



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

D.R. n. 18/2017

Purpose

Applications are invited for the selection running at Politecnico di Bari for the award of:

- **n. 1** professional grant research fellowship, for the execution of research activities within the project entitled: “**The settlement form within Mediterranean rural landscape**”, according to the annexed Activity Programme:

“The theme deals with issues concerning the relationship between natural morphology of the earth, parts and settlement systems: the rooted to the ground architecture is taken as the principle that identifies the specific nature and identity of the place. The geomorphological, geographical and climate of the place determine “urban landscapes” and “settlement patterns” in morphological continuity with the pre-existing physical, geographical site, the topographical characteristics, the morphological structure of the territories: architectures into the ground, or at least rooted within it. The architecture of the soil turns into “absent structure”, which lasts through change: it is the subject of the project, because it is able to generate the archetypal and persistent path of a territory and of a city in transformation”.

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. Loredana Ficarelli in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of civil engineering and architecture of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4, BARI, ITALY.

- **n. 1** professional grant research fellowship, for the execution of research activities within the project entitled: “**Development of a bio-mechatronic device to enhance the stability of subjects with neuromuscular disorders**”, according to the annexed Activity Programme:

“The candidate will carry on experimental and modelling activities aimed at developing a biomechatronic device to enhance stability in walking of subjects with neuromuscular disorders. The activity will be carried on through two interdependent phases: - laboratory tests of body stability in standing and walking, to define the measurable quantities which can distinguish a physiological state from a critical condition. The strength and timing of external stabilizing actions controlled by subject with full capabilities will also be measured. - Functional design based on the specifications achieved in the first phase and modelling of the biomechatronic device and of the wearer. Design of a prototype.”

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. Giacomo Mantriota in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of mechanical engineering, mathematics and management of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4, BARI, ITALY.

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: “**Mathematical Methods for PDE (Partial Differential Equations): Models and Applications in Fluid Mechanics**”, according to the annexed Activity Programme:

“We aim to analyze by specific mathematical methods the relationships between some partial differential equations and conservation laws arising in fluid mechanics and some numerical results in related experimental studies. We intend to study the weak formulation and the well posedness of some problems in the framework of Engineering (particularly in Hydraulic Engineering). We aim to prove the existence, regularity, asymptotic stability and decay of local or global weak (eventually strong) solutions for classes of equations, which describe the interaction, the motion and the evolution of a finite number of rigid (or solid) bodies within both incompressible and compressible viscous fluids in bounded or unbounded domains of the plane R^2 or the space R^3 , jets in obstructed fluids and waves propagation.”

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. Michele Mossa in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of civil engineering, environmental, chemical, construction and territory of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY.

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: “**Smart sensors for automatic fluorescence based detection of hidden explosives**”, according to the annexed Activity Programme:

“The project is based on the use of innovative organic polymers, which are sensitive to nitroaromatic explosives compounds, and to their ability to modulate the emitted fluorescence. Using the most recent and advanced phased lock measurement techniques for synchronous detection through high performance and low-cost electronics, the acquired signals will be digitally elaborated to provide high reliability results, in terms of reduction of false positives/negatives..”

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. Filippo Attivissimo in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of electrical and information engineering of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY.

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: “**ELABORATION OF EVALUATION MODELS OF THE FINANCIAL FEASIBILITY OF SOCIAL HOUSING IN URBAN REDEVELOPMENT**”, according to the annexed Activity Programme:

“With reference to urban redevelopment investments to be implemented through the involvement of private entrepreneurs, this research aims to develop and test evaluation models that support Public Administrations to define the share of social housing, as a percentage of residential surfaces planned in the investment, able to ensure the financial feasibility of the initiative. This goal will allow to meet the financial objectives of private investors with the collective demands of urban renewal and public facilities. The research also aims to encourage the realization of sustainable social housing, through its functional integration with the ordinary housing units and public and private services. The evaluation models developed will make it possible to monitor the land-use changes and can also be applied to historical and architectural buildings. The models must be simple to use, highly flexible and applicable without significant changes in the structure and in the type of information required in various territorial contexts.”

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. Pierluigi Morano in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of civil engineering and architecture of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: ***“Theoretical/numerical modelling and experimental analysis of the electromechanical response of electroactive polymers”***, according to the annexed Activity Programme:

“The activities of the research project can be inscribed in the research activities in cooperation between the following professor of Poliba: D. De Tommasi, D. Naso, L. Lambertini and G. Percoco. Moreover these activities are in cooperation with Università degli studi di Perugia (G. Saccomandi), Universität des Saarlandes (prof. S. Seeleke) e National University of Ireland, (M. Destrade e G. Zurlo). The purpose of the research project is to study theoretically, numerically and experimentally the behaviour, up to rupture, of EAPs. From a theoretical point of view the models, proposed by the proposer of the project, will be extended to the case of non planar devices and to the study of the called creasing phenomena.”

