

## English version

The legally binding version is the Italian one:

Prot n. 0002147 del 20/10/2023 - AO:INAF-OAB – Determina 142/2023 del 20/10/2023

**Subject: Public selection procedure based on qualifications and, if necessary, an interview for one postdoctoral research fellowship (Assegno di Ricerca, type B "Post Doc"), entitled: "Mitigation of observational systematics for the next cosmological spectroscopic surveys," which is a PRIN MUR PNRR project (F.O 2.06.01.14, ref. Granett, CUP: C53D23001230006).**

### THE DIRECTOR OF THE BRERA ASTRONOMICAL OBSERVATORY

#### DETERMINES

#### Art. 1 – Research project

A public selection based on qualifications is announced and, if necessary supplemented by an interview, for the awarding of a type B "Post Doc" research fellowship, for a duration of 1 year, extendable for a further year following the favorable opinion of the research PI and verification of the financial availability, entitled: "Mitigation of observational systematics for the next cosmological spectroscopic surveys" (reference: 2022NY2ZRS).

The winner will carry out the research activity at the INAF-OA Brera headquarters in Merate, under the supervision of Dr. Benjamin Rudolph Granett, and in close collaboration with Dr. Michele Moresco (DIFA UniBo), and other collaborators involved in the aforementioned scientific project. The research project will focus on the development of new methods for the optimal analysis of current and future spectroscopic surveys of galaxies, to obtain cosmological constraints from the analysis of the combination of lower and higher order correlation functions. Particular attention will be given to systematic errors that can introduce significant biases into cosmological results. The research activity involves carrying out the following activities:

- Modeling of systematic observational effects in multi-object or slitless spectroscopic surveys of galaxies,
- Development of end-to-end simulations to evaluate the impact of systematic effects on galaxy clustering measurements,
- Study of mitigation strategies to obtain accurate estimates of cosmological parameters.

#### Art. 2 – Requirements

Participation in this selection is reserved for Italian or foreign citizens in possession of the following minimum requirements:

- I. Bachelor's degree in Physics, Astronomy, Mathematics and all specialist master's degrees equivalent to them, obtained according to the regulations in force prior to the reform referred to in Ministerial Decree 509/09 (DL) or the classes of specialist degrees (LS) or the classes of master's degrees (LM) to which the aforementioned degree diplomas have been equated by the Ministerial Decree of 9 July 2009 for the purposes of participation in public competitions, or equivalent foreign qualification.
- II. PhD in Physics or Astronomy or equivalent foreign qualification, or documented experience of at least three years carried out in companies, universities or qualified public and private bodies, organizations or research centres, including foreign ones, on topics relating to the scientific-technological area and the sector of research for which you are competing.

For the sole purpose of admission to this selection procedure, the equivalence of the qualifications obtained in a foreign country will be ascertained by the "Examining Committee" referred to in article 8 below, on the basis of the documentation produced by the candidate pursuant to article 3 of this "Notice", without prejudice to the fact that, in the event that the same candidate is the winner of the aforementioned procedure, the Administration, acknowledging the results of the assessment carried out by the "Examining Commission", will transmit the same, together with the documentation referred to in article 3, paragraph 2, letter a) or b), of the Decree of the President of the Republic of 30 July 2009, number 189, accompanied by the candidate's request, to the Ministry of University and Research, for the purposes of obtaining the opinion provided for by the article 4, paragraph 2, of the same Decree.

The candidate is required:

- Excellent knowledge of written and spoken English.

Preferential qualifications will also be considered:

- knowledge in the field of observational cosmology,
- familiarity with galaxy clustering analysis techniques,
- experience with the analysis of real or simulated data from multi-object/slitless spectroscopic surveys,
- experience with simulations of spectroscopic observations with mock catalogs of galaxies,
- familiarity with Bayesian methods,
- knowledge of numerical methods and C++ and/or Python programming languages

### **Art. 3 – Application procedure**

The applications for admission to the selection, drawn up on plain paper according to the attached format (Annex 1), dated, signed by the candidates and accompanied by the required documentation, must be sent no later than **midnight CET on 10 January 2024**, under penalty of exclusion, with one of the following methods:

