



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

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THE DIRECTOR

Procedure of comparative evaluation by qualifications and public discussion for the recruitment of 1 position for Assistant professor with a full-time fixed-term employment contract for three-year - pursuant to art. 24, paragraph 3, letter a), of Law no. 240/2010 – Code PHYS-04/A - Theoretical Physics of Matter, Models, Mathematical Methods and Applications

Given That on 24/06/2025 the Board of Directors approved the activation request made by the Department of Physics and Astronomy 'Augusto Righi' – DIFA with the resolution of the Council on 9/05/2025, concerning the recruitment of a fixed-term researcher position of type a) (Junior), pursuant to art. 24, co. 3, letter a), of Law 240/2010, before the reform occurred with Law 79/2022 – SSD PHYS-04/A, funded with resources from the Research Collaboration Agreement (Rep. 53, Prot. 2551 of 06/05/2025) between DIFA and the German Foundation 'Forschungszentrum Jülich – GmbH' (FZJ) within the framework of the Memorandum of Understanding (MoU) stipulated between Unibo and FZJ (Rep. 5257, Prot. 14252 of 23/05/2024);

With Reference To the rules referred to in Article 13 of the present call for application;

With Reference To the resolution of the Department Board of Physics and Astronomy "Augusto Righi" - DIFA of 09/05/2025, of request for activation of a fixed-term Assistant Professor position pursuant to art. 24, paragraph 3, letter a), of Law no. 240/2010;

With Reference To the resolution of the Board of Directors of 24/06/2025, with which the request was approved;

Givent That Considering that the aforementioned educational and research needs presented by the Department of Physics and Astronomy "Augusto Righi" - DIFA can be fulfilled through the issuance of a public selection procedure;

ORDERS

Art. 1 – Purpose

A procedure of comparative evaluation by qualifications and public discussion is called for the recruitment of 1 position for Assistant professor with a full-time fixed-term employment contract for three-year - pursuant to art. 24, paragraph 3, letter a), of Law no. 240/2010, Academic Recruitment Field reference 02/PHYS-04, and Scientific Sector PHYS-04/A - Theoretical Physics of Matter, Models, Mathematical Methods and Applications.

The job is activated for the needs of research and study of the Department of Physics and Astronomy "Augusto Righi" - DIFA of the Alma Mater Studiorum - University di Bologna. Serving primarily at the Department of Physics and Astronomy "Augusto Righi" - DIFA, in Bologna.

The contract shall last three years. An annual gross total amount equal to € 38.986,00 will be corresponded to the researcher. The annual increase in this amount will be calculated according to the existing procedure for non-contracted personnel.

Responsabile del procedimento: Michele Menna | email: apos.ricercatoritempodeterminato@unibo.it

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Art. 2 – Activities to be performed

The contract includes 350 hours of supplementary teaching and assistance to students, for each academic year covered by the contract. The contract shall not schedule frontal teaching.

Concerning the provisions of art. 10 regarding fixed term researchers, issued by Rectoral Decree no. 344 of 29th march 2011 and amendments, the researcher's activities must be linked to the development of the project: "Machine learning and optimal control for quantum technologies".

The corner stone of the research project is to enable quantum technologies, e.g., quantum simulations on physical systems via tailored control methods. To this end, numerical tools for time-evolution have to be combined with control tools like quantum optimal control, machine learning and Hamiltonian engineering to generate a time evolution corresponding to a target evolution or to generate a desired quantum many-body state. Along this direction new control methods should be developed and different platforms can be studied such as neutral-atom quantum simulators and nuclear spins in solid state. The research will be theoretic with a strong focus on numerics and collaboration with experimentalists. The position includes also the coordination and (co)supervision of research activities on this topic within the department of physics and astronomy that are conducted in collaboration with Forschungszentrum Jülich, as well as contributing to funding acquisition.

Scientific productivity goals include the application and development of control methods, e.g. optimal control or Floquet engineering, for platforms suitable for quantum technologies. Progress will manifest itself in scientific publications, participation in dedicated conferences and workshops, and collaborations with experimental groups.

Art. 3 – Admission requirements

Candidates, including citizens of non-European Union countries, holding a Ph.D. or equivalent degree obtained in Italy or abroad, are eligible for selection.

