



D.D. n. 176/2019

Subject: *selection procedure by qualifications and possible interview for the assignment of one post master-degree fellowship of the duration of twelve months entitled: “UNVEILING DARK MATTER AND MISSING BARYONS IN THE HIGH-ENERGY SKY” at INAF-Osservatorio Astronomico di Trieste*
CUP: F82F17000240005

**NATIONAL INSTITUTE FOR ASTROPHYSICS
ASTRONOMICAL OBSERVATORY OF TRIESTE**

The Director

- In accordance with Legislative Decree n. 213 dated 31 December 2009;
- In accordance with INAF Statute entered into force on 1st May 2012;
- In accordance with INAF guidelines on organization and operation approved by Resolution n. 44/2012 of INAF Administrative Advisory Panel dated 21 June 2012 entered into force on 23 July 2012;
- In accordance with INAF note prot. n. 82/DA dated 8 March 2002 which stated that Astronomical Observatories can issue fellowship calls on funds from their own budget also if funds are allocated by other Institutions;
- In accordance with instructions of the Director of INAF Department of Research Institutes dated 7 January 2005 and 17 February 2005;
- In accordance with INAF memorandum dated 19 June 2008 prot. 4022;
- In accordance with the guidelines for non-permanent staff position recruitment approved by INAF Administrative Council on 30th January 2018;
- In accordance with the motivated request of prof. Matteo Viel associate professor at SISSA and INAF associated with appointment of collaboration without remuneration, scientific responsible for research of the ASI INAF 2019 project entitled “Attività di studio per la comunità scientifica delle alte energie e fisica astroparticellare” (Studies activity for the high energy and astroparticle physics scientific community),
to issue one fellowship call entitled ***“Unveiling dark matter and missing baryons in the high-energy sky”***, registered under prot. n. 12009 dated July, 2 2019;
- In accordance with the authorization to issue this selection for a Research Grant in derogation from the seniority limit (4 years) provided by the aforementioned Guidelines, granted on ticket264643 by INAF Administrative Council in consideration of the difficulty of finding qualified candidate for this particular profile with the constraints set by the Guidelines;



- Ascertained that financial coverage of the fellowship is granted through funds assigned to INAF-Osservatorio Astronomico di Trieste, Ob. Fu. 1.05.04.03.19 “Studies activity for the high energy and astroparticle physics scientific community, ASI-INAF implementing agreement n. 2017-14-H.0” which amounts to € 30.408 00 (thirty thousand four hundred eight/00) on chap. 1.04.02.03.001 entitled: “Borse di studio” and to €2.592,0 (two thousand five hundred sixty-two) in chap. 1.02.01.01.001 IRAP of the CRA 1.04 (INAF - Osservatorio Astronomico di Trieste);

DECREES

Art. 1 – Type of fellowship

A public call is open for a selection procedure on the basis of candidates’ qualifications, possibly integrated by an interview, for the assignment of one post master-degree fellowship of the duration of twelve months entitled “*Unveiling dark matter and missing baryons in the high-energy sky*” at INAF-Osservatorio Astronomico di Trieste.

The following activities will be carried out during the fellowship:

-) Development and implementation of numerical codes for the study of the cross-correlation in real space and in Fourier space among discrete extra-galactic objects and continuous radiation fields in the X-band;
-) validation of codes;
-) use of codes on simulated data (N-body/hydrodynamical simulations and simulated catalogues;
-) use of codes on real data (photometric and spectroscopic catalogues of galaxies, lensing maps).

Activities scope of this fellowship are aimed at developing cross-correlation codes in real space and in Fourier space for the study of dark matter and missing baryons.

Such activities will be carried out under the scientific supervision of prof. Matteo Viel, Associate at INAF-OATs.

Art. 2 – Requirements for participation

For participation to the selection described in art. 1 above, the following requirements held at the time of the submission deadline of the application are requested:

- 1) Master Degree (2nd level) in Physics or Astronomy and/or equivalent degrees awarded by foreign Universities and foreign Advanced Institutes which are deemed equivalent by the Italian authority in charge or are considered equivalent by the Selection Committee;
- 2) excellent knowledge of at least one Object Oriented programming language among C++ and Python;
- 3) fair knowledge of software systems for document processing (LaTeX, Word,...);

Preferential requirements will be considered:

- 4) knowledge of algorithms for the study of spatial correlation in real and Fourier space and their application to big data sets, both real and simulated;
- 5) basic knowledge of topics concerning the large-scale structure of the Universe;
- 6) basic knowledge of the characteristics of astronomical and/or radio astronomical data;
- 7) ability to work as part of a team.



Art.3 – Term and amount

The fellowship is for 12 (twelve) months with possible extension depending on the favourable opinion of the scientific leader of the project and on funding availability, up to a maximum length of 4 years.

Expected starting date of the fellowship is preferably January 2, 2020.

The gross amount of the fellowship is €30.408 00 (thirty thousand four hundred eight/00). This amount is net of burdens to be charged to INAF-Osservatorio Astronomico di Trieste and will be paid in deferred monthly instalments.

