



Decreto n. 59
Anno 2020

Selection procedure based on qualification and possible interview for the awarding of one research fellowship (“Assegno di Ricerca”), in the framework of the project “ANALISI ELETTROMAGNETICA DEL RADIO TELESCOPIO SKA1-LOW”, entitled: “Numerical analysis and development of new algorithms for the electromagnetic characterization of SKA1-LOW”, type A) “Assegno di Professionalizzazione” (in accordance with Article 22, Law 240/2010)

THE DIRECTOR OF INAF-OSSERVATORIO ASTROFISICO DI ARCETRI

- Having seen** the Statute of the Istituto Nazionale di Astrofisica (INAF), adopted by INAF Administrative Council on May 25th, 2018 and entered into force on September 24th 2018;
- in accordance with** Italian Law n. 240 dated 30 December 2010, Article 22;
- having seen** the INAF Regulations for the awarding of research fellowships approved by INAF Administrative Council on 22 June 2011, Resolution n. 06/11 and subsequent modifications and integrations;
- having seen** the guidelines for the awarding of research fellowships approved by INAF Administrative Council on January 29th 2019;
- having seen** in particular, the part which defines that research fellowships can be financed either with ordinary funding or with external funding to carry out a scientific or technological research activity falling under INAF institutional activities as mentioned in art. 2 of the Statute;
- having seen** in particular, the part which defines that research fellowships are intended as occasions of high-qualification offered to post-doctorate young researchers interested in continuing their education within INAF, carrying out scientific or technological activities;
- having seen** in particular, the part which defines that research fellowships are dedicated to the realization of specific projects and cannot be used in order to cover INAF needs in staff;
- having seen** the note of INAF Scientific Directorate prot. n. 673/2018;
- having seen** the note of INAF Scientific Directorate prot. n. 1118/III/3 issued on February 1st 2019, related to the implementation of the above mentioned guidelines



for the recruiting of no permanent staff, stating that calls and announcements are managed in autonomy by each INAF Institute;

- having seen** the recent regulatory changes issued by the Italian Government related to the current COVID-19 pandemic;
- having seen** the Resolution n. 54/2020 issued by the INAF Administrative Council on June 5th 2020 concerning the adoption of the “Guidelines for the rationalization of the procedures for recruiting fixed-term staff and the awarding of fellowships (asegni di ricerca)”;
- considering** appropriate to issue an announcement of competition for the award of a research fellowship, and that, according to the “Programma Nazionale di Assegni di Ricerca” provided by INAF– Istituto Nazionale di Astrofisica, the present announcement is issued to offer the opportunity to carry out a research activity in the project environment to candidates who deem it profitable to their own career development;
- having seen** the request prot. N. 1395/2020 submitted by Dr. Pietro Bolli on September 22nd 2020 in order to issue a call with the characteristics described in the following paragraphs;
- given** the availability of funds from Ob.Fu. 11.05.03.32.01"Fondo pluriennale SKA-CTA 2018”;

DECREES

Art. 1 – Research project

A selection based on qualifications, possibly integrated by an interview, is open to award one research fellowship (“Assegno di ricerca”) of type A) “Assegno di Professionalizzazione” in the framework of the project “ANALISI ELETTRONICA DEL RADIO TELESCOPIO SKA1-LOW”, entitled: **“Numerical analysis and development of new algorithms for the electromagnetic characterization of SKA1-LOW”**, (hereinafter referred to as “the project”).

The SKALA4.1-AL antenna, developed by INAF in collaboration with CNR and an Italian antenna manufacturer, has been selected as a baseline antenna for the SKA1-LOW radio telescope. A first demonstrator composed by 256 SKALA4.1-AL antennas has been installed in Australia for preliminary astronomical test. In parallel to this experimental activity, it is necessary to fully model the EM performance of the array by using commercial software and/or developing proprietary codes to address specific issues. Such characterization is a fundamental step for optimizing the array performance. In this perspective, the awarded fellow will investigate different strategies to exploit the numerical models to optimize the antenna performance and mitigate undesired effects. For instance, the mutual coupling among the antennas is a major concern for the SKA1-LOW community. The numerical characterization of the embedded element pattern for every angular direction and in the large bandwidth of the array with acceptable computation time requires ad-hoc



accelerated techniques that are not available in commercial tool and whose development will be part of the research fellowship.

The position is based at INAF-Osservatorio Astrofisico di Arcetri (Florence – ITALY).

The activity will be carried out under the supervision of Dr. Pietro Bolli (email: pietro.bolli@inaf.it).