- a) by ordinary or certified email, in non-editable "PDF" format, to the following address: [inafoamilano@pcert.postecert.it](mailto:inafoamilano@pcert.postecert.it) with a maximum size of 20MB, within the deadline indicated above, indicating in the subject **"Assegno di ricerca: CosmoSys (ref. Granett)"**
- b) by registered letter with acknowledgment of receipt to the Ufficio Concorsi - INAF Astronomical Observatory of Brera, Via Bianchi 46, 23807 Merate, reporting the following wording on the front page of the envelope and on the application form at the top left: **Assegno di ricerca: CosmoSys (ref. Granett)"**. For the date, the stamp and date of the accepting post office are valid.
- c) by express courier authorized to the INAF Astronomical Observatory of Brera – Ufficio Concorsi – Via Emilio Bianchi 46 – 23807 Merate (LC) within the deadline indicated above, reporting on the cover page of the envelope and on the participation application at the top left following wording: **"Assegno di ricerca: CosmoSys (ref. Granett)"**.

Any incomplete applications or applications received after the deadline will not be taken into consideration.

Pursuant to art. 39 of the decree of the President of the Republic of 28 December 2000, n. 445, the candidate's signature at the bottom of the application for admission to the selection is not subject to authentication. Failure to sign will result in exclusion from the selection. Likewise, applications for which there is a discrepancy and/or obvious inconsistency between what is declared therein and the attached documentation will be excluded.

Candidates excluded from the selection, with a reasoned decision by the Director of the INAF-Brera Astronomical Observatory, will be notified by registered letter with return receipt or by e-mail.

The INAF-Brera Astronomical Observatory will not assume any responsibility for any delay or postal mix-up or non-delivery of its direct communications to candidates in the event of failure or late reporting of a change in the address indicated in the application for admission to the selection.

In the application the candidate must clearly and precisely indicate:

- a) surname and name;
- b) location and date of birth;
- c) tax code;
- d) citizenship;

- e) enjoyment of civil and political rights in the State of citizenship;
- f) qualification(s);
- g) place of residence;
- h) any works and titles presented specifying the quantity of typescripts and printed works;
- i) e-mail address to which communications relating to the selection should be sent, indicating, if possible, the telephone number.

Furthermore, the candidate, under their own responsibility, must declare in the application:

- I. that I have not had any criminal convictions nor do I have ongoing criminal proceedings, specifying, if not, which convictions or proceedings exist;
- II. whether they have held or currently hold other research contracts or scholarships from other public or private bodies and for what duration.

For every purpose of evaluating the qualifications and in compliance with what is dictated by the art. 2 of the Decree of 11 February 1998 of the Ministry of University and Scientific and Technological Research, the following must be attached to the application:

- a) curriculum vitae et studiorum, in which there is evidence of obtaining the title of PhD or, alternatively, experience following the Master's Degree of at least three years in the scientific-technological field;
- b) list of publications;
- c) a brief (no more than two pages) description of the research carried out and how the candidate's research interests and experience fit into the activities requested in the Research fellowship;
- d) up to two letters of reference (to be sent by the contact person to the following email: [protocollo.oabr@inaf.it](mailto:protocollo.oabr@inaf.it) – specifying in the subject “Assegno di ricerca: CosmoSys (ref: Granett)”);
- e) any other work and publication the candidate deems useful to qualify their scientific curriculum, including a copy of the degree thesis, and/or the doctoral thesis, or equivalent foreign qualifications;
- f) in the case of foreign citizens, a copy of the degree certificate or diploma which also shows the list of exams and the final grade, or of the equivalent foreign qualification;
- g) list of titles and each document presented, specifying the quantity of typescripts and printed works attached;
- h) declaration (with cumulative self-certification value):
  - i. of conformity of copies of theses, publications and works presented with the originals;
  - ii. possession of a specialist/master's degree in Physics, Astronomy or Engineering, or a degree obtained under the previous system lasting at least four years or a qualification

obtained abroad, recognized as equivalent to the Italian degree on the basis of agreements international, or with the methods set out in art. 332 of the Consolidated Law. n. 1592/1933;

