

**Allegato B – Determina numero 152/2021
Bando 2021-09-AR**

Subject: Selection procedure by qualifications and possible interview for the assignment of one research grant entitled: “Application of Machine Learning methods to the analysis of astronomical data from Galactic Plane surveys” based on projects “HORIZON2020: NEANIAS - Grant Agreement n. 863448” and “H2020 ERC Synergy ECOGAL – Grant Agreement n. 855130”.

**NATIONAL INSTITUTE FOR ASTROPHYSICS
INSTITUTE FOR SPACE ASTROPHYSICS AND PLANETOLOGY**

The Director

- **In accordance with** the Statute of the Istituto Nazionale di Astrofisica (INAF), adopted by INAF Board on March 7th, 2011, and entered into force on May 1st, 2011 and subsequent modifications and integrations;
- **In accordance with** INAF organization and functioning Regulation, approved with resolution n. 44/2012 by INAF Administrative Board on 21 June 2012 and become active on 21 July 2012, and subsequent modifications and integrations;
- **In accordance with** INAF Personnel Regulation, approved with resolution n. 23/2015 by INAF Administrative Board on 11 May 2015, published on G.U.R.I. “Serie Generale” n. 253 on 30 October 2015, and adopted on 1 November 2015;
- **In accordance with** Italian Law n. 240, of 30 December 2010, Article 22 on the awarding of research fellowships, and subsequent modifications and integrations;
- **In accordance with** the INAF Regulations for the awarding of research fellowship approved by INAF Administrative Board on 22 June 2011 and adopted on 1 July 2011, and subsequent modifications and integrations;
- **In accordance with** the resolution n. 79 of INAF Administrative Board dated 19 July 2016 (report n. 09/16) appointing Dr. Fabrizio Capaccioni as Director of IAPS for three years starting from 01 August 2016 and the following Decree of INAF President, n. 41 dated 28 July 2016, appointing Dr. Fabrizio Capaccioni as Director of IAPS;
- **In accordance with** Italian Law n. 11, of 27 February 2015, Article 6, which extends the overall duration of research grants “assegni di ricerca”;
- **In accordance with** the note of INAF Scientific Directorate prot. n. 673/2018;
- **In accordance with** the guidelines for the awarding of research fellowship approved by INAF Administrative Board on 23 March 2018;
- **In accordance with** the guidelines regarding the recruitment of temporary personnel, approved by INAF Board on 29 January 2019;
- **In accordance with** Italian Law n. 196 of 30 June 2003 and subsequent modifications and integrations, containing the “Personal Data Protection Code”;
- **In accordance with** the Presidential Decree n. 68 of 11 February 2005, containing the “Regulation for the use of certified electronic mail, under Article 27 of Italian Law n.3 of 16 January 2003”;
- **In accordance with** Italian Law n. 82 of 7 March 2005 and subsequent modifications and integrations, containing the “Digital Administration Code”;
- **In accordance with** Italian Law n. 183 of 12 November 2011 and in particular Article 15 concerning replacement declarations and certificates;

