

PHYSICS

Section "Positions and scholarships" integrated on 15/05/2017

Section "Positions and scholarships" integrated on 18/05/2017

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Programme start date	01/11/2017
Duration	3 years
Programme language	Italian and English
Mandatory stay abroad	Yes (6 months)
PhD Programme accredited with Research Institutions , pursuant to art. 2, clause 2, lett. a) of M.D. n. 45/2013	Italian National Institute of Nuclear Physics (INFN)
Research topics	
<ul style="list-style-type: none">- Nuclear and Subnuclear Physics- Theoretical Physics and Foundations of Physics- Condensed Matter Physics- Applied Physics	
Admission requirements	
Applicants who have one of the following degrees may participate in the selection: <ul style="list-style-type: none">- Laurea specialistica or Laurea magistrale (second cycle degree)- Laurea Vecchio Ordinamento (degree obtained under the Italian previous regulations);- Degree granted by AFAM (Alta Formazione Artistica e Musicale) member institutions;- an academic Master's degree obtained abroad, comparable to the above mentioned Italian degrees and recognized as suitable for the admission to doctoral programmes. Undergraduated applicants may also submit applications with the obligation of getting their degree by October 31 st 2017.	
Documents to be attached to the application under penalty of exclusion (only documents in Italian, English, French, German and Spanish will be considered valid and assessed by the Admission Board)	
<ul style="list-style-type: none">- Scanned Copy of a valid identification document with photo (either National Identity document or Passport)- Curriculum vitae- Certificates and academic transcripts of records of <u>both Bachelor's and Master's degrees</u> containing the following details for each degree held:<ul style="list-style-type: none">o university that granted the degreeo type of degree (first cycle / second cycle / single cycle)o name of the degree programmeo date of graduationo final marko list of exams taken with their scores (academic transcript of records)o translation into Italian or English (<u>only for degrees issued in languages other than Italian, English, French, German and Spanish</u>). <p>Applicants who have degrees obtained in:</p> <ul style="list-style-type: none">o an italian public university have to submit a <u>self-declaration</u> with date and signature (of <u>both first and second cycle degrees</u>: Laurea triennale and laurea specialistica/ magistrale/ laurea vecchio ordinamento)o EU Countries, except Italy, can submit a <u>self-declaration or degree certificate or Diploma Supplement</u> (of <u>both Bachelor's and Master's degrees</u>)o non-EU Countries have to submit the degree <u>certificate</u> and <u>academic transcript of records</u> (of <u>both Bachelor's and Master's degrees</u>) <p>Undergraduated applicants have to submit:</p> <ul style="list-style-type: none">o the documents as above, except for the following details: Master's degree date of graduation and final marko a self-declaration of the scores' weighted average (if not indicated in the academic transcript of records).	
Other documents to be attached to the application, if in the applicant's possession (only documents in Italian, English, French, German and Spanish will be considered valid and assessed by the Admission Board)	
<ul style="list-style-type: none">- Abstract of the dissertation of the second cycle degree or, for undergraduated applicants, of the draft dissertation approved by the supervisor (max. 5000 characters, spaces included, and any formulas, and not including title, contents, bibliography or illustrations, if any).- No more than 2 letters of presentation from university professors and/or Italian and international professionals who are not members of the Admission Board attesting the applicant's aptitude and interest in the scientific research Note: The applicant should not personally attach the letters of presentation to the application. The applicant should enter the email address of the professor/professional of whom the letter of presentation is requested when filling in the application on the website http://studenti.unibo.it. The professor/professional will receive an email containing instructions for uploading the letter of presentation. The letter of presentation should be uploaded by the professor/professional in	

pdf format only and before the deadline of this Call for Applications.

An example on how to draft such letters is available at <http://www.unibo.it/en/teaching/phd/information-enrolling-phd-programme/how-to-apply-phd-programme>.

- Long-term research project with particular emphasis on the 1st year activities, which the applicant plans to carry out as part of the PhD programme and must:
 - o state the research topic of the PhD programme that the applicant is interested in and that the project concerns on the title page (research projects without this information will not be considered);
 - o have a maximum length of 20.000 characters, spaces and formulas included, and not including title, contents, bibliography or illustrations, if any (anything in excess will not be considered);
 - o be broken down into: state of the art; project description; learning outcomes; structure of the project and execution schedule; criteria proposed to check the results; bibliography.
- The research project submitted with the application, however, may not be the one the successful applicant will carry out during the doctoral studies. Supervisors and Academic Board can propose a different one.
- Letter stating why the applicant wants to attend the PhD programme and describing the applicant's experience and research interests, which justify the applicant's suitability for the PhD programme (max. 3000 characters, spaces included).
- List of scientific publications (essays, articles in scientific journals)
- List of minor publications (conference proceedings distributed at national and international level, contributions in monographs, etc.)
- List of abstracts and posters presented in national and international conferences
- Level 1 or 2 master's degree achieved in Italy in subjects pertinent to the research topics that the PhD programme covers
- Postgraduate and/or specialization programmes in subjects pertinent to the PhD programme research topics
- Summary of the Specialization course Thesis
- Scientific research of any type (basic, oriented, targeted, translational, applied, etc.) and carried out in any capacity, including research grants and taking part in research projects
- Knowledge of foreign languages
- Study periods abroad (Erasmus etc.)
- Any other document certifying the applicant's training and abilities (grants, awards, etc.)