Moreover, the present call aims at:

- offering an opportunity of professional growth to young people holding a PhD, a fellowship (assegno di ricerca) or a fixed-term employment relationship, interested in being engaged in the national and international research context, with a view to rotation and mobility, or recruiting specific professionalisms within fixed-term projects and/or activities;
- hence, covering positions beyond the programming of permanent staff demand, which consequently do not represent a binding requirement for recruiting tenured positions in INAF.

Art. 2 – Requirements

In order to participate in the selection, **applicants must possess, under penalty of exclusion** by the deadline for application of the present position:

- Master degree in Physics, Astronomy or Engineering, awarded by an Italian university or by a foreign university

Recent obtainment of academic qualifications (PhD), as well as other training activities, documented scientific activity, publications in scientific or technological fields inherent to the research program covered by the call and a good knowledge of software development and implementation, especially in the preferential expertise reported below, will be properly evaluated by the Selection Committee.

The following knowledge, skills and experience will be considered as preferential qualifications:

- Expertise in low frequency aperture array for radio astronomy;
- Basic knowledge of antenna theory;
- Experience in antenna modelling and commercial EM software (preferable: FEKO, CST and HFSS);
- Knowledge of programming language (preferable: Python and Matlab).

Art. 3 – Duration of the Research fellowship

The Research fellowship starting date will be agreed with the scientific supervisor and should preferably be within **December 15th 2020**. The fellowship has a duration of **one year**, renewable depending on performance and fund availability.

The starting date may be delayed if requested by the completion of administrative procedures and/or for the cases mentioned in the art. 10 of this call or due to the current COVID 19 pandemic. In accordance with the Italian Law n. 240/2010 the total duration of the fellowship cannot in any case exceed six years (excluding periods of maternity leave or sick leave, in accordance with current legislation).



Art. 4 – Application procedure

Applications must be submitted in English as closed envelope by:

- authorized carrier (ex. DHL, FedEx, UPS, etc., preferable choice for applications coming from outside Italy);
- “Raccomandata A/R” (registered mail);
- the application can be also submitted using applicant PEC account (Posta Elettronica Certificata: no ordinary e-mail) to the following PEC address: inafoarcetri@pcert.postecert.it

The PEC account must be compulsory registered to applicant’s name, on penalty of exclusion from the present call.

Applications must arrive no later than **November, 13th 2020 – 1.00 p.m. (CET)**.

Late deliveries will not be considered.

The application must be delivered reporting on the envelope or in the PEC subject **“Application for position DD n. 59/2020”**.

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

- name(s) and surname, date and place of birth, nationality, place of residence and address for correspondence;
- that she/he satisfies all the requirements described in article 2 of this Call, in particular the holding of the degrees;
- that she/he is aware of and is not ineligible under any of the restrictions described in article 5 of this Call.

For selection purposes the applicants:

- must directly state any academic qualifications in the application form (Annex 1);
- if successful, candidates with non-Italian academic qualifications (for example, applicants residing outside Italy or Italian citizens with degrees obtained outside Italy), must produce originals or suitably certified copies of these qualifications. Such documents must be **translated into English**.

Applications must include the following documents:

- Annex 1 “Application form”, **signed and dated** by the applicant;
- Annex 2, **signed and dated** by the applicant;
- copy of a valid identity document (ID card for EU-citizens or passport for non-EU citizens);
- “Curriculum vitae”, **signed and dated** by the applicant, providing evidence of possession of the requirements and the skills required to carry out the research and including a list, if applicable, of grants and fellowships held in the past and a statement of research interests;



- list of publications;
- if obtained outside Italy, copy of the Master Degree with list of individual courses and exam grades or PhD certificate (**translated into English**);
- any other qualification, working task, research activity for public and private institutions and publications that the applicant deems appropriate to submit;

Applications that are not consistent with the attached forms (Annex 1 and 2) or have not been signed by the applicant will be excluded from the selection procedure.

Applicants are admitted for selection with reservation and may – at any time – be excluded from the selection procedure for the following reasons:

- submission of the application after the deadline;
- incomplete and/or unsigned application forms;
- failure to sign the curriculum vitae;
- lack of the copy of a valid identity document;
- lack of the requirements indicated in article 2 of this Call.

Should the reasons for exclusion be ascertained after completion of the selection procedure, the applicant will lose any right deriving from participation in the selection procedure; providing any false statement or document will also be prevented from participation.

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

Art. 5 – Ineligibility and incompatibility with other funding

The grant cannot be held by full professors, associate professors or research staff in Italian universities or by employees of Italian research public institutions.

The grant cannot be held at the same time with attendance of academic courses as those that formally give access to a doctorate, as well as with attendance at PhD courses with fellowship.