- **In accordance with** the Note of INAF Administrative Directorate prot. 82/DA dated 8 March 2002, containing clarifications on the awarding of research grants and fellowships by INAF Astronomical Observatories and subsequent modifications and integrations;
- **In accordance with** the Note of the Director of INAF Department of Research Structures prot. n. 472/07/AC/PI of 23 January 2007 containing indications about the publication of selection calls on INAF website;
- **In accordance with** MIUR Decree n. 102 of 9 March 2011, establishing the minimum grant for research fellowships;
- **In accordance with** INAF Regulations for the awarding of research fellowships approved by INAF Administrative Board with resolution n. 44/2011 on 22 June 2011 and adopted on 1 July 2011, after subsequent modifications by INAF Administrative Board resolutions n. 8/2011 of 13 October 2011 and n. 2/2012 of 10 January 2012;
- **In accordance with** Italian Conversion Law n. 11 of 27 February 2015 and subsequent modifications of Italian Law n. 192 of 31 December 2014 containing: “Extension of the time limits established by legal provisions” and in particular art. 6 comma 2-bis stating that “The total duration of the working relationship established in accordance with art. 22, comma 3, of Italian Law n. 240 of 30 December 2010, is extended by two years”;
- **In accordance with** the Note of the Director of INAF Department of Research Structures prot. n.5974/2011 of 16 September 2011 having as its object “Publication of call for application for Research Fellowships”;
- **In accordance with** INAF Statute, approved by the Administrative Board with resolution n. 42 of 25 May 2018, and entered into force on 24 September 2018;
- **In accordance with** the “Guidelines for the awarding of research fellowships” approved by INAF Board on 29 January 2019;
- **In accordance with** the Guidelines for the awarding of Research Fellowships, approved by the INAF Board on 29 January 2019, according to which INAF can award research fellowships, in line with art. 22 comma 1 of the Italian Law n. 240 of 30 December 2010, based on the following types:
 - Research Training Fellowship ranging from 20.000 to 26.000 Euros;
 - Postdoctoral Research Fellowship ranging from 28.000 to 32.000 Euros;
 - Young Researcher Fellowship ranging from 34.000 to 38.000 Euros;
 - Special Research Fellowship ranging from 20.000 to 38.000 Euros;
- **In accordance with** the resolution of INAF Board n. 83/2018 dated 18 September 2018 regarding the “Approval of the “Report” by INAF President specifying a “National Program for Research Fellowships” and in particular the paragraph entitled “Proposals for the revision of the defining criteria of the research fellowship program”;
- **In accordance with** the Note prot. 6023, Tit. III – cl. 3, by INAF Scientific Director having as its object “Urgent call for the consideration of the contents and dispositions of the resolution n. 83/2018 concerning the awarding of research fellowships”;
- **In accordance with** the Decree of the Minister of Education, University and Research of 30 December 2019, number 1201:
 - Professor Nicolò D’AMICO has been appointed President of the "National Institute of Astrophysics", starting from 30 December 2019 and for a period of four years;
 - Professor Stefano BORGANI and Ms Maria Cristina DE SANCTIS were appointed members of the Board of Directors for the same period;
- **In accordance with** the Decree of the Minister of Education, University and Research dated January 31, 2020, number 32, Engineer Stefano GIOVANNINI and Dr. Grazia Maria Gloria UMANA were appointed as Members of the Board of Directors starting from January 31, 2020 and for the duration

of four years; in the meeting of February 3, 2020, the Board of Directors took office in its full composition;

- **Given the Resolution** of February 3, 2020, number 6;
- **Given** the individual fixed-term employment contract under private law of March 9, 2020, repertory number 1, with which, in compliance with the provisions of the Board of Directors with Resolution of February 3, 2020, number 6, it was again conferred to the Doctor Gaetano TELESIO the position of Director General of the "National Institute of Astrophysics" for a duration coinciding with that of the President's mandate, except in cases of early termination of the same expressly provided for by the current legislative and statutory provisions;
- **Considering** therefore, that the position of Director General of the "National Institute of Astrophysics" conferred on Doctor Gaetano TELESIO will expire on 30 December 2023;
- **Given** the individual fixed-term employment contract under private law of 18 March 2020, repertory number 2, with which, in compliance with the provisions of the Board of Directors with Resolution of 3 February 2020, number 6, it was again conferred to the Doctor Filippo Maria ZERBI the position of Scientific Director of the "National Institute of Astrophysics" for a duration coinciding with that of the mandate of the President, except in cases of early termination of the same expressly provided for by the current legislative and statutory provisions;
- **Considering** therefore, that the position of Scientific Director of the "National Institute of Astrophysics" conferred on Doctor Filippo Maria ZERBI will expire on 30 December 2023;
- **Given** the Resolution of the Board of Directors of 5 June 2020, number 54, with which the "Rules for the rationalization of the procedures for the recruitment of personnel with fixed-term employment relationships and for the award of checks for the performance of research activity";
- **Given** the Resolution of 27 September 2019, number 322, with which the Director General of the National Institute of Astrophysics, Dr. Gaetano TELESIO, has appointed Dr. Fabrizio Capaccioni as Director of the "Institute of Astrophysics and Space Planetology" for the duration of three years starting from 1 October 2019;
- **Considering** also that, on 14 September 2020, Professor Nicolò D'AMICO ceased, for natural reasons, from the office of President of the "National Institute of Astrophysics", which had been conferred on him by Decree of the Minister of Education, University and Research of 30 December 2019, number 1201, as mentioned above;
- **Given** the Decree of the Minister of University and Research of 9 October 2020, number 772, with which Doctor Marco TAVANI was appointed President of the "National Institute of Astrophysics", starting from 9 October 2020 and "... for the remaining duration of the mandate conferred on Professor Nicolò D'AMICO with Ministerial Decree of 30 December 2019, number 1201... ", or until 30 December 2023;
- **Given** the Resolution of October 29, 2020, number 81, by which the Board of Directors has:
 - confirmed the "... positions of Director General and Scientific Director of the" National Institute of Astrophysics ", respectively conferred to Doctors Gaetano TELESIO and Filippo Maria Zerbi with the Resolution of February 6, 2020, number 6, and with the individual employment contracts to fixed-term contract under private law of March 9, 2020, repertory number 1, and March 18, 2020, repertory number 2, until their natural expiry, or until December 30, 2023 ... ";
 - provided that "... all the provisions contained both in the Resolution and in the individual employment contracts referred to in the introduction and in the previous article 1 remain valid, with specific regard to the legal status, the remuneration and the discipline of the employment relationship ...";
- **In accordance with** the resolution of INAF Administrative Board n. 103/2020 dated 30 December 2020 regarding the approval of the Annual Budget of INAF for the financial year 2021;
- **In accordance with** the resolution of INAF Board dated 15 May 2020 and the implementation note of INAF Directorate General prot. n. 2491 dated 16 May 2020 regarding the "Adoption of the regulation for the rationalization of temporary personnel recruitment and for the awarding of research