The fellowship cannot be held contemporarily with other fellowships or grants or allowances of the same kind.

Art. 4 – Application

Applications are to be written on unstamped paper and must be consistent with the attached application form (Attachment 1), with the addition of the date and the signature of the candidate. Applications are to be submitted either by hand delivery to the Astronomical Observatory of Trieste or sent by express courier or by registered letter with acknowledgement of receipt. Applications have to be addressed to the Director of INAF-Osservatorio Astronomico di Trieste, Via Tiepolo n. 11, 34143 Trieste, Italy. Applications are to be submitted by November 2, 2019. This deadline is peremptory. Applications sent after the deadline for submission will not be taken into account. The date of submission will be attested by the date stamp on the envelope by the dispatching post office.

On the application's envelope the following must be clearly quoted: applicant's name, family name and address, and the caption: "Fellowship -***“Unveiling dark matter and missing baryons in the high-energy sky”***".

Incomplete applications or applications sent after the deadline for submission will not be considered for the selection procedure.

According to art. N. 39 of President's Decree n. 445 dated 28 December 2000, authentication of the candidate's signature on the application is not required. Applications without the applicant's signature will be excluded from the selection procedure.

Applications showing evident inconsistency between the content and the attached documentation will be also excluded from the selection.

Exclusion of candidates will be made by reasoned order of the Director of the Astronomical Observatory of Trieste. Excluded candidates will be informed by registered letter with acknowledgment of receipt.

The Astronomical Observatory of Trieste will not be liable for possible delayed or wrongly-routed consignment of communications to applicants in case of lacking or late information of the change of the candidate's address for communications in the application.

In the application the candidate must supply the following information in clear and detailed form:

- a) surname and first name;
- b) place (town, country) and date of birth (day/month/year);
- c) fiscal code number;
- d) citizenship;
- e) declaration of the candidate's present enjoyment of civil and political rights of the State of which she/he holds citizenship;
- f) educational qualification(s), date and place of award and final marks;
- g) place of residence;
- h) fulfilment of required military service;



- i) postal address where applicants wish to receive communications relevant to the selection, and possibly phone and e-mail contacts.

In addition, in the application the candidate must declare under her/his personal liability:

- j) not to have been in the past or to be at present under any penal sentence. Otherwise the candidate should specify which are still outstanding.
- k) if the candidate held in the past or is presently holding other grants or fellowships of whatever kind from private or public institutions. In this case the duration should be specified.

The following qualifications must be attached to the application:

1. candidate's curriculum vitae et studiorum (CV), bearing date and signature of the candidate, including a list, if applicable, of grants and fellowships held in the past;
2. list of publications;
3. Any additional papers or scientific works that the candidate may consider useful to qualify his/her technical/scientific CV;
4. Non-Italian citizens should attach copy of the University degree inclusive of the list of exams and the degree's final mark, or copy of the equivalent foreign qualification;
5. a detailed summary list of qualifications and of all attached documents;
6. a personal declaration (valid as self-certification for both Italian and European Community citizens) that: the candidate holds the degree required in article 2 of the present selection procedure.

The above declaration must be written according to the attached form format (Attachment 2), and must bear the date and signature of the applicant. A photo copy of a valid identity document must be attached. In using self-certification the candidate should list the submitted qualifications with details which may enable the Observatory's Administrative Office to verify all personal declarations. Otherwise the candidate may submit either the original qualification documents or certified true copies of the qualification documents.

Art. 5 – Selection Committee

Applications will be examined by a Selection Committee appointed by the director of INAF-Osservatorio Astronomico di Trieste. Selection of candidates is based on qualifications. In the first meeting the Selection Committee will define the evaluation criteria for the qualifications. If necessary, the Selection Committee may summon selected candidates for an interview. The Committee will define in advance and register on official minutes the evaluation criteria for the interview.

Candidates selected for the interview will be summoned in good advance by registered letter with acknowledgment of receipt.

The ranking score of the Selection Committee (100 score) is divided as follows: a maximum score of 70/100 for qualifications and a maximum score of 30/100 for the interview. The Commission shall rank eligible applicants. The ranking list shall be notified through posting on the online Notice Board of INAF-Osservatorio Astronomico di Trieste. The Official records of the selection procedure shall be approved through INAF-Astronomical Observatory Directorial Decree.

Art. 6 – Notification to the successful candidate

The Director of the Astronomical Observatory will send formal notification to the successful candidate of the assignment of the fellowship, of the starting date and conditions of fruition of the fellowship.

Within the peremptory time-span of ten days after notification's receipt, the fellowship winner shall provide formal acceptance of the fellowship without reservation. In the acceptance declaration the successful candidate will explicitly declare, under his responsibility, that for the duration of the



fellowship he/she shall not benefit from any other fellowships or from contributions and similar grants, and that he/she will not get any salaries or income of any kind from public or private Institutes. The Astronomical Observatory of Trieste will not be liable both for possible wrongly-routed consignment of communications to applicants by the Observatory due to incomplete or unclear personal data and address of the applicants or to lacking or late information of change of the address in the application form, or due to possible error in postal delivery. Under no circumstances the present fellowship implies the obligation to employ the successful candidate at INAF-Astronomical Observatory of Trieste.