- iii. possession of a research doctorate in Physics, Astronomy or Engineering or equivalent obtained in Italy or abroad, if this has been achieved;
- iv. of any further specialization diploma or attendance of post-graduate courses, obtained in Italy or abroad, as well as carrying out research activities at public and private entities with contracts, scholarships or assignments, both in Italy and abroad or work activities, which the candidate deems appropriate to produce.

i) self-certification pursuant to Presidential Decree 445/2000 with which the candidate certifies the overall duration of the relationships referred to in the art. 22, paragraph 9 of Law no. 240/2010 ("The overall duration of the relationships established with the holders of the fellowships referred to in this article and of the contracts referred to in article 24, including with different universities, whether state, non-state or telematic, as well as with the bodies referred to in paragraph 1 of this article, with the same person, cannot in any case exceed twelve years, even if not continuous. For the purposes of the duration of the aforementioned relationships, periods spent on leave for maternity or health reasons according to the legislation are not relevant. current"). Research fellowships whose duration began before the entry into force of Law 240/2010 are considered excluded from the calculation).

The declaration in point h) and the self-certification in point i) must be drawn up according to the attached specimen (Annex 2), and must be dated and signed and accompanied by a photocopy of a valid identity document.

When using self-certification, relating to the declaration referred to in point 7 annex 1, the candidate must cite the qualifications held indicating all the data necessary for any possible verification by the Administration of the Brera Astronomical Observatory. As an alternative to self-certification, the candidate may present the original or certified copy of the qualifications.

#### **Art. 4 – Ineligibility**

Fellowships for carrying out research activities cannot be awarded to INAF employees with fixed-term or permanent contracts and to permanent staff at the bodies referred to in the art. 22, paragraph 1 of Law 240/2010.

Pursuant to art. 22, paragraph 3 of Law 240/2010, the ownership of the fellowship is not compatible with participation in degree courses, specialist or master's degrees, research doctorates with scholarship or medical specialization, in Italy or abroad, university master's degrees.

Ownership of the allowance entails placement on leave without allowances for the employee working, even

part-time, in public administrations.

Cumulation with scholarships awarded for any reason is not permitted, except those granted by national institutions, including INAF, or foreign, international or supranational institutions, useful for integrating the holders' research activity with stays abroad of checks.

Cumulation with proceeds from work activities, even part time, carried out continuously is not permitted. However, limited occasional self-employment activity is compatible with the fellowship, as long as it does not conflict with or delay the research activity carried out on behalf of INAF. This activity must be authorized in advance by the Director of the Structure where the research covered by the fellowship is mainly carried out.

Research fellowships cannot be awarded to retired personnel from INAF or other research bodies or universities.

The assignee, upon acceptance of the fellowship, must issue a specific declaration of non-existence of inadmissible cumulation situations.

### **Art. 5 – Duration of the Research fellowship**

The start date of the working relationship will be agreed with the candidate, approximately by 1 May 2024.

The duration of the fellowship is 1 year, with the confirmation of being able to continue the second year subject to verification of the availability of funds and the favorable opinion of the research PI.

Further renewals will be evaluated following the needs of the research program.

The overall duration of the relationships established with the holder of the fellowship, referred to in the art. 22 of Law 240/2010, also with different universities, whether state, non-state or telematic, as well as with the bodies referred to in the art. 22, paragraph 1 of Law 240/2010, cannot in any case exceed 6 years, even if not continuous, with the exception of the period in which the fellowship was used in conjunction with the research doctorate, within the maximum limit of the legal duration of the relevant course and without prejudice to periods spent on leave for maternity or health reasons in accordance with current legislation (research fellowships whose duration began before the entry into force of Law 240/2010 are excluded from the calculation).

### **Art. 6 – Host Institution**

The candidate will carry out the research activity at INAF-Osservatorio Astronomico di Brera in Merate.

### **Art. 7 - Salary**

The gross salary for this position is 32.000,00 (Thirty-two-thousand/00) euros per year and will be paid in deferred monthly instalments.