fellowships and regulation of the transitional regime” specifying that the present selection procedure is simultaneously aimed at:

- *offering an opportunity of professional growth to young people with a Ph.D. degree, to researcher fellows and to temporary workers, who want to experience the national and international circuit of research, in a perspective of rotation and mobility, that is acquire specific expertise in the context of temporary projects and/or activities;*
- *holding positions beyond the planning of permanent staff needs and that, consequently, do not constitute any binding assumption for the placing in INAF permanent positions”;*
- **In accordance with** the resolution of INAF Board dated 5 June 2020, no. 54, which approved the "Regulation for the rationalization of temporary personnel recruitment and for the awarding of research fellowships”;
- **In accordance with** the request by dr. Eugenio Schisano, supervisor of the project “H2020 NEANIAS” and dr. Sergio Molinari, supervisor of the project “H2020 ECOGAL”;
- **Ascertained the financial** coverage with the funds of the projects “Horizon2020: NEANIAS – Grant Agreement n. 863448” allocated in balance F.O. 1.05.02.10.47, and “H2020 ERC Synergy ECOGAL – Grant Agreement n. 855130”, allocated in balance F.O. 1.05.02.10.53,

DECREES

Art. 1- Research Project

A call is open for a selection procedure on the basis of candidates’ qualifications, possibly integrated by an interview, for the assignment of one “Post-Doc” research grant of the duration of 1 year, with extension for a further year, entitled: “Application of Machine Learning methods to the analysis of astronomical data from Galactic Plane surveys”.

Research will be carried at INAF-Institute for Space Astrophysics and Planetology. The successful candidate will work in collaboration with staff of the projects “H2020 NEANIAS” and “H2020 ECOGAL”.

The planned activities are:

- identification, implementation and application of machine and deep learning techniques suitable for the statistical analysis of big datasets, catalogues and images, extracted from the main multi-wavelength surveys of the Galactic Plane;
- deployment of services derived from astronomical data analysis techniques on European Open Science Cloud (EOSC) platform.

The Research Grant, aimed at the specified project, is not thought to satisfy the personnel needs of the Institute or of the project itself, but offers the opportunity of carrying out research activities in the framework of the project to candidates who believe that it can be important for their professional growth.

Candidates presenting academic qualifications achieved abroad not yet declared equivalent in compliance with the existing Italian legislation, will be evaluated by the committee. The committee can admit them to the selection subject to further acknowledgement of the foreign qualification, provided that candidates attach to their application a copy of the documents proving the application for the recognition of the presented qualification (Annex 4).

