



CALL FOR APPLICATIONS FOR THE AWARD OF RESEARCH FELLOWSHIPS  
Regulation on Research Fellowships pursuant to Italian Law no. 240/2010  
Politecnico di Bari, issued by Rectoral Decree no. 252 of 05/07/2016

Rectoral Decree no. 380/2020

### **Purpose**

Applications are invited for the selection running at: Inter-Department of Physics of the Politecnico di Bari, for the award of:

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: *“Artificial intelligence and big data techniques for the analysis of data collected by the CMS experiment at the LHC for the observation of the Higgs boson in vector boson fusion production mode”*, according to the annexed Activity Programme:

*“The project consists of using machine learning and big data for the analysis of the data collected by the CMS experiment at the LHC in order to derive an optimal discrimination of the signal of the production of the Higgs boson via a vector boson fusion mechanism, from the background. The final state includes two jets close to LHC beam line of the protons and a Higgs boson decaying in two Z boson and then in four charged leptons. The researcher is asked to analyse the structure of the data and use them for the training of the machine learning algorithms both for the best configuration and for the best discrimination of the signal from the background. The usage of “deep neural networks”, “artificial neural networks” e “boosted decision trees” techniques need to be explored by the researcher, by optimizing and automatizing the workflow to extract the largest number of irrelevant information. All the data collected by CMS in the last few years need to be analysed in order to derive a measurement of the cross section of the production of the Higgs boson in the topology studied”*

The call for applications for the research fellowship issued pursuant to the University Regulation issued by Rectoral Decree (D.R.) no. 252/2016.

The activities shall be carried out under the supervision of a tutor, Scientific Responsible Prof. Nicola De Filippis in a non-subordinate relationship with no set working hours.

The main place of work will be: Inter-Department of Physics of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY

### **Requirements for candidacy**

The selection is open to candidates in possession of the following qualification:

- Degree in Engineering or Physic.

Candidates must possess the admission requirements on the deadline for submission of applications laid down in this call.

The selection is not open to any persons who are related by blood or by marriage up to the fourth degree, to a professor working in the department or structure for which the call is issued, or to the Rector, Director General or a member of the Board of Governors of the University.

The selection is also not open to anyone who has held research fellowship contracts with any institution, pursuant to Italian Law no. 240/2010, for a period which, summed to the foreseen duration of this contract, exceeds a total of 6 years, excluding any period in which the

contract coincided with a PhD without scholarship, for the maximum limit of the legal duration of the PhD programme.

Furthermore the selection is not open to anyone who has had research fellowship or fixed-term researcher contracts at the Politecnico di Bari or any other state-funded, private-funded or distance-learning Italian university pursuant to articles 22 and 24 of Italian Law 240/2010, or with any other body listed in paragraph 1 of Art. 22 of Italian Law 240/2010 for a period which, summed to the foreseen duration of this contract, exceeds a total of 12 years, even if not consecutive. For the purposes of the duration of the above-described periods, in compliance with the laws in force any periods of maternity or sick leave shall not be calculated.

### **Application**

The application for selection, in a sealed envelope and bearing the title indicated in the call for proposal for the Research Fellowship, addressed to the magnificent Rector of Politecnico di Bari, via Amendola 126/b, 70126 Bari, Italy, drawn up on unmarked paper (according to the annexed model A), shall be delivered not later than **23/07/2020**.

Any applications received beyond the deadline will not be accepted.

The application may be presented:

- Shipping by e-mail PEC at: [politecnico.di.bari@legalmail.it](mailto:politecnico.di.bari@legalmail.it) not later than **23/07/2020**.

The structure shall assume no liability for the non-delivery of correspondence which is not the result of errors made by its own staff.

In the application the candidates must, under their own responsibility, indicate:

- surname and name;
- date and place of birth;
- nationality;
- residence and chosen address for correspondence for the purposes of this selection;
- that they do not have a criminal record and are not involved in any current criminal proceedings (or if so, state which);
- that they possess the qualification of..... in ....., obtained from..... on (date)..... (indicate the qualifications required as stated in article 2 of the call for applications

or

- that they possess an academic qualification obtained abroad, which is deemed equivalent.

The candidates in possession of a qualification obtained abroad must annex to their applications a translation into Italian of their foreign qualification, accompanied by a sworn statement that it is a faithful translation of the original certificate.

The foreign qualification may be declared admissible by the Evaluation Board, solely for the purposes of admission to the selection procedure.

In case of award, the winning candidates having obtained their qualification in a country outside of the European Union, must provide the Structure, in the same manner as laid down for the presentation of applications, the official translation with a declaration of value of the foreign qualification issued by the competent diplomatic representation or Italian consulate in their home country, in accordance with the applicable laws.