Applicable fiscal rules are provided by Art. 4 of Italian law 476/1984 and subsequent modifications and integrations. Applicable social security rules are provided by Art. 2, paragraph 26 and following paragraphs of Italian Law 335/1995 and subsequent modifications and integrations. Applicable rules for obligatory maternity leave are provided by the Decree of the Italian Ministry of Labour and Social Security dated 12th July 2007, published in the "Gazzetta Ufficiale" n. 247 on the 23rd of October 2007. Applicable rules for sick leave are provided by Art. 1, paragraph 788 of Italian law 296/2006, and subsequent modifications. During the period of obligatory maternity leave, the allowance paid by INPS (Italian National Institute for Social Security) according to Art. 5 of the above Decree dated 12 of July 2007 is supplemented by INAF up to the total amount of the fellowship. The period of obligatory maternity leave will not contribute to the duration of the fellowship foreseen by the contract.

#### **Art. 8 – Selection committee**

The selection will be performed by a Selection Committee appointed by the Director of INAF-Osservatorio Astronomico di Brera.

The selection committee is composed of three members, selected among the research personnel of Italian or foreign institutions experts on the research topics of the proposed project, and usually includes the scientific PI of the project. In compliance with the current rules, the committee should, if possible, guarantee the gender balance of its members. The president of the selection committee is designated among the members of the committee by the Director of INAF-Osservatorio Astronomico di Brera. The president will then designate, among the other members of the committee, the secretary of the selection procedure.

#### **Art. 9 – Selection procedure and final ranking list**

The comparative evaluation will take place on the basis of the qualifications presented and an interview, if the judging commission deems it appropriate. To be admitted to the interview, candidates must have a suitable identity document.

The commission has a total of 100 points, of which up to a maximum of 60 points for qualifications and the remaining 40 points for any interview, where necessary. The evaluation of qualifications, after identifying the general criteria, is carried out before any interview.

The scientific qualifications and research activity of each candidate will be assigned a score as follows:

1. "curriculum vitae et studiorum" and qualifications suitable to demonstrate the professional qualification of the candidate, carried out in public and/or private bodies, Italian and foreign, as well as its relevance to the research profile covered by this announcement: up to a maximum of **20 points**.

2. documented research activity in the field of observational cosmology and experience in the analysis of galaxy clustering: up to a maximum of **10 points**;
3. documented experience in the analysis of real or simulated data from multi-object or slitless spectroscopic surveys, with particular reference to the topics of interest in this project: up to a maximum of **10 points**;
4. publications, evaluated on their relevance to the object of the comparative evaluation and the type of publication: up to a maximum of **10 points**.
5. Up to a maximum of **10 points** for reference letters.

The minimum score to take the interview is set at 40 points.

If the commission deems it appropriate to integrate the evaluation of qualifications with the interview, the notice of call is sent to the candidates by certified email at least 15 days before the interview. The score obtained in the evaluation of qualifications will also be reported in the letter of invitation.

At the end of the interview session, the list of candidates examined is made public with an indication of their scores.

The Commission will proceed to designate the winner, also drawing up a merit ranking, according to the decreasing order resulting from the sum of the score assigned in the evaluation of qualifications and the score reported in any in-depth interview.

The ranking and the opinions expressed by the Commission will be made public by posting on the Albo ufficiale (notice board) of the INAF-Brera Astronomical Observatory.

The documents relating to the selection procedure as well as the merit ranking will be approved by decree of the Director of the INAF-Brera Astronomical Observatory. The decree approving the documents and all other procedural documents will be published by posting on the Observatory's Albo.

The ranking may be used in the event of the winner's withdrawal: the research fellowship may be awarded to the next candidate in the ranking.

### **Art. 10 – Awarding the fellowship**

Within one month of the publication of the ranking, the Director of INAF - Brera Astronomical Observatory will notify the winner of the awarding of the fellowship, calling them to sign the contract. The winner, within 10 days of receiving notification of the award, must send a declaration of acceptance at the same time certifying that there are no impeding conditions provided for by the art. 4 of this notice.

The insurance policy against accidents at work must be taken out before starting the research activity, under penalty of forfeiture of the fellowship.



As regards the risks of civil liability towards third parties, the fellow will be covered by an insurance policy stipulated by INAF. The policy does not cover the civil liability of the fellow towards INAF.

The holder of the fellowship may withdraw from the contract by giving at least 30 days written notice. The notice period starts from the 1st or 16th day of each month. In case of failure to give notice, the Administration has the right to withhold the amount corresponding to the period of notice not given. The remaining portion of the same may be assigned to another candidate following in order of ranking, subject to a specific contractual stipulation.

