Decree No. _____
Prot. No. _____

LENS Internship Scholarships – 2025 Edition

CALL FOR APPLICATIONS FOR THE ALLOCATION OF 10 SCHOLARSHIPS TO SUPPORT STUDENTS WHO INTEND TO CONDUCT MASTER'S THESIS INTERNSHIPS AT THE EUROPEAN LABORATORY FOR NONLINEAR SPECTROSCOPY
ACADEMIC YEAR 2024/2025

The European Laboratory for Non-Linear Spectroscopy (LENS) announces the availability of 10 scholarships, each worth € 3,000, for students enrolled in the 2024/2025 academic year. These scholarships are intended for students in the final year of Master's degree programs in STEM disciplines at European Universities who plan to conduct experimental thesis research of at least 6 months at LENS laboratories between April 2025 and December 2025 under the supervision of a LENS Associate.

ELIGIBILITY REQUIREMENTS

Applicants must meet the following criteria:

- Be enrolled for the 2024/2025 academic year in the final year of a Master's degree program in one of the following disciplines:
  - LM-17: Physical and Astrophysical Sciences
  - LM-54: Chemical Sciences
  - LM-6: Biological Sciences (Molecular and Applied Biology)
  - LM-40: Mathematics
  - LM-82: Statistics and Data Science
  - LM-11: Material Sciences
  - LM-13: Chemistry and Pharmaceutical Technologies
  - LM-53: Material Science and Engineering
  - LM-9: Medical and Pharmaceutical Biotechnology
  - LM-8: Molecular Biotechnology
  - LM-21: Biomedical Engineering
  - LM-54: Chemical Engineering
  - LM-32: Computer Engineering and Artificial Intelligence

    - Or related degrees.
- Have achieved a Bachelor's degree with a grade of at least 100/110 for non-integrated programs. For integrated degree programs in the aforementioned disciplines, this requirement is not mandatory.
- Plan to pursue an experimental thesis in one of LENS research areas. Please refer to the attached ‘‘Appendix 1’ for a detailed list of experimental titles.

APPLICATION PROCESS

Candidates must submit their application within **March 12, 2025, at 5:00 PM CET** by compiling the attached online form. Upon registration, candidates will receive confirmation via email from **borsedistudio@lens.unifi.it**.
Submission of the application implies acceptance of the terms outlined in this call. Incomplete applications will result in exclusion from the evaluation process.

SELECTION PROCESS

The evaluation committee, composed of LENS-affiliated experts, will rank candidates based on the following criteria for a total score of 100 :

- Relevance of the proposed thesis: clarity, pertinence, quality, and applicability. (max 20/100)
- Candidate's academic transcript of records and number of ECTS/CFU obtained. (max 50/100)
- Motivation letter. (max 30/100)

The results will be communicated to all candidates via email by the end of March 2025. If the number of applications is particularly high, the evaluation phase may be extended to ensure fair and thorough review.

SCHOLARSHIP AWARD

Successful candidates must confirm their acceptance within **5 days** of notification by email. If a winner declines the scholarship, it will be awarded to the next candidate on the ranking list. The winners’ names will be published on the LENS website: **https://lens.unifi.it/amministrazione/albo-online/.**

After acceptance, the scholarship winners must send a letter from their home University to **borsedistudio@lens.unifi.it**. The letter should state that the University agrees to send the candidate to LENS to carry out their master’s thesis and that this internship period will be recognized by the home institution as an official part or the whole thesis work. This letter must be sent **within two weeks** after acceptance.

The scholarship will be disbursed by LENS – European Laboratory for Nonlinear Spectroscopy

under terms agreed in two tranches, at the end of the first two months and at the end of the sixth month of attendance upon written request of the supervisor. An acknowledgement of the scholarship must be mentioned in the final thesis.

GENERAL PROVISIONS

- To address gender disparities in STEM, at least 50% of the scholarships will be awarded to female candidates.
- Preference will be given to students from other universities or countries to promote mobility.
- In the case of tied scores, priority will be given to younger candidates or those with dependent children.
- Applications and related documentation are preferred in English.

TAX REGULATIONS

The scholarship amount is subject to taxation, insurance, and other contributions as required by law. The scholarship is considered income comparable to employment. It cannot be combined with other scholarships for study rights or those provided by other universities.

DATA PROTECTION

In compliance with EU Regulation 2016/679 (GDPR) and related national laws, LENS guarantees the confidentiality and protection of personal data collected during the application process. For more information, visit: **https://lens.unifi.it/amministrazione/data-protection/**.

For additional information, contact LENS administration at **borsedistudio@lens.it** or consult the FAQ page for LENS Scholarships 2024-2025.