The fellowship does not represent subordinate employment and does not include social security benefits. The fellowship holder is bound to take out health insurance and insurance against accidents at work personally without any burdens charged to INAF- Astronomical Observatory of Trieste. The fellowship holder must send written notification of drawing up of the insurance policy, otherwise revocation of the fellowship is foreseen. The fellowship holder is also bound to issue periodical activity reports every six-months.

Art. 7 – Termination of the fellowship

The fellowship holder will be excluded from the fellowship when he/she fails to start the expected training activities.

If the fellowship holder fails to carry out his/her training duties regularly for the whole fellowship term after having started his/her training activities, or is responsible for serious duty faults or should not prove adequately fit to carry out the planned research activity, upon proposal of the scientific responsible of the project the fellow will be excluded from further fruition of the fellowship by reasoned order. The termination order will be motivated and communicated to the fellow. In case of renunciation or termination of the fellowship by the successful candidate, the grant shall be awarded to the following best candidates in the ranking list.

Art. 8 – Publicity

This announcement shall be sent electronically to the Italian Astronomical and Astrophysical Observatories and to Astrophysical Research Institutes. It will be published on the web page of the National Institute for Astronomy and Astrophysics (www.inaf.it) and of the Astronomical Observatory of Trieste (www.oats.inaf.it), and posted on the Official online Notice Board of the latter.

Art. 9 – Applicable regulation

The Astronomical Observatory shall abide by the provisions promoting equal opportunities for women and men and ruling the processing of personal data as applicable to fellowship calls.

Applicants are entitled to the rights as of article 13 of Italian Law Decree (D. Lgs) no. 196/2003, among which the right of access to their personal data, and also to some additional rights such as the right of modification, updating, completion and cancellation of erroneous, or incomplete data, as well as of data collected in terms non pursuant to the Law. Applicants have also the right to oppose to the use of their personal data for legitimate reasons.

For what not explicitly mentioned in this announcement, the Astronomical Observatory shall act in compliance with the regulations in force concerning public selection procedures.

Trieste, august 5, 2019

Il Direttore
Dott. Giovanni Vladilo



Attachment 1
Application form

To the Director of INAF-Osservatorio Astronomico di Trieste
Via G.B. Tiepolo, 11
34143 Trieste, Italy

The undersigned (Forename(s))..... (Surname).....

Place of birth (Town/State).....

Date of birth (dd/mm/yy)

Residence address (number/street/town/postal code/Country):

Fiscal code number.....

Hereby applies to participate to the selection for the appointment of one fellowship entitled:

“Unveiling dark matter and missing baryons in the high-energy sky”

Under her/his personal responsibility the undersigned declares:

- a) her/his nationality is:
- b) to enjoy civil and political rights of the State of which she/he holds citizenship;
- c) to have fulfilled required military service or to be exempt from military service or other (please specify)
- d) not to have been in the past or not to be at present under any penal sentence (if liable, please specify)
- e) to hold the following educational qualifications (University, date):
- f) research grants and/or fellowships held in the past (length and Institution)
- g) to be presently holding the following research grant or fellowship (please specify term and Institution):

The following documents are attached:

1. curriculum vitae et studiorum, bearing date and signature, in which also past research grants or fellowships are listed;
2. list of publications;
3. any work or publications which might be useful for qualifying the scientific curriculum,
4. foreign citizens are requested to attach copy of the University degree/academic qualification certificate inclusive of the list of all exams and the final score, or copy of the equivalent foreign degree certificate;
5. list of qualifications and of all submitted documents;
6. declaration according to the template of Attachment 2.

The undersigned authorizes the Administrative Office of INAF-Osservatorio Astronomico di Trieste to use and store her/his personal data only for the purpose of the present selection.

The undersigned wishes to receive communications concerning the selection at the following postal address (number/street/town/postal code/State); (if possible, please specify phone, fax and e-mail contacts):

Place and date (dd/mm/yy).....

(Applicant's signature, not to be authenticated)



Attachment 2

SELF-CERTIFICATION

The undersigned (Forename(s))..... (Surname).....

Place of birth (Town/State)

Date of birth (dd/mm/yy)

Residence address (number/street/town/postal code/Country),

As candidate to the selection for one fellowship announced by INAF-Osservatorio Astronomico di Trieste with Director's Decree 176/2019 dated August 5, 2019, aware that producing false statements and forged documents, as well as the use of forged documents shall be punished in accordance with the Criminal Code and with any other applicable special acts on this matter,

DECLARES AND SELF-CERTIFIES

1) to hold the following degree in

Date of award: (dd/mm/yy).....

Awarding University: Final mark:

2) to hold the following qualifications:

a) Fellowships and research contracts/grants at private and/or public institutions:

b) Other:.....

Place and date (dd/mm/yy)

..... (*)
(full applicant's signature)

(*) *Not authenticated*

N.B. A photocopy, not authenticated, of a valid identity document of the applicant must be attached.