The aforementioned degree must be possessed by the deadline for submitting applications for admission to this selection process.

In the case of a Ph.D. obtained abroad, the following alternatives are necessary:

1. Attach the academic recognition decree of the degree (issued pursuant to art. 74 of Legislative Decree No. 382/1980, ex equivalency, or art. 38 of Legislative Decree No. 165/2001), for those who already possess it by the deadline of the call;
2. Request the University of Bologna, at the time of application, the recognition procedure of the foreign degree pursuant to art. 38 paragraph 3.2 of Legislative Decree No. 165/2001. In this case, the candidate undertakes to transmit, if successful in the procedure, the necessary documentation to the University's fixed-term researchers office by email, certified mail, or physical mail.
3. Request from the Ministry of University and Research (MUR) the non-academic recognition measure of the foreign degree for participation in competitions for researcher positions in Universities and public research institutions, pursuant to and for the purposes of Legislative Decree No. 206/2007 - as amended by Legislative Decree No. 15/2016 (for EU titles) - and Legislative Decree No. 394/99, art. 49 (for non-EU titles) and attach, at the time of application, the receipt of successful submission of the request.

Pending the issuance of the measure referred to in points 2 or 3, it is possible to participate in the competition by being admitted with a reserve.



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For more information on the recognition procedures for foreign degrees, please consult the University's web page regarding "Recognition of a foreign degree".

The recognition measure of the foreign degree must in any case be submitted to the Administration before taking up duty.

University professors of first and second tier and researchers already employed indefinitely, even if no longer in service, as well as individuals who have already benefited, for at least three years, from the contracts specified in this notice, are not eligible for selection.

Also, individuals who have a degree of kinship or affinity up to the fourth degree inclusive with a professor belonging to the Department or Structure proposing the activation of the contract or with the Rector, or with the General Director, or with a member of the University's Board of Directors, are not eligible to participate in the selections.

Public administration employees are placed on leave for the entire duration of the contract, without salary or social security contributions, or in a position outside their role in cases where such a position is provided for by the relevant regulations, likewise without salary or social security contributions.

Art. 4 – Application procedure

The submission of the application for participation in the selection must be made exclusively via electronic procedure by accessing the following link:

<https://pica.cineca.it/unibo/>

Call deadline: 25/07/2025 at 12:00 (noon, Italian Time)

The application must be submitted at the same time with the insertion of all the attached documentation required.

The following documents shall be enclosed to the electronic application form (preferably files: PDF, other supported files: JPG, BMP, PNG):

1. identification document scanned (10MB max);
2. curriculum vitae with indication of the scientific-professional activity (10MB max);
3. Any reference letters up to a maximum of three. Direct uploading of the letters is not provided for. Once the application is submitted, it will be possible to request reference letters by providing the email address of the faculty member from whom the letter is requested. The system will automatically send an email requesting the reference, including the candidate's information and the application process details. The referee will not need to register, but can access the indicated webpage by selecting the provided link in the email. Within the webpage, they can upload their reference letter, within the deadline specified in the call for applications.
4. scientific publications (max 30: other supported files are TIFF and PS, 20MB max each document) which are already printed at the date of the call of application deadline, or scientific publications accepted for printed, together with the publisher acceptance letter. While uploading each document will be asked to indicate the title, the authors' names, the publisher, the year of publication. Optional information are the month, the ISBN code, the DOI code, the booklet number.

Pursuant to Ministerial Decree 243/11, the PhD thesis is considered a publication, and thus if presented by the candidate it shall be included in the maximum number indicated (30).

While applying, applicants shall declare under their own responsibility:

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1. surname and name;
2. place and date of birth;
3. citizenship;
4. residence address;
5. (if Italian citizens) registration to electoral rolls. If any, the reasons why he/she is not registered or cancelled from them;
6. that there have not been any criminal proceeding against them or current criminal proceedings; otherwise, applicants shall specify the proceedings against them (the date of the measure and the judicial authority that issued it) and pending penal proceedings. The existence of a previous criminal conviction is not in itself an impediment to hiring, unless it is a conviction for a crime that prevents the establishment of the employment relationship with the public administration as it derives from the interdiction from public office, or the inability to contract with the public administration, or the termination of the employment relationship (articles 28, 29, 32-ter, 32-quater, 32-quinquies of the Criminal Code, articles 3,4, 5, L. 97 of March 27, 2001). In other cases, the Administration will ascertain the gravity of the criminally relevant facts committed by the person concerned, for the purposes of access to public employment. This check is carried out with the aim of ascertaining the existence of the fiduciary element which constitutes the fundamental prerequisite of the relationship between employer and worker, as well as for the purpose of assessing the existence of the requisites of moral suitability and aptitude to carry out activities as a public employee;
7. to have or not to have benefited of non-voluntary leave periods due to maternity/paternity compulsory abstention or for serious health reasons, indicating the periods in case
8. possession of the qualification required pursuant to Art. 3 of this call for application and the mark obtained, if any;
9. to be fit to the employment the selection refers to;
10. that they are not, nor have been, professors, associate professors or researchers with tenure, even if not in service;
11. that they are not related by blood up to the fourth degree, to any professor working in the Department or in the Structure that proposed the activation of the contract, or to the Rector, Director General or a member of the Board of Governors of the University of Bologna;
12. elected e-mail address for the purpose of the participation in this contest;
13. Foreign citizens shall also declare to have a proper knowledge of Italian and to enjoy civil and political rights also in their origin countries or the reasons for loss of enjoyment.

Any modification shall be timely communicated to the Ufficio Ricercatori a tempo determinato.

In case of technical issues, you can contact Cineca Support, available at the bottom of the call webpage on the site <https://pica.cineca.it/unibo/>

Art. 5 – Applicants' obligations

The penalty of exclusion from the selection shall apply in the following cases:

- Non-compliance with the terms established for posting the application form;
- Lack of the requirement pursuant to art. 3 of the present call for application (qualification).

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All applicants shall be admitted to the contest and the Administration reserves the right to check that they actually are in possession of the requirements necessary to apply for the selection; the Administration may, at any time and even after the exams, order the exclusion from the selection hereto.

Art. 6 – Selection Board

The Selection Board will be appointed upon administration resolution and is composed of three full or associate professors belonging to the competition Scientific sector or, alternatively, to the same competition macro-sector for which the procedure is announced or of equivalent role in the case of components not coming from national universities, identified by the Department that proposed the activation of the contract. Two of the members, external to the University, are drawn with the methods provided by the art. 8-bis of the Regolamento per la disciplina delle chiamate dei Professori di Prima e Seconda fascia in application of articles 18 and 24 of the Law 240/2010, issued with DR 977/2013 and s.m. A third component is identified by the Department Council among the professors inside or outside the University. As envisaged by art. 57 of Legislative Decree 165/2001, in order to guarantee equal opportunities between men and women for the access to work and work treatment, generally, at least one member is female.

The Commission appoints a president and a recording secretary between their members.

Notice of the appointment of the will be published on Alma Mater Studiorum - University of Bologna website.

Art. 7 – Selection procedure

The selection procedure is carried out by the Board after a preliminary evaluation of each candidate's qualifications, curriculum and scientific production, including the doctoral thesis, according to the criterion identified by the MUIR in D.M. 243/2011.

The candidates chosen in the preliminary evaluation based on their comparative merits - between 10 and 20% of the number of applicants and not less than 6 - will then be called for interview. The interview will consist of a discussion of the candidate's qualifications and scientific production and may take the form of a seminar open to the public. If the total number of candidates is 6 or less all candidates will be interviewed.

Any reference letters produced by the candidates will also be considered.

The discussion with the Commission will take place in English, in public form and will be held in presence or electronically using the audio and video teleconferencing tool via the Teams platform (the workstation from which candidates will take the interview must be equipped with a webcam - essential for the recognition of the candidate - microphone and headphones and/or audio speakers).

Notice of the day, time and methods of conducting the public discussion (whether in presence or electronically via Teams) as well as the list of admitted candidates will be published at least 15 days before the discussion on the University website at: <https://bandi.unibo.it/docenti/rtd>.

The publication on the University website will constitute official notification to all applicants, without any obligation for any further communication.

The publication will be communicated by e-mail to the address indicated by the candidates in the application. The Alma Mater Studiorum - University of Bologna does not assume any responsibility for the non-receipt or the not-read of the e-mail.

