

**PhD Programme Table - 38th cycle**  
**NRRP “National Recovery and Resilience Plan” Call for Applications**



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NextGenerationEU



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA

Section “Available Positions and Scholarships” integrated on 18/07/2022

Section “Available Positions and Scholarships” integrated on 29/07/2022

PROGRAMME’S NAME	<b>ASTROPHYSICS</b>
ASSOCIATED PARTNERS Pursuant to art. 3 para 2 lett. b) of the MD n. 226/2021	Istituto Nazionale di Fisica Nucleare - INFN
DURATION	3 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof. Andrea Miglio ( <a href="mailto:andrea.miglio@unibo.it">andrea.miglio@unibo.it</a> )
RESEARCH TOPICS	<a href="#">Detailed list at the bottom of the present document</a>
PhD POSITIONS	5
ADMISSION PROCEDURE	Qualifications evaluation Oral examination

**Available Positions and Scholarships**

Pos. n.	Financial Support	Description	Positions linked to research topics
1	<b>PhD Scholarship Ex M.D. 351/2022 - PNRR research</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 4.1 (MD 351/2022) – PNRR research	One of the following research topics: 1. in Globular Clusters - Supervisor Prof. R. Francesco Ferraro; 2. Data-driven approaches to stellar astrophysics in the era of large astronomical surveys - Supervisor Prof. Andrea Miglio; 3. Probing the deep cosmos with future gravitational waves and galaxy space missions - Prof. Michele Ennio Maria Moresco
2	<b>PhD Scholarship Ex M.D. 352/2022</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Thales Alenia Space Italia	Stray Light for Scientific Space Systems

3	<b>PhD Scholarship</b> <b>Ex D.D. 3264/2021</b> <b>“Rafforzamento e creazione di Infrastrutture di Ricerca” to be funded within the NRRP (CUPC53C22000430006)</b>	Funded by INAF with funds made available by EU – NextGenerationEU - National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.1 (MD 3264/2021) – supervisor Andrea Comastri	VHE gamma-ray astronomy: CTAO and Astri-MiniArray two new eyes on the extreme Universe
4	<b>PhD Scholarship</b> <b>Ex D.D. 3138/2021 and D.D. 3175/2021</b> <b>“Potenziamento di strutture di ricerca e creazione di “campioni nazionali” di R&amp;S su alcune Key Enabling Technologies” to be funded within the NRRP (CUP C53C22000350006)</b>	Funded by INAF with funds made available by EU – NextGenerationEU - National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.1 (MD 3264/2021) – supervisor Gianfranco Brunetti	High Performance driven Radio Astronomy with LOFAR
5	<b>PhD Scholarship</b> <b>Ex D.D. 3138/2021 and D.D. 3175/2021</b> <b>“Potenziamento di strutture di ricerca e creazione di “campioni nazionali” di R&amp;S su alcune Key Enabling Technologies” to be funded within the NRRP (CUP C53C22000350006)</b>	Funded by INAF with funds made available by EU – NextGenerationEU - National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.1 (MD 3264/2021) – supervisor Valentina Fioretti	Design and development of future X-ray and gamma-ray space missions through Geant4 stimulations

Applicants awarded with Ex M.D. 351/2022 or Ex M.D. 352/2022 PhD scholarships shall have specific obligations (i.e. mandatory research periods abroad and/or in a firm) during their PhD programme. For detailed information, refer to the Call for Applications, articles 1.2 and 1.3, and to the text of the law.

For any other eventual PhD positions, a 3-month research period abroad is mandatory.

More detailed information on the research topics listed above at the following page of the PhD programme website: [Next Gen EU / NRRP 2022 call - available projects.](#)

## Admission Exams

The admission exams detailed schedule shall be published **starting from July 12<sup>th</sup>, 2022:**

- on the [University website](#), selecting the relevant PhD Programme > “More information”, at the bottom of the page in the section “Notices”;
- on [Studenti Online](#) (select “summary of the requests in progress” > “see detail” and open the .pdf file at the bottom of the page). **No personal written communication will be sent to applicants.**

## Required and Supporting Documents to be attached to the application

All the documents listed below **shall be drawn up in English or in Italian.** In case of documents originally issued in any other language (e.g. identity document, qualifications), an official translation is required.

Only qualifications obtained **during the last 5 calendar years** shall be taken into consideration, except for the University Degree. The Admission Board will assess the relevance of the supporting documents to the PhD Programme.

REQUIRED DOCUMENTS	
<b>Identity document</b>	Valid identity document with photo (i.e. identity card, passport)
<b>Curriculum Vitae</b>	No specific CV format is required
<b>Degrees</b>	Documents attesting the awarding of the first and second cycle degrees, the exams taken and the marks obtained (see Art. 3 of the Call for Applications)

SUPPORTING DOCUMENTS	
<b>Thesis abstract</b>	Abstract of the <b>second cycle degree thesis</b> . Graduands applicants may submit the draft of the thesis. Abstracts cannot exceed 5,000 characters, including spaces and formula possibly used. The above figure does not include: the title of the thesis, the outline, references, and images such as graphs, diagrams, tables etc.
<b>Reference letter/s</b>	<b>No more than 3 reference letters</b> signed by Italian and international academics and professionals in the research field, which do not form part of the Admission Board, attesting the suitability of the applicant and his/her interest in the scientific research. Letters shall be uploaded following the procedure on <a href="#">Studenti Online</a> , detailed in the Call for Applications (Art. 3.2).
<b>Publications</b>	Lists of publications (i.e. monographs, articles on scientific journals)
<b>Other documents</b>	<ul style="list-style-type: none"> <li>- Research activity of any kind - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research projects</li> <li>- Curricular and non-curricular training internships</li> <li>- Documents attesting the knowledge of foreign languages</li> <li>- Study periods completed by applicants outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes)</li> <li>- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc.)</li> </ul>

## Evaluation criteria\*

Scores will be expressed in points out of 100, as follows.

### 1. Qualifications evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

First (Bachelor's) and Second cycle degree (Master's) final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	30 points max
Publications	2 points max
Curriculum Vitae evaluation (e.g. thesis abstract, reference letters, other qualifications)	18 points max

### 2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

General knowledge of issues encompassed by the PhD Programme	50 points max
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Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of issues encompassed by the PhD Programme (see the list of [research topics](#) at the bottom of the present document). During the oral examination, the applicant's English proficiency shall be assessed.

The oral examination is carried out in Italian or English.

\* Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information".

## Research Topics

- Stellar populations in the Local Group
- Populations, chemistry and dynamics of stellar clusters
- Stellar and chemical evolution of galaxies
- Formation and evolution of galaxies and AGN
- Radioastronomy
- High energy astrophysics
- Astronomical technology
- Galactic dynamics
- Galaxy Clusters, Large-scale structure of the Universe, Cosmology