Candidates must enclose the following with their applications:

- Thesis;
- Their scientific and professional curriculum vitae;
- Research proposal;
- Receipt of payment of € 25,82 in favour of Politecnico di Bari, Via Amendola n. 126/b, 70126 BARI - ITALY, by bank transfer to current account number: 4172 UBI Banca Spa, via Toma 12, 70125 Bari, IBAN IT45X0311104001000000004172, BIC: BLOPIT22.
- Colour copy of ID document;
- Annex C;

Certificates of all qualifications to be assessed according to art. 3 of this call for applications. Academic and professional qualifications issued by Italian public administrations must be self-

certified or submitted in an unstamped photocopy, as provided for in art. 15 of Italian law no. 183/2011, by way of a simple declaration of certification pursuant to articles 46 and 47 of Italian Presidential Decree (DPR) 445/2000.

Candidates are admitted to the selection procedure with reserve.

At any time, even after participation in any tests, the Administration may, with justification, exclude them from the selection procedure. The concerned candidate will be notified of such exclusion.

### ***Comparative assessment of the candidates and the Evaluation Board***

The candidates will be assessed comparatively by a Commission appointed by a Rectoral Decree, and formed by three professors of Politecnico di Bari.

The selection procedure focuses on the examination of the selection criteria laid down in advance by the Commission, the candidates' scientific-professional curriculum and the scientific work and publications resulting from the documents enclosed with the application as well as an interview, aiming to verify the suitability of the candidate for carrying out the research programme.

During the interview, the Commission will also verify the candidates' knowledge of the foreign language(s) required in the announcement on relevant sectoral topics.

The oral exam may be held also by using Skype. These applicants have to prove their identity to Commission by showing the colour ID document already attached in the application. Candidates will also have to produce, together with the documentation pursuant to art. 3, Annex C duly filled.

Notice about date and location where the oral examination will be published on the online register praetorian (Albo pretorio) of the Politecnico of Bari.

To be admitted for interview, the candidates must show a valid ID document.

At the end of the selection procedure, the Board will draw up a list of candidates with relative scores, and the final ranking of the selection will be published on Politecnico's online register praetorian by a Rectoral Decree.

If two candidates receive the same scores, preference will be given to the younger candidate. The successful candidate has to send to Politecnico di Bari, within 15 days starting from the day after of final ranking publication the following documents:

- a) declaration of acceptance of the research fellowship, by filling up the form available on [www.poliba.it/Ricerca/Assegni di Ricerca](http://www.poliba.it/Ricerca/Assegni di Ricerca);
- b) photocopy of ID documents
- c) photocopy of Italian fiscal code (if available).

### ***Duration and amount of the contract***

The contract has a duration of **12** months and may be renewed and/or extended in the terms laid down in the University Regulation concerning research fellowships, as issued by D.R. no. 252/2016.

The gross amount of the research fellowship contract is € 19.364,00 (professional), per annum. The amount is exempt of withholding tax and includes all statutory social security charges the Research Fellow is subject to.

The amount will be paid in deferred monthly payments.

Non-accumulation, incompatibility, leave

1. The position of research fellow is incompatible with the following positions:

- a) fixed-term and full-time staff employed by the bodies listed in art. 22 para. 1 of Italian Law no. 240/2010;
- b) persons employed by any private bodies, on a fixed term, permanent or part-time basis; For staff of any Public Administration other than those listed in letter a) refer to the provisions of point 2 below;
- c) persons with fixed-term research contracts with any university;

d) adjunct professors with official teaching responsibilities in degree programmes or specialisation schools in any university;

e) persons enrolled in any first, second or single cycle degree programmes, PhD programmes with scholarships or specialisation school. Self-funded research contracts are compatible with enrolments in non-medical specialisation schools, for which no study grant or contract is foreseen or master's degree only where authorised in advance by the structure Director, and having sought the opinion of the tutor.

f) persons awarded research fellowships at any other body.

2. Employees of public administrations other than those listed in point a) with a fixed-term, permanent or part-time contract shall take unpaid leave of absence for the whole period of the research contract.

3. Freelance professional activities are compatible with the research fellowship contract where authorised in advance by scientific responsible and having verified that the activities in addition to the research fellowship do not prejudice the regular execution of the contract.

4. The accumulation of the research fellowship contract with study grants awarded for any purpose is not permitted, with the exception of those granted by national or foreign institutions for the purposes of integrating the research activities with study periods abroad.

5. The above requirements must be possessed from the moment of entry into force of the contract. The winning candidate shall sign a specific affidavit undertaking to notify the department of any variations in the declared situations as soon as they occur.

### ***Reference norms***

For any matters not laid down in this call for applications, refer to the "Politecnico di Bari Regulation for the awarding of grants for cooperation in research activities" by Rectoral Decree no. 252 dated 05.07.2016 and other statutory regulations in force.

The personal data provided by the candidates in their applications, pursuant to articles 7 and 13 of Italian Legislative Decree no. 196 of 30.06.03, shall be processed for the purposes of managing the selection procedure and the contract.

This call for applications will be published on the Politecnico di Bari Portal, on the MIUR website.

Date 23/016/2020

The Rector  
Prof. Francesco Cupertino