 2025

European Laboratory for Nonlinear Spectroscopy (LENS) University of Florence (UniFi)

The National School of Optical Biosensors and Biophotonics BiO&B

Jun 2024

Italian Society for Optics and Photonics (SIOF)

Lecce

Co-organizer Physics PhD Day

May 2024

European Laboratory for Nonlinear Spectroscopy (LENS) University of Florence (UniFi)

Optica Biophotonics Congress: Biomedical Optics 2024

MiCe- μ Scope to Conduct Hyperscanning Experiment in Awake Freely Moving Animals

J. Lucchesi, A. Scaglione, G. Barbera, A. Mazzucato, A. L. A. Mascaro, D. T. Lin, F. S. Pavone

April 2024

Optica

Fort Lauderdale

Biophotonics & Artificial Intelligence School BPAI

Sept 2022

Italian Society for Optics and Photonics (SIOF)

Florence

Officina di Narrazione della Scienza (ONSCI)

May 2022

Alma Mater Studiorum - University of Bologna