The winner of the selection loses the right to the fellowship if they do not sign the contract within the deadline set in the award communication, except in duly proven cases of force majeure.

The holder of the fellowship is required to draw up periodic reports on the activity carried out, the frequency of which will be indicated in the contract. These reports must be approved by the Scientific Managers and transmitted to the Management of the INAF-Brera Astronomical Observatory. Failure to approve, appropriately motivated by the scientific managers, will result in the administration's right to terminate the contract.

The contract does not in any way constitute a subordinate employment relationship and does not give rise to rights regarding access to a role at the National Institute of Astrophysics.

### **Art. 11 – Starting date and fellowship obligations**

The starting date of the fellowship is unquestionably established by the Director of INAF - Brera Astronomical Observatory, at the time of the call to sign the contract.

The scientific manager of the procedure, with the task of supervising and coordinating the research activity of the fellowship holder, is Dr. Benjamin Rudolph Granett.

The fellowship holder has the obligation:

- a. to preliminarily sign the contract regulating the collaboration in the planned research activity and anything else contemplated therein;
- b. to begin the planned research activity on time, unless there is a justified temporary impediment to be promptly communicated to the Observatory, on the date contractually indicated;
- c. to continue the research activity regularly and without interruption for the entire period of the fellowship;
- d. to observe all the internal rules of the Observatory and the other instructions given by the Director and the Scientific Program Manager;
- e. to send to the Director of the INAF-Brera Astronomical Observatory periodic reports on the activity carried out, the frequency of which will be indicated in the contract, approved by the Scientific

Manager.

- f. to keep confidential information secret;
- g. to keep the Institution informed of changes in its contact details for a period of three years following the conclusion of this research fellowship;

The fellowship holder who, after having started carrying out the planned research activity, does not continue it regularly or interrupts it without justified reason, for the entire duration of the fellowship, or who is responsible for serious and repeated shortcomings, or who finally, upon the opinion of the Project Manager, demonstrating a clear insufficient aptitude for the planned research, the contract may be terminated with consequent interdiction from further use of the fellowship with a reasoned document from the Director.

The interested party will be notified of any initiation of the internal procedure aimed at deciding to terminate the contract, and will have the right to submit any counterarguments in this regard with a written statement addressed to the Director of the Observatory.

Of the conclusion of the same procedure, both in the case of simple reporting, without further consequences, and in the case of an actual decision to terminate the contract, reasoned communication will also be given to the interested party.

Temporary suspensions in the use of the research fellowship may be justified only if the holder needs to be absent due to pregnancy and postpartum conditions, illness lasting more than a month, or for another serious reason. The conditions of suspension of the fellowship must be duly proven and documented, and promptly communicated to the Observatory.

However, the Observatory reserves the right to adopt, at any time, any form of assessment deemed appropriate and adequate aimed at defining the status of the research in progress by the recipient of the research fellowship.

### **Art. 12 – Responsible for the selection procedure**

Pursuant to art. 8 paragraph 3 of the "Regulations for the awarding of fellowships for the carrying out of INAF's research activity", approved in the meeting of the Board of Directors. of 22 June 2011, the person responsible for the competition proceedings referred to in this announcement is Mr. Luca Pio Ciarfaglia.

### **Art. 13 – Advertising**

The full publicity of this announcement is made via computer network with transmission to the astronomical and astrophysics observatories and to scientific institutions in the sector in general, publication on the websites of INAF ([www.inaf.it](http://www.inaf.it)) and the Brera Astronomical Observatory ([www.brera.inaf.it](http://www.brera.inaf.it)), as well as on the websites of the Ministry and the European Union according to the methods

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I.N.A.F. – Istituto Nazionale di Astrofisica

Sede Legale – Viale del Parco Mellini, 84 - 00136 ROMA – Codice Fiscale 97220210583 P.IVA 06895721006

**Osservatorio Astronomico di Brera**

Via Brera, 28 – 20121 MILANO – Telefono +39 02 72320300

Via E. Bianchi, 46 – 23807 MERATE – Telefono +39 02 72320500

mail istituzionale: [inafoamilano@pcert.postecert.it](mailto:inafoamilano@pcert.postecert.it) - sito web: <http://www.brera.inaf.it/?page=home>

indicated by the MUR.