The grant cannot be held simultaneously with other fellowships of whatever kind, except those awarded with the aim of integrating the training or research activity of the fellowship holder through a period spent abroad.

Aggregation of income from working activities, also part-time, carried out continuously is not accepted. Instead, limited self-employed occasional work is compatible with the grant, only if this is not prejudicial to the research activity carried out for INAF. This must be authorized in advance by the Director of INAF-Osservatorio Astrofisico di Arcetri. Retired persons are not eligible for the Research fellowship.

The candidate who does not satisfy the provision of co.9 of article 22 of Italian Law 240/2010 is excluded from the selection.

Upon formally accepting the grant, the successful applicant will issue a declaration that none of the above exclusions apply.



Art. 6 – Host Institution

The fellow will carry out the research at INAF-Osservatorio Astrofisico di Arcetri - Largo Enrico Fermi, 5 – 50125 Firenze (Italy).

Art. 7 – Salary amount

The gross annual salary will be **20,000 Euro** (twenty-thousand/00). This amount is net of burdens to be charged to INAF-Osservatorio Astrofisico di Arcetri, social charges and health coverage and will be paid in deferred monthly instalments. The fellow will be requested to have a personal accident insurance for the duration of the fellowship.

Italian fiscal and social security rules will be applied.

During the period of obligatory maternity leave the allowance will be paid by INPS (Italian National Institute for Social Security) if in the twelve months preceding the two months before the due date, three months at least of the said contribution have been attributed.

In this case the allowance is supplemented by INAF up to the total amount of the grant.

The period of obligatory maternity leave will not contribute to the duration of the grant foreseen by the contract.

Art. 8 – Selection Committee and selection procedure

The selection will be performed by a Selection Committee appointed by the Director of INAF-Osservatorio Astrofisico di Arcetri and composed of three members, with proper gender balance. The selection is based on qualifications possibly integrated by an interview.

The total ranking score is 100 points, of which:

- 70 points is the maximum score for qualifications. The evaluation criteria will be pre-determined by the Selection Committee according to the preferential requirements indicated in art. 2.
- 30 points is the maximum score for the interview.

The Selection Committee may establish a short list of the eligible applicants to be interviewed, on the basis of qualifications and documented experience in scientific activities on the specific subject of the research fellowship. Applicants selected for the interview will be summoned with 15 days of notice, containing the individual score for qualifications. The Selection Committee can decide to hold the interviews using a teleconference system.

At the end of the selection procedure the Selection Committee will draw up the ranked list.

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

Art. 9 – Awarding of the fellowship

The highest ranked candidate will receive written notification of award of the research fellowship. Within 10 days from receipt of the formal notification of the award she/he must provide a formal declaration of acceptance of the research grant. The declaration will also state that she/he is not subject to any of the exclusion conditions listed in article 5 of this Call.



If the candidate does not provide declaration of acceptance within a time limit of 10 days, she/he will surrender his/her entitlement to the research fellowship and it can be awarded to the next ranked candidate.

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

Art. 10 – Fellowship obligations

The holder of the fellowship:

- will start the research activity at the date due as for the contract at INAF-Osservatorio Astrofisico di Arcetri, unless prevented by exceptional circumstances, of which the Director of INAF-Osservatorio Astrofisico di Arcetri must be timely informed;
- will carry out her/his research activities under the supervision of Dr. Pietro Bolli, who will monitor the fellow's progress. Any renewal of the contract will be decided after the evaluation of an activity report to be periodically produced as established in the contract. 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-Osservatorio Astrofisico di Arcetri. Approval failing, duly reasoned by the scientist in charge, will give INAF-Osservatorio Astrofisico di Arcetri the right to terminate the contract;
- is required to send a written note in case of withdrawal, with at least 30 day notice, otherwise the INAF-Osservatorio Astrofisico di Arcetri is entitled to retain or request the reimbursement of the salary amount corresponding to the notice time-span she/he has failed to send.

The holder of the fellowship who does not carry out her/his research activity regularly without producing justified reasons or lacks repeatedly to fulfill requirements or, according to the evaluation of the local coordinator Dr. Pietro Bolli, eventually shows evident lack of skills at the planned research activities, will incur the termination of the contract.

Temporary suspensions of the research fellowship are due in case of obligatory maternity leave or in case of illness, lasting longer than one month or to any other serious reason. The reasons for suspending the research fellowship must be proved and certified, and promptly sent to the Director of INAF-Osservatorio Astrofisico di Arcetri.

Art. 11 – Responsible for the Procedure

The Responsible of this Call procedure is Dr. Serena Donati (email: bandi-OAA@arcetri.inaf.it).

