

**PHD PROGRAMME TABLE**  
**Announcements of competition for admission to PhD Courses**  
**41st cycle, Academic Year 2025/2026**

**PhD Course: PHYSICS AND NANO SCIENCES**

**Available positions: 10**

**Evaluation Methods: based on academic and research records and interview**

**Available positions:**

Place n.	Description	Financial support	Specific research topic
1	Scholarship	University scholarship	-
2	Scholarship	University scholarship	-
3	Scholarship	University scholarship – funded by Fondazione di Modena	-
4	Scholarship	Scholarship funded by Department of Physics, Informatics and Mathematics	-
5	Scholarship	Scholarship funded by Department of Physics, Informatics and Mathematics as part of the department's co-financing of the 2023 and 2024 departmental development FAR	Thermoelectric energy conversion at the nanoscale in density-of-states engineered materials
6	Scholarship	Scholarship funded by FIS Project – FIS-2023-02758 – CUP E53C25000430001 – Dott. Cantarella	Flexible and green thin-film electronics with zero impact on nature
7	Scholarship	Scholarship funded by FIS Project – FIS-2023-02758 – CUP E53C25000430001 – Dott. Cantarella	Design, fabrication and characterization of sustainable electronic devices
8	Scholarship	Scholarship funded by FIS project prot. FIS00000121 - CUP E53C23002870001 – Prof. Govoni	Modeling solid state spin qubits for quantum technologies
9	Scholarship	Scholarship funded by ERC project - BlackHoleWeather – Horizon - GA101086804 – CUP E93C24000470006 – Prof. Gaspari	BlackHoleWeather: Advancing Black Hole Astrophysics via Simulations and Observations
10	Scholarship	Scholarship funded by Emilia Romagna Region in implementation of the program “High-Level Skills to Address the Challenges of the Technological, Cultural, Economic, and Social Transition Towards Sustainability”- PR ESF+	Combining high-performance computing, machine learning and atomistic simulations to design nanostructures for thermal energy harvesting

		2021/2027 E83C25002380002	CUP	
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**Areas of the PhD Programme:** Main topics include: quantum sciences and technologies; nanofabrication, microscopy and spectroscopy; nano-systems for energy conversion; nanostructured, low-dimensional, graphene and 2D systems; functional surfaces and molecules; physics and chemistry of bio-nano systems; nano-scale tribology; advanced computational theory and methods for materials and nanosystems; fields and strings theory. Further information is available from the PhD-PNS website at: <https://www.nano-phdschool.unimore.it/site/home/topics.html>

The teaching board may propose to one or more of the enrolled students, deemed suitable, a study and research pathway in collaboration with the University of São Paulo (Brazil), which will also lead to the awarding of a Brazilian PhD degree in Physics.

Official languages of the programme: English. All international PhD students are encouraged to learn Italian during the course.

**Admission requirements:** Italian second cycle master's degree ("Laurea Magistrale", under D.M. 270/04 or "Laurea Specialistica", under D.M. 509/99) or Italian degree obtained prior to D.M. 509/99 (the previous Italian regulations) or Second cycle non-Italian Master's degree, equivalent to the Italian degrees mentioned above, in accordance with Article 2 of this Call.

### **Documents to be attached to the application:**

- 1) In order to express interest in also competing for the scholarships linked to a specific research topic, candidates must complete and attach the file "[Declaration of priority interest to compete for scholarships linked to a specific research topic](#)";
- 2) degree certificate (or self-certification for Italian degrees) and Transcript of Records including the full list of examinations with corresponding marks. Applicants with a non-Italian degree must attach their certificate (including the full list of examinations with corresponding marks) and a legalized translation or Diploma Supplement and, if available, the Declaration of Value ("Dichiarazione di Valore in loco") issued by the competent Italian diplomatic-consular Representation, or the certificates issued by the CIMEA - ENIC-NARIC centre. If the degree certificate is not yet available or if the degree has not yet been obtained, the candidate must attach a description of the degree with a list of the examinations taken using [Annex A](#);
- 3) a curriculum vitae including their scientific and teaching activities in Italian or English using the form in [Annex B](#); the CV must include the university-level qualifications held;
- 4) a summary in Italian or English of the Master's thesis, or equivalent, consisting of a minimum of three and a maximum of six pages, structured as follows: thesis motivations, research methods, and obtained results;
- 5) a short text in English (Statement of Research Interest) using the template provided in [Annex C](#); composed of two parts:
  - Motivation, explaining the reasons why the candidate wishes to undertake the program (max 1/2 page), and