### **Art. 14 – Referral rules**

As applicable to the procedure for awarding research fellowships, the Observatory ensures compliance with current regulations regarding equal opportunities between men and women and the protection of confidentiality in the processing of personal data.

For anything not covered by this announcement, the Observatory will comply, where applicable by analogy, with the current legal regulations regarding public competitions.

Merate, October 20, 2023

IL DIRETTORE  
Dr. Roberto Della Ceca

## ANNEX 1: APPLICATION FORM

(TO BE SIGNED AND SCANNED INTO A PDF FILE TO BE SENT BY E-MAIL).

*All'Ufficio Concorsi*  
*dell'INAF-Osservatorio Astronomico di Brera*  
Via Brera, 28  
20121 Milano

I, the undersigned (Forename(s))....., (Surname)....., Place of birth (Town/State)....., Date of birth (dd/mm/yy) ....., Permanent residence address (number/street/town/postal code/Country)....., asks to be admitted to the selection procedure for an "Assegno di Ricerca" (research fellowship) titled: "**Assegno di ricerca: CosmoSys (ref. Granett)**".

I, the undersigned, declare under my own responsibility:

- a) to have ..... Nationality;
- b) to have political and civil rights;
- c) to have fulfilled the obligations of military service, or to be exempted (if not, please specify: .....);
- d) not to have or have had any pending process for any reason with the justice (alternatively, please declare all of them .....);
- e) to own the following degree: ....., obtained: .....
- f) to have obtained the following fellowships (please include the period, duration and Institution): .....
- g) to have the following contract ongoing (please include the period, duration and Institution): .....
- h) the candidate with a diagnosis of specific learning disorders must make an explicit request for the dispensation measure, the compensatory instrument and / or the additional time necessary according to their own need which must be appropriately documented and made explicit with a specific declaration made by the medical commission. legal entity of the reference ASL or equivalent public structure.

I, the undersigned, am attaching to this form:

- 1) Curriculum vitae, signed and dated, detailing past experience and fellowships;

- 2) statement of research interests (~1 page);
- 3) list of publications;
- 4) any other work or publication useful for the application, including copy of the master thesis and/or of the Ph.D. thesis or equivalent degrees awarded by foreign institutions;
- 5) for foreign citizens, copy of the Master Degree certificate, or equivalent title, with the record of the exams;
- 6) list of the qualifications and of any document attached to the application, mentioning the number of publications attached;
- 7) declaration according to the form Allegato 2;
- 8) a copy of a valid document of the applicant (ID or passport).

I, the undersigned, declare my consensus for my personal data to be treated respecting the Italian Law 196/2003 and subsequent modifications and integrations, in order to fulfill the procedures necessary for the present call.

I, the undersigned, ask to receive all the communications concerning the present call to the following address (please include the full address, including an e-mail address):

.....

Place and Date

Signature

-----  
*(Luogo e Data)*

-----  
*(Firma, da non autenticare)*

## ANNEX 2: DECLARATION

I, the undersigned (Forename(s))..... (Surname)....., Place of birth (Town/State)....., Date of birth (dd/mm/yy) ....., Permanent residence address (number/street/town/postal code/Country)....., as candidate for a selection procedure for an "Assegno di Ricerca" (research fellowship) titled: "**Assegno di ricerca: CosmoSys (ref. Granett)**" at INAF-Osservatorio Astronomico di Brera, aware that false declarations are punishable by law,

DECLARE UNDER MY OWN RESPONSIBILITY THAT

1. the attached copy of the Thesis or any other publication and qualification/certificate attached to this application conform with the original version;
2. the Master's degree in ..... was awarded by ..... the (date) ..... with the final mark/score .....
3. I possess the following qualifications (please include the period, duration and Institution):
  - a. Ph.D. degree: .....
  - b. certificate of school or courses attendance: .....
  - c. fellowships: .....
  - d. research contracts for public or private companies: .....
  - e. anything else: .....

Date

Signature

The declaration must be sent together with a copy of a valid document of the applicant (ID or passport)