Entrance exams (art. 4 of the Call for Applications)

Type of exams	Exam book (applicants will not receive any summoning)	Publication of exam results (applicants will not receive any exam result notification)
Assessment of qualifications and research project	The applicant's presence is not required.	The results of the assessment of qualifications and the research project can be consulted starting from 30/06/2017 on the website http://studenti.unibo.it (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'risultati valutazione titoli e progetto').
Oral exam	Date	11/07/2017 If there are too many applicants for the oral exam to be carried out in a single day, the oral exam calendar will be published on the website http://studenti.unibo.it together with the results of the assessment of qualifications and of the research project
	Place	Bologna – Viale Bertini Pichat 6/2 Dept of Physics and Astronomy Meeting Room – 2 nd floor
	Time	11 a.m. (local time)
	Applicants residing abroad can take the oral exam remotely by audio/video teleconference via web (e.g. Skype). Applicants must request this method and specify a valid contact when applying. The Admission Board has to authorise this request. The Admission Board will assess any requests to take the oral exam remotely that arrive after the Call for Applications expires at its discretion. The remote oral exam calendar (with date, time and place where the Admission Board will meet specified) can be consult on the website http://studenti.unibo.it together with the results of the exam whose passing gives admission to the oral exam. Applicants admitted to the oral exam must make they are available at the contact provided on the application for three hours starting from the time given on the remote exam calendar. Applicants who are not found three times will be considered absent. Oral exams, including the remote exams, are public.	

Exam assessment criteria

Judgement is expressed by assigning a total grade in a 100 point scale that is divided up as follows:

1. Assessment of qualifications and research project

- minimum for being admitted to the oral exam: 30 points
- maximum: 50 points

Only qualifications and documents no older than 5 years (up to the deadline of this call for applications) - Bachelor's and Master's degrees excluded - and deemed congruent with the research topics of the PhD programme will be assessed.

The assessment of qualifications grade will be given based on the following criteria:

- degree mark, and for those who are undergraduated students on the date this Call for Applications expires, the weighted average of marks of the exams: up to 10 points
- scientific publications: up to 3 points
- other qualifications (cv, study periods abroad, etc.): up to 12 points

The assessment of the research project grade will be given based on the following criteria:

- scientific value and originality of the proposal: up to 10 points
- structure of the proposal: up to 7 points
- feasibility of the proposal: up to 8 points

2. Oral exam

- minimum to be placed on the list of qualified applicants: 30 points
- maximum: 50 points

The oral examination will focus on the explanation and discussion of the applicant's research project and will assess his/her aptitude for scientific research and his/her overall preparation on subjects regarding the research topics of the PhD programme.

Knowledge of the English language will be ascertained during the oral exam.

The oral exam is taken in Italian or English.

Scores will be assigned according to the following criteria:

- knowledge of foreign language: up to 3 points
- good argument regarding the project: up to 25 points
- grounding on the PhD programme topics: up to 22 points

If the Admission Board should establish any sub-criteria for assessing the exams before the exams are held, and in any case before having the applications submitted by the applicants at their disposal, they can be consulted on <http://studenti.unibo.it> (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'sub-criteri di valutazione').

Final ranking list and enrolment (Art. 6 and 7 of the Call for Applications)

The final ranking list will be published on <http://studenti.unibo.it> (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'graduatoria').

No personal written communication shall be provided to applicants concerning the final results and the deadlines for enrolment.

Selected applicants will have to enroll by the date indicated in the final ranking list, published on <http://studenti.unibo.it>.

Positions and scholarships

Total positions available

12

Positions with university scholarship

- 5 financed by Unibo central budget
- 1 co-financed by Unibo central budget and the Dept of Physics and Astronomy

Positions with scholarship dedicated to specific research topics (Art. 9 of the Call for Applications)

Applicants may express their interest in being assigned a scholarship dedicated to a specific research topic to the Admission Board during the oral exam. The Board will express its judgement on eligibility to be assigned the scholarship in consideration of the specific competences, experience and specific aptitudes of the applicants

3 - financed by Italian National Institute of Nuclear Physics (INFN) and dedicated to the research topic "Nuclear, subnuclear and astroparticle physics and physics of the fundamental interactions, investigated both experimentally and theoretically and technological research and development"

1 – financed by the Dept of Physics and Astronomy with resources deriving from the H2020 research project "The demonstration of waste biomass to Synthetic Fuels and Green Hydrogen - TO-SYN-FUEL" - Grant Agreement n. 745749, dedicated to the research topic "Quantification of the environmental sustainability of integrated technologies for the production of biofuels, through sustainability metrics including LCA, GHG, mass and energy balance, and comparison of the performances against alternative technologies"

1 – financed by CNR – Institute for Microelectronics and Microsystems – Bologna Unit, with resources deriving from the H2020 european research project "PULSe" - Grant Agreement n. 737801, dedicated to the research topic "Study and development of devices

	and systems for photonics and fiber optic sensors"
<p>Position with research fellowship Applicants may express their interest in being assigned a position with research fellowship to the Admission Board during the oral exam. The Admission Board will determine the eligibility for such assignment by evaluating the applicants' specific skills, experience and competences</p>	<p>1 – with research fellowship provided the Dept of Physics and Astronomy with resources made available by UE "Healthcare Alliance for Resourceful Medicines Offensive against Neoplasm in Hematology" - Harmony - (GA 116626) project. The fellowship will have a duration of 12 months and can be renewed, the yearly gross amount is 19.367€ and will be dedicated to the following topic "Analysis of omics data in OncoHematology (HARMONY project)"</p>