- A description of a brief research project structured into: introduction, state of the art, and possible development lines, based on one of the topics proposed for the 41<sup>st</sup> cycle and listed on the website: <https://www.nano-phdschool.unimore.it/phd-program-activities/> referring to the page: “themes proposed for the XLI Edition (2025)” for open-topic scholarships; or based on the research topic proposed for the targeted-topic scholarships;
- 6) certificate of English competence (TOEFL, Proficiency or others), if any; certificate of passing the GRE (Graduate Record Examination) test, if any;
- 7) maximum three letters of introduction/recommendation/reference; in the online application, applicants must enter all the personal details of the professor/researcher/expert who will be sending the letter of recommendation. Once the application has been submitted, the computer system will send an automatic e-mail to the contact person requesting the letter of recommendation. The deadline for uploading letters is June 30<sup>th</sup> 2025, 11.59 pm (CET); applicants can check on the application summary page whether the contact person has sent the cover letter/recommendation. Within the aforementioned deadline, applicants may send a reminder to the contact person who has not yet submitted their reference by selecting the ‘reminder’ item from the application summary page;
- 8) any other document considered useful for the candidate’s assessment and/or scientific publications; candidates must provide a full list of all the documents and publications attached;
- 9) a copy of a valid identity document.

### **Evaluation methods:**

In the evaluation of candidates’ qualifications, the Selection Committee, based on a comparative assessment of the documents submitted by the applicants, assigns scores up to a total of 60 points, as follows:

- 1) Previous experience of the candidate, up to a maximum of 30 points awarded considering:
  - Curriculum studiorum, indicating the examinations passed during the previous courses (evaluation criteria: score of the final degree –if already achieved-, list of exams and grades received, relevance of the degree to the PhD program).
  - List of activities (experiences and activities of internship, job opportunities, scholarships, grants, publications, training periods abroad, participation to Summer Schools and conferences).
  - Summary of the thesis/diploma work-completed or in progress- (evaluation criteria: motivations and state of the art of the field, methods of investigation, results obtained).
  - Knowledge of the English Language (documented by exams and certificates).
- 2) Independent evaluation of the potentialities of the candidate, up to a maximum of 10 points. To evaluate this, the following will be considered: one to three letters of recommendation from experts who have had the opportunity to assess the candidate in research; prizes and awards given to the candidate by external commissions.
- 3) Evaluation of the Statement of Research Interest: up to a maximum of 20 points. The commission, based on this text, will evaluate the technical and scientific motivations and specific research interests of the candidate as well as their potentialities for the development of the PhD programme.

After the assessment, the Commission shall prepare a ranking list based on the scores assigned to each candidate. Candidates will be admitted to the interview if the evaluation of their presented qualifications has reached a score of at least 40 points out of the 60 available.

The list of the candidates admitted to the interview, and any variation in the selection procedure, will be published by July 15<sup>th</sup>, 2025 at the following University website address: <https://www.unimore.it/en/bando-phd-41>.

Subjects covered in the interview:

The interview aims to clarify and assess the candidate's previous experiences, as outlined in the submitted documentation, as well as their scientific interests and potential career development paths within the opportunities offered by the PhD programme, as expressed by the candidate in the Statement of Research Interest. The maximum score for the interview is 40 points.

Candidates who obtain an overall mark of less than 60/100 will not be considered eligible for admission to the PhD course.

**INTERVIEW SCHEDULE:**

**In-person interviews** will take place at the Department of Physics, Informatics and Mathematics, Physics building, Room L1.3, via Giuseppe Campi 213/A in Modena, **or via Microsoft Teams upon explicit request by the candidates** on July 28<sup>th</sup>, 2025, at 9,00 am. Interviews may continue on July 29<sup>th</sup>, 2025 9.00 am., should there be a high number of candidates.

The operational indications on how to conduct the interview via **Microsoft Teams** will be communicated at the time of publication of candidates admitted to the interview.