It is specified that the present selection procedure is simultaneously aimed at:

- *offering an opportunity of professional growth to young people who hold the requirements for the present selection, who want to experience the national and international circuit of research, in a perspective of rotation and mobility, that is acquire specific expertise in the context of temporary projects and/or activities;*
- *holding positions beyond the planning of permanent staff needs and that, consequently, do not constitute any binding assumption for the placing in INAF permanent.*

Art. 2 – Requirements for participation

Participation to the selection is reserved to Italian and foreign citizens holding the following minimum requirements:

- Ph.D. degree either in Physics, or Astronomy, or Informatic, or Engineer, or equivalent degree, issued by an Italian (or foreign) Advanced Studies Institute or University, or
- Master degree either in Physics, or Astronomy, or Informatic, or Engineer, or equivalent degree issued according to the previous or actual Italian University regulations which would formally entitle to the admission to a doctorate awarded by an Italian university or by a foreign university, together with at least three years of documented experience in scientific or technological activities after the degree.

Applicants are required to possess academic or work experience in the activities field of the present announcement.

As additional assets will be considered:

- knowledge of Python programming language and its libraries;
- experience with software libraries Keras and TensorFlow;
- experience with statistical analysis of big data;
- experience with image analysis techniques applied to astronomical data;
- knowledge of physical processes connected to star formation in the Milky Way.

A good knowledge of English is required.

Art. 3 – Application

1 - Applications must be submitted in English by means of:

- for Italian citizens from certified e-mail, including all the required documents in PDF format, sent to areaconcorsi.iaps@legalmail.it, you can send the documentations to the indicated address only if you have a personal certified mail (pec), pay attention not ordinary mail, by **May 10, 2021 – 23:59 CET**. Only certified emails sent through one of the email providers included in the list of the AgID (Agenzia dell'Italia Digitale) in according to DPR no. 68 of 11/02/2005.
- for Italian citizens who do not have a certified e-mail (PEC) and for foreign citizens registered mail with acknowledgement receipt or express courier to INAF-Istituto di Astrofisica e Planetologia Spaziali – Via Fosso del Cavaliere 100, 00133 Roma. The applications need to arrive by **May 10, 2021 – 23:59 CET** (postmark date will not suffice).

Applications are to be received by and not after **23:59 (CET)** on **May 10, 2021**. Late submissions will not be considered.

Applications which are not consistent with the attached forms (Annexes 1 and 2) or without the applicant's signatures or not submitted in the manner provided for in the call will be excluded from the selection procedure.

The applications must be delivered reporting on the envelope or in the e-mail subject the following sentence: “**Application selection 2021-09-AR**” – IAPS – Istituto di Astrofisica e Planetologia Spaziali – AREA CONCORSI.

Aware that false declarations are against the law and that the Administration will carry out random checks on their accuracy, the applicant under his/her own responsibility, must clearly and precisely state in the application the following:

- name(s) and surname, date and place of birth, nationality, place of residence and address for correspondence;
- that s/he satisfies all the requirements described in article 2 of this Call;
- that s/he is aware of and is not ineligible under any of the restrictions described in article 4 of this Call.

The lack of any of the above mentioned declarations will determine the exclusion from the selection procedure for incomplete application.

For selection purposes the applicants shall directly state any academic qualifications in the application form (Annex 1).

In addition, non-EU citizens residing outside Italy, if successful, must produce originals or suitably certified copies of academic qualifications obtained outside Italy.

2 - The following documents have to be submitted:

1. Annex 1 “Application form”;
2. Annex 2 “Certification - Declaration in lieu of affidavit (Art. 19 - 46-47 the DPR 28th December 2000, n. 445)”;
3. “Curriculum vitae”, **signed and dated** by the applicant including a list, if applicable, of grants and fellowships held in the past or in progress;
4. copy of a valid identity document (ID card or passport);
5. list of publications;
6. any other qualification, working task, research activity for public and private institutions and publications consistent with the application;
7. The list of all submitted documents;
8. Annex 3 “Interview Request In Video Conference”. For applicants residing abroad: you can make the possible interview remotely by means of a conference call audio and video (e.g. Skype or similar); The candidate who chooses this option must indicate this in the application and make an explicit request by filling out the appropriate form (request for interview Videoconference) and attach it to the application form, together with the front/back copy of a readable valid identity document;
9. Annex 4 (only for the candidates presenting academic qualifications achieved abroad not yet declared equivalent in compliance with the existing Italian legislation, will be evaluated by the committee. The committee can admit them to the selection subject to further acknowledgement of the foreign qualification, provided that candidates attach to their application a copy of the documents proving the application for the recognition of the presented qualification).