The Director
Prof. Elisabetta Cerbai

CERBAI
ELISABETTA
12.02.2025
19:02:42
GMT+02:00

APPENDIX 1

LIST OF AVAILABLE TITLES FOR EXPERIMENTAL THESIS

Internship title
Implementation of optical qubits in a crystal of trapped ions
Smart light responsive polymers for artificial muscles development
Polymeric materials for wastewater treatment: recovery of precious metals with hydrogels or photodegradation of organic pollutant with liquid crystalline networks
Biocompatible ferro-magnetic nanocomposites for high resolution 3D printing of multifunctional cell-laden structures
Synthesis of plasmonic nanomaterials for biomedical applications
Droplet-based optofluidic system for molecular biosensing
Single photon sources from integrated quantum emitters
Quantum interfaces with single molecules: a lab in a molecule
Development of mid-IR sensors for trace-molecule detection
Optomechanical light transducer: from near- to mid-IR via a membrane
Mid-IR light characterization at and below the standard quantum limit
Squeezed-light generation from a mid-IR Optical Parametric Oscillator (OPO)
High spatial resolution spectroscopy of light localization in ordered and correlated disordered photonic structures
Design and characterization of innovative Metalenses for photovoltaic applications
Luminescent defects as single photon emitters for quantum technologies
Complex photonic systems for cyber security, authentication and anti counterfeiting
Anomalous propagation regimes for scattered light in photonic materials at the femtosecond scale
3D nonlinear photonic nanostructures for light manipulation by light
Experimental study of basic quantum mechanical phenomena in dipolar quantum gases

Development of quantum sensors based on ultracold atoms also with nonclassical sources.
Study of the 3D brain anatomy using advanced fluorescence microscopy and immunohistochemistry techniques
Investigating neural connectivity remappjng in a mouse model of stroke
Algorithms and deep learning architectures for the analysis of 3D microscopy images
Post-processing and automatic analysis of big data in high-resolution light-sheet microscopy images of neuronal tissue
How do animals count? Unveiling the neural basis of number sense through brain-wide two-photon light-sheet microscopy.
Neurons in action: study of the neural circuits controlling behavior in zebrafish
Disentangling the wires: smart microscopy for tracing brain-wide connectivity at single-axon level
Advanced Imaging Techniques for Brain Glioma Study: Hyperspectral and Structural Approaches
The impact of physical forces on the motility of cell collectives
"Molecular and cellular approaches to investigate common features in Parkinson's disease and rare metabolic disorders"
Super-resolution microscopy of single protein in different cellular models
Two-qubit interferometry with diamond spins for quantum thermodynamics
Design of control and analysis tools with Phyton for diamond-based quantum sensors
Quantum microscopy with diamond spins for magnetic bioimaging
The dynamics of aggregation processes in globular proteins by two-dimensional infrared spectroscopy
Dynamics of molecular aggregation processes near transition phenomena
Study of the ultrafast dynamics of hydration phenomena in complex molecules
Development and characterization of solar micro-lasers based on photosynthetic antenna complexes
High pressure Topochemical synthesis of carbon nanothreads
Prebiotic formation of organic molecules from astronomical ices
Pressure tuning of the photophysical properties of organic crystals promising for OLED applications

Realization and characterization of a new spectroscopy cell and related optical setup for laser locking on Lithium atoms emission line
Design and realization of a box potential for ultracold atoms with a Digital Micromirror Device (DMD) with single or multimode laser beams

APPLICATION FOR PARTICIPATION

TO THE DIRECTOR
Of the European Laboratory for Nonlinear Spectroscopy

The undersigned _____ _____
LAST NAME* FIRST NAME*

_____ _____
FISCAL CODE (if available) UNIFI STUDENT ID (Matricola if available)

Born in _____ (_____) on _____
PLACE OF BIRTH* PROVINCE* DATE OF BIRTH*

Residing at: _____ No. _____
STREET/SQUARE* NUMBER*

_____ (_____) _____
TOWN* PROVINCE* POSTAL CODE*

Landline **/**_____ Mobile* _____

Email *_____

Contact address for the purposes of the competition:
(to be provided only if different from the residence address – foreign applicants are encouraged to provide an Italian contact address or designate their Embassy in Italy as their domicile)

Street/Square_____ No. _____

_____ _____ (_____)
POSTAL CODE TOWN PROVINCE

Landline **/**_____ Mobile _____

Email _____

REQUESTS

To participate in the call for applications for the allocation of 10 scholarships for conducting a Master's Thesis Internship at the European Laboratory of Nonlinear Spectroscopy, Academic Year 2024/2025.

DECLARES

Pursuant to Articles 46 and 47 of D.P.R. No. 445/2000

- To be enrolled in the degree program (specify the class or equivalent based on the codes provided in the call for applications)
- To have passed the following exams, accompanied by respective ECTS credits:
  _____, ECTS _____
  _____, ECTS _____
  _____, ECTS _____
  _____, ECTS _____
  …..

- Estimated date of submission of the final thesis (month/year) ……..

- To be aware of and accept all the regulations contained in the competition call.

Attachments (mandatory):

- A copy (front and back) of a valid personal identification document;
- Certificate of enrollment in the Master's degree program issued by the home university;
- Official Transcript of Records with ECTS, in either English or Italian
- One-page abstract of the proposed thesis
- One-page motivation letter by the candidate

_____ _____

PLACE DATE

_____

LEGIBLE SIGNATURE

* these fields are mandatory