

PHD PROGRAMME TABLE 37TH CYCLE

PROGRAMME'S NAME	ASTROPHYSICS
ASSOCIATED PARTNERS pursuant to art. 2, para 2, lett. a) of the M.D. n. 45/2013	Istituto Nazionale di Fisica Nucleare - INFN
DURATION	3 years
PROGRAMME START DATE	01/11/2021
LANGUAGE	English
MANDATORY STAY ABROAD	3 months
COORDINATOR	Prof. Francesco Rosario Ferraro (francesco.ferraro3@unibo.it)
CURRICULA	N/A
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	10
ADMISSION PROCEDURE	Qualifications evaluation Oral examination

Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
1	PhD Scholarship	Totally funded by the University of Bologna general budget	Related research topics are available at: DIFA PhD Projects and also in the section "Notices" of the PhD Programme on the University webpage .
2	PhD Scholarship	Totally funded by the University of Bologna general budget	Related research topics are available at: DIFA PhD Projects and also in the section "Notices" of the PhD Programme on the University webpage .
3	PhD Scholarship	Totally funded by the University of Bologna general budget	Related research topics are available at: DIFA PhD Projects and also in the section "Notices" of the PhD Programme on the University webpage .
4	PhD Scholarship	Funded by the University of Bologna general budget and co-funded by the Department of Physics and Astronomy	"Searching for high-redshift progenitors of massive galaxies". The related research topic is available at: HIGH-REDSHIFT PhD Project and also in the section "Notices" of the PhD Programme on the University webpage .
5	PhD Scholarship	Funded by the University of Bologna general budget and co-funded by the Department of Physics and Astronomy with funds made available by H2020 ERC project - DRANOEL – Deciphering RADio NON-thermal Emission on the Largest scales (Grant Agreement n° 714245), P.I. Prof. Annalisa Bonafede	"Constraining magnetic fields and relativistic particles in intra-cluster bridges with the LOw Frequency Array". The related research topic is available at: MAGNETIC PhD Project and also in the section "Notices" of the PhD Programme on the University webpage .

6	PhD Scholarship	Funded by the Department of Physics and Astronomy	“The physics of star cluster cores”. The related research topic is available at: LIGHT-ON-DARK PhD Project and also in the section “Notices” of the PhD Programme on the University webpage .
7	PhD Scholarship	Funded by the Department of Physics and Astronomy with funds made available by H2020 ERC project - Asterochronometry- Galactic archeology with high temporal resolution (Grant Agreement n° 772293), P.I. Prof. Andrea Miglio	“High-precision stellar physics with asteroseismology from TESS and Kepler”. The related research topic is available at: HIGH-PRECISION PhD Project and also in the section “Notices” of the PhD Programme on the University webpage .
8	PhD Scholarship	Funded by INAF - Istituto Nazionale di Astrofisica	The related research topic is available at: INAF1 PhD Project and also in the section “Notices” of the PhD Programme on the University webpage .
9	PhD Scholarship	Funded by INAF - Istituto Nazionale di Astrofisica	The related research topic is available at: INAF2 PhD Project and also in the section “Notices” of the PhD Programme on the University webpage .
10	PhD Scholarship	Funded by INAF - Istituto Nazionale di Astrofisica	Related research topics are available at: INAF3 PhD Projects and also in the section “Notices” of the PhD Programme on the University webpage .

Admission Exams

	DATE AND TIME	RESULTS
Qualifications evaluation	Applicants’ participation is not required	Available from 07/06/2021**
Oral examination	Date: starting from 21/06/2021 – 9.00 a.m. CEST* Place: remotely, using Microsoft Teams	Available from 30/06/2021**

* In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral examination detailed schedule shall be made available on the webpage [Studenti Online](#) together with the results of the qualifications evaluation. **During the oral examination applicants may express their interest in one or more positions linked to specific research topics.**

** The **results of the admission exams** will be available on the webpage [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 concerning the examinations results.**

Required and Supporting Documents to be attached to the application

(only documents in Italian, English, French, German and Spanish shall be considered as valid and be assessed by the Admission Board)

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	
Identity document	Valid identity document with photo (i.e. identity card, passport)
Curriculum Vitae	No specific CV format is required
Degrees	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	
Thesis abstract	Abstract of the second cycle degree thesis . Graduands 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. - where present).
Reference letter/s	No more than 2 reference letters 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 for the scientific research. Letters shall be uploaded following the procedure on Studenti Online , detailed in the Call for Applications (Art. 3.2).
Publications	Lists of publications (i.e. monographs, articles on scientific journals).
Other documents	<ul style="list-style-type: none"> - Research activity - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research units. - Curricular and non-curricular training and guidance internships. - Language proficiency certificates. - Study periods completed by students outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes). - Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc).

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

University degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM).	30 points max
Publications	2 points max
CV evaluation (i.e. second cycle degree thesis abstract, reference letter/s, 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 knowledge of English language 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", at the bottom of the page in the section "Notices".

Final Ranking List and Enrollment

The PhD Programme in Astrophysics **offers only topic-specific positions**.

Considering the expressions of interest for **topic-specific positions** (see Art. 9 of the Call for Applications), the Admission Board shall express its view on the suitability of the interested applicants, taking into account their specific skills, experience and aptitude. For the awarding or replacement of topic-specific positions, sub-ranking lists shall be drawn up. In case of vacancies, after having scrolled all the sub-ranking list for the topic-specific position, eligible applicants from the general ranking list shall be contacted.

After the publication of the results of the oral examination, the **final ranking list** will be available on the [University website](#), selecting the relevant PhD Programme > “More information”, section “Notices” at the bottom of the page.

Following the publication of the final ranking list, successful applicants shall **enroll** on [Studenti Online](#) by the deadline indicated on the [University website](#), selecting the relevant PhD Programme > “More information”.

If a successful applicant withdraws from a position, the following applicant in the ranking list, who is also eligible for the specific position, will be contacted. During the replacement procedure, the new terms of enrollment shall be communicated via e-mail to the chosen applicant.

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