3 - Applicants are admitted to the selection with reserve and may – at any time – be notified of exclusion from the selection procedure for the following reasons:

- submission of the application after the deadline;
- incomplete and/or unsigned application form;
- unsigned curriculum vitae;
- missing copy of a valid identity document;
- non compliance the requirements indicated in paragraph 2.

Should the reasons for exclusion be determined after completion of the selection procedure the applicant will lose any right deriving from participation in the selection procedure; similar loss will be applied to applicants providing any false statement or document.

INAF accepts no responsibility for lost applications or documents when the applicant provided incorrect contact details or failed or delayed in notifying any changes to these details.

Art. 4 - Ineligibility and incompatibility with other funding

Full professors, associate professors and researchers of Italian Universities and employees of Italian public research institutions are all excluded from entering the competition.

The grant is not compatible with the attendance of academic courses as those that formally give access to a doctorate, as well as with Ph.D. fellowships. For employees of the Italian Public Administration (Italian State) unpaid leave of absence is mandatory.

The grant is not compatible with other kinds of fellowships, except for those awarded with the aim of integrating the training or research activity of the fellowship holder with a period spent abroad.

Incomes from working activities, also part-time, carried out continuously are not allowed. On the contrary, limited self-employed occasional work is compatible with the grant, only if it does not affect the research activity and must be authorized in advance by the Director of INAF- Istituto di Astrofisica e Planetologia Spaziali (IAPS).

Retired persons are not eligible for Research fellowship.

Applications are not accepted from candidates who carried out research fellowships under article 22 of Italian Law 240/2010 and integrative for a total period indicated in the current law, including extensions, but excluding the concurrent periods of doctoral studies up to the legal duration of the course and excluding periods of maternity leave or sick leave, in accordance with current legislation. When formally accepting the grant, the successful candidate will provide a declaration of absence of inadmissible conditions.

Art. 5 – Duration of the Research grant

The grant will presumably start on June 2021.

Its duration is for 1 year, with possible extension for further years, depending on the positive evaluation of the scientific leader of the project and on funding availability, and in any case within the limits of Article 22 paragraph 3 of Law 240/2010 and subsequent amendments.

Art. 6 – Host Institution

The host institution of the grant is INAF-Institute for Space Astrophysics and Planetology. The successful candidate will have to travel on duty abroad.

Art. 7 – Salary amount

The annual gross salary of the grant is 32,000.00 (thirty-two thousand) Euros to be paid in deferred monthly payments. This amount does not include the burdens paid by INAF-Institute for Space Astrophysics and Planetology.

Applicable tax regulations are stated art. n. 4 of Italian law n. 476/1984 and subsequent modifications and integrations. Applicable social security rules are stated in art. n. 2, paragraph 26 and following paragraphs of the Italian law n. 335/1995 and subsequent modifications and integrations. Applicable regulations for mandatory maternity leave are provided in the Decree of the Ministry of Labour and Social Security dated 12 July 2007, published in the “Gazzetta Ufficiale” n. 247 dated 23 October 2007. Applicable regulations for sick leave are provided in art. n. 1, paragraph n. 788 of Italian law n. 296 dated 27 December 2006 and subsequent modifications. During the period of mandatory maternity leave the allowance paid by INPS (the Italian National Institute for Social Security) according to art. n. 5 of the above-mentioned Decree dated 12 July 2007 is integrated by INAF up to the total amount of the grant. The period of mandatory maternity leave will not contribute to the duration of the grant.

As for third party liability, the grand holder will be covered by insurance policy at the expense of INAF. This will not cover the civil liability of the grant holder towards INAF.

The grant holder shall provide for an insurance policy against work related injuries. The cost of the insurance policy will be reimbursed by the European project Horizon2020: NEANIAS and H2020 ECOGAL.