It is up to candidates to keep themselves informed by consulting the University website page to find necessary information about selection.

Candidates attending the interview must bring a valid identification document with them.

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EU citizens shall bring their passport or an identity document issued by their country of origin. Non-EU citizens shall bring their passport.

Art. 8 – Individuation of the winning candidate and recruitment

After the exams, the Board proceeds to identify the winner. On equal merits, priority will be defined according to the date of birth and the youngest one shall precede.

The procedure's acts are approved pursuant to an administration resolution and will be published in Alma Mater Studiorum – University of Bologna OnLine Albus.

The terms to raise any appeal shall start from the date of publication of said notice, in case the resolution has not been otherwise disclosed.

In case of the winner's withdrawal, the candidate who obtained the highest overall score after the winner will be called.

The Department of Physics and Astronomy "Augusto Righi" - DIFA, will propose recruitment by a majority vote of the professors and associate professors of the Department and approved by the Board of Governors. The Department will also propose the date of commencement of employment contract.

Art. 9 – Employment procedures

Following the conclusion of the recruitment procedure referred to in art. 8, the candidates will be asked to sign a fixed-term contract of full-time employment.

The employment relationship is governed by a personal contract, statutory laws and EC regulations.

The personal contract shall specify any reasons for which it might be terminated, as well as the relevant periods of notice. In any case the contract will be terminated immediately and without notice in the event of the cancellation of the recruitment procedure to which it is inalienably linked.

The trial period shall last three months. At the end of the period, unless the employment relationship has been terminated by either of the parties, the employee is confirmed for service and the whole period worked from the beginning of the contract shall be calculated for seniority purposes.

Art. 10 – Documentation required for the participation in the public selection and for hiring purposes

For the purpose of participating in the public selection, documents, publications and qualifications in English, French, German, and Spanish may be submitted in their original language.

However, scientific publications related to the subject area of the competition, in the case of selection procedures in language-related fields, may also be submitted in their original language. Documents and qualifications in other languages must be presented in their original language, accompanied by a certified translation in Italian or English.

The translation must be certified as faithful to the foreign text and can be carried out by the competent diplomatic or consular representation or by an official translator. As for the documentation required for employment purposes, any acts or documents drafted in a foreign language must be accompanied by a certified translation into Italian, faithful to the foreign text, which can be carried out by the competent diplomatic or consular representation or by an official translator.

Art. 11 – Rights and duties of a researcher with a fixed-term contract of employment

In accordance with the rights and duties of public employees prescribed by the Italian civil code, on signing the contract the researcher will be expected to perform all those activities mentioned in Art. 2. These

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activities will be carried out in respect of the existing hierarchy and in coordination with existing programmes and research projects.

The researcher will perform the requested activities in person, substitution is not permitted.

Existing Italian laws concerning maternity, injury and illness will be applied.

The researcher undertakes to fulfill the obligations of conduct prescribed by the code of conduct, issued by DPR 62/2013.

Art. 12 – Processing of personal data and person in charge for the contest

Information about the processing of personal data (provided during the application process) are available at the link: www.unibo.it/privacy (Notice for participants in contests and selections published by the University).

The responsible person for the administrative procedure (RPA) is Dr. Michele Menna. For any further information related to the competition procedure, you can contact the Office of Fixed-Term Researchers - University of Bologna - Piazza Verdi, No. 3 - Tel. +39 051 2098972 - 2098958 - 2099980; email: apos.ricercatoritempodeterminato@unibo.it; Office Manager Dr. Gianfranco Raffaeli.

Art. 13 – Reference Regulations

The regulations under which this call for applications is issued are as follows:

- Article 24 of Law No. 240 of December 30, 2010, in the version prior to the reform carried out by Law No. 79 of June 29, 2022, converting, with amendments, Decree-Law No. 36 of April 30, 2022;
- Legislative Decree No. 165 of March 30, 2001;
- Presidential Decree No. 445 of December 28, 2000;
- Presidential Decree No. 487 of May 9, 1994;
- Law No. 241 of August 7, 1990;
- Regulation for the discipline of fixed-term researchers of Alma Mater Studiorum – University of Bologna (link).

For the Director

Digitally signed by Giovanni Longo