Art. 12 – Applicable regulations

The INAF-Osservatorio Astrofisico di Arcetri shall abide by provisions in force promoting equal opportunities for women and men, non-discrimination and respect of privacy in processing personal data.

For what not explicitly mentioned in this announcement, the INAF - Osservatorio Astrofisico di Arcetri shall act in compliance with the regulations in force concerning Italian public selection procedures, when applicable by analogy.

**Art. 13 - Personal Data processing**

1. Pursuant to Article 13 of the **“Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC” (“General Data Protection Regulation”)**, the National Institute for Astrophysics, acting as data controller, hereby informs that the personal data of candidates who submit an application for participation in this selection will be processed exclusively for the purposes connected to the aforementioned procedure by persons who, under the direct authority of the controller, are authorised to process personal data.
2. The personal data shall be processed even through automated means, also in case of communication to third parties.
3. The provision of such data is necessary to verify the participation requirements and failure to indicate them may preclude such verification.
4. Pursuant to Articles 15-21 of the **“General Data Protection Regulation”** the data subject has the right, at all time, to require National Institute of Astrophysics (Viale del Parco Mellini, 84 - 00136 Rome - Italy), free of charge, the access to his/her personal data, the rectification and correction of his/her personal data, the erasure of his/her personal data, the limitation of his/her data processing and the opposition of his/her data processing.
5. The data subject can exercise his/her abovementioned rights by writing to the Data Protection Officer of the National Institute of Astrophysics under the following addresses:
 - Viale del Parco Mellini, 84 - 00136 Rome (registered letter);
 - rpd@inaf.it (Email);
 - rpd-inaf@legalmail.it (Certified mail).
6. The data subject has also the right to an effective judicial remedy, pursuant to Article 79 of the GDPR, or to lodge complaints with the Garante per la protezione dei dati personali, the Italian Controller Authority, according to the provision of Article 77 of the GDPR.

Firenze, October 14th 2020

Dr. Maria Sofia Randich



**ANNEX 1
APPLICATION FORM**

To the Director of INAF-Osservatorio Astrofisico di Arcetri

I, THE UNDERSIGNED,

(Forename(s)) (Surname).....
 Place of birth (Town/State/Country)
 Date of birth (dd/mm/yy)
 Nationality
 Gender
 Permanent residence address (number/street/town/postal code/Country:

Email address:
 I agree to the processing of my personal data, in accordance with Italian Leg. Decree n. 196/2003, for the purposes of the present selection procedure.

having read the Call for applications **D.D. n. 59/2020** for the appointment of one research fellowship entitled: **“Numerical analysis and development of new algorithms for the electromagnetic characterization of SKA1-LOW”**

REQUEST

to apply for the above mentioned fellowship, and to this end, aware that false declarations are punishable by law and that this Administration will carry out random checks on the accuracy of the declarations made by candidates,

DECLARE

under my own responsibility,

1. that I hold the following
 - Master Degree..... awarded by
 on date Title of
 thesis
2. that I hold the following educational qualifications.....

 awarded by....., Date.....;
3. that I am aware of the restrictions described in Article 5, of the Call for applications for this research fellowship;
4. that I am aware that, under art. 22 Italian Law 240/2010, the research fellowship:



- cannot be held contemporarily with attendance at academic courses as those that formally give access to a doctorate, as well as with attendance at PhD courses with fellowship;
 - cannot be held simultaneously with other fellowships of whatever kind, except those awarded with the aim of integrating the training or research activity of the fellowship holder through a period spent abroad;
 - cannot permit aggregation of income from working activities, also part-time, carried out continuously.
5. that I wish to receive any communication relating to the selection at the following address and that I will give due notice of any change of address:
Address (number/street/city/postal code/Country):

.....
.....

Email address:

PEC address:

List of the documents attached to this form:

- Annex 2, **signed and dated** by the applicant;
- copy of a valid identity document (ID card for EU – citizens or passport for non- EU – citizens);
- if obtained outside Italy, copy of the Master Degree with list of individual courses attended and exam grades (**translated into English**);
- curriculum vitae, **signed and dated** by the applicant providing evidence of possession of the requirements and the skills required to carry out the research and including a list, if applicable of grants and fellowships held in the past and a statement of research interests;
- list of publications;
- further qualifications, working tasks, research activity for public and private institutions

Date

Signature



**ANNEX 2
CURRICULUM VITAE**

I, THE UNDERSIGNED,

aware that false declarations are punishable by law and that this Administration will carry out random checks on the accuracy of the declarations made by candidates

DECLARE UNDER MY OWN RESPONSIBILITY

THAT THE CONTENT OF THE ATTACHED "CURRICULUM VITAE" IS TRUE

Date

Signature