Art. 8 – Selection Board and selection procedure

The selection of eligible candidates will be carried out by a Selection Board appointed by the Director of INAF-IAPS. The Selection Board is composed of 3 members, from both Italian and foreign research staff, including also University staff, with expertise in the research field of the position. According to the current regulation, the composition of the Selection Board should comply with gender balance. The president of the Selection Board is nominated in the appointment decree and is chosen among the Board members. The Selection Board Secretary is also appointed in the above-mentioned decree.

The selection is based on qualifications, possibly integrated with an interview. candidates must exhibit their identity documents in order to be admitted to the interview.

The Selection Committee can establish a short list of the eligible applicants to be interviewed, on the basis of qualifications and documented experience in scientific or technological activities concerning the specific subject of the research fellowship. All the activities of the selection procedure (e.g. meetings of the Selection Board, interviews...) can be carried out by using videoconference systems.

Applicants selected for the interview will be formally notified 15 days in advance by e-mail with acknowledgement of receipt, containing the individual evaluation score.

The selected candidates who miss the interview will be excluded from the competition.

If the measures for the containment and management of the COVID-19 epidemiological emergency persist, all the meetings of the Selection Board and the qualification-based selection can be carried out electronically, for all or some of the Board members, in compliance with the principles set by article 247, paragraph 7, of Italian Law 34/2020, and in case of interview, this can be carried out through conference call, for all or some of the Board members, according to the procedures set by article 247, paragraph 3, of Italian Law 34/2020.

The total ranking score is 100 points, of which 60 points is the maximum score for qualifications and 40 points is the maximum score for the interview. The minimum score in order to access the possible interview is 42/60. The candidates who obtain, in the same test, a score of at least 28/40 will pass the oral examination.

At the end of the selection process the selection board will draw up a ranked list based on the sum of the scores obtained both in the qualifications evaluation and the interview.

For candidates with the same score on the ranked list, preference will be given to the younger candidate.

The approval decree of the selection procedure and the ranked list will be published on the following website: <http://www.iaps.inaf.it/work-with-us/>

Art. 9 – Awarding of the fellowship

The highest ranked candidate will receive written notification of award of the research fellowship.

Within 7 days from receipt of the formal notification of the award he/she must provide a formal declaration of acceptance of the research grant. The declaration will also state that he/she is not subject to any of the exclusion conditions listed in article 4 of this Call.

If the candidate does not provide declaration of acceptance within a time limit of 10 days, he/she will lose his/her entitlement to the research fellowship that is automatically awarded to the next ranked candidate.

Under no circumstances the signing of the contract establishes a subordinate employment relationship or ensures any rights to access to permanent INAF staff positions.

Art. 10 – Fellowship obligations

The holder of the fellowship:

- will start the research activity at INAF-IAPS on the date indicated in the contract, unless prevented by exceptional circumstances, of which the Director of INAF-IAPS must be timely informed;
- will carry out his/her research activities under the supervision of the scientist in charge of the project, dr. Eugenio Schisano;
- is required to issue an activity report every 12 months. The activity reports will be subject to approval from the scientist in charge of the project and will be transmitted to the Director of INAF - IAPS. Approval failure, properly explained by the supervisor, will give INAF- IAPS the right to withdraw the contract;
- is required to send a written note in case of withdrawal, with at least 30 days' notice, otherwise INAF-IAPS is entitled to retain or request the reimbursement of the salary amount corresponding to the missed notice period.

The holder of the fellowship who does not carry out his/her research activity regularly without justifications, or repeatedly fails to fulfill the requirements or, according to the supervisor, dr. Eugenio Schisano, shows evident lack of skills with the planned research activities, will incur the withdrawal of the contract.

Temporary suspensions of the research fellowship are due in case of mandatory maternity leave or in case of illness periods exceeding one month or of any other serious reasons. The reasons for suspending the research fellowship must be proved and certified, and promptly sent to the Director of INAF-IAPS.

Art. 11 – Applicable regulation

The INAF-IAPS shall comply with the current regulations promoting equal opportunities for women and men, non-discrimination and respect for privacy in processing personal data.

As for the cases not mentioned in this call, INAF-IAPS shall act in compliance with the current regulations concerning Italian public selection procedures.

Art. 12 – Final disposition

Any information regarding the present call could be request by sending an e-mail to the following address: silvia.calabria@inaf.it.

The Director
Dr. Fabrizio Capaccioni