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. Giuseppe Puglisi in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of civil engineering and architecture of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: ***“Development of mathematical model for predicting Combustion Instability phenomena in gas turbines”***, according to the annexed Activity Programme:

“The proposed research activity involves the development of techniques for modeling thermo-acoustic instability in combustion chambers of gas turbines, by means of solvers based on the Finite Element Method. Numerical analyzes will be conducted in order to evaluate the influence of operating parameters sensitive to conditions of instability, supporting field tests by comparing the experimental results to numerical results. The research program will be part of the research activities carried out in cooperation with Ansaldo Energia. The research proposal will focus on the development of non-linear models of the heat release law by means of CFD techniques for applications to land based gas turbines and aero-engines.”

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. Sergio Camporeale in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of mechanical engineering, mathematics and management of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY.

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: ***“Fabrication and characterization of an optical nanotweezer for nanoparticles trapping and detection for biomedical applications”***, according to the annexed Activity Programme:

“The research activity aims at fabricating and characterizing an optoelectronic system with the integration of a photonic-plasmonic nanotweezer in a microfluidic channel for biomedical applications to detect living matter, such as cells, bacteria, viruses and proteins”.

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. Caterina Ciminelli in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of electrical and information engineering of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY.

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: “**Methodology for design, construction, maintenance and control for optimization sustainability of building components in Mediterranean climate**”, according to the annexed Activity Programme:

“The project will study an innovative methodology for design, construction, maintenance and control of building envelope components, in order to optimize their performances, in terms of environmental and sustainability and cost saving. Such an optimization will concern four main aspects:

Energy, in terms of assessment of passive building performances in Mediterranean climate and definition of solutions to guarantee those performances on building components

Construction, taking into account prefabrication processes of building components, in order to enhance cost effectiveness and quality control during construction

Environment, by including low impact and low cost materials within the production of building components, such as recycled materials, manufacturing tailings and zero kilometers materials

Management, in terms of performance control throughout the service life by periodic assessment methodology, from check lists and structured onsite measurements to self-diagnosis of building components.”

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. Fabio Fatiguso in a non-subordinate relationship with no set working hours.

The main place of work will be: Department of civil engineering , environmental, Chemical, construction and territory of the Politecnico di Bari of the Politecnico di Bari, VIA ORABONA,4 , BARI, ITALY.

-n. 1 professional grant research fellowship, for the execution of research activities within the project entitled: “**New gaseous detector technologies for science and life**”, according to the annexed Activity Programme:

“Gas detector technologies have been largely employed in particles physics by instrumenting large area experiment for muon detection purposes. We would like to focus our research on the development of a new generation of Resistive Plate Chambers (RPC) and GEM on which the Politecnico of Bari (POLIBA) group has pursued an active research for many years in the contest of the CERN CMS experiment at the Large Hadron Collider (LHC).

We propose to push the muon detector technology toward science application in high background environment, such as the one foreseen at the future accelerator experiments, but also toward life applications for medical diagnostic investigation, muon tomography for geological volcanology studies and homeland security.

In all these activities, the collaboration with industrial partners will be an important aspect of our research.”

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. Gabriella Maria Incoronata Pugliese 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 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:

Research title	Access requirements
The settlement form within Mediterranean rural landscape	Degree in architecture Foreign language English

Development of a bio-mechatronic device to enhance the stability of subjects with neuromuscular disorders	Degree in mechanical engineering Foreign language English
Mathematical Methods within PDE (Partial Differential Equations): Models and Applications in Fluid Mechanics	Degree in mathematics Foreign language English
Smart sensors for automatic fluorescence based detection of hidden explosives	Degree in electrical engineering, computer engineering, electrical engineering, automation engineering, Telecommunication Engineering Foreign language English
Elaboration of evaluation models of the financial feasibility of social housing in urban redevelopment	Degree in civil engineering Foreign language English
Theoretical/numerical modelling and experimental analysis of the electromechanical response of electroactive polymers	Degree in engineering Foreign language English
Development of mathematical model for predicting Combustion Instability phenomena in gas turbines	Degree in engineering Foreign language English
Fabrication and characterization of an optical nanotweezer for nanoparticles trapping and detection for biomedical applications	Degree in electronic engineering Foreign language English
Methodology for design, construction, maintenance and control for optimization sustainability of building components in Mediterranean climate	Degree in construction engineering Foreign language English
New gaseous detector technologies for science and life	Degree in physics, degree in engineering Foreign language English

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), shall be delivered not later than **24/02/2017**.

Any applications received beyond the deadline will not be accepted.

The application may be presented:

- Shipping by registered mail with return receipt, not later than 24/02/2017 at: Politecnico di Bari, Via Amendola n. 126/B, 70126 Bari (Italia);

- Shipping by e-mail PEC at: didatticaericerca.poliba@legalmail.it not later than 24/02/2017.

- delivered by hand at Protocol Office of Politecnico di Bari ,Via Amendola, 126/b - 70126 Bari – not later than 24/02/2017 at the following times: Monday. – Thursday From 10.00 to 12.00, Tuesday from 15,00 to 16,30

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:

- their scientific and professional curriculum vitae;
- thesis;
- 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.

Only for candidates residing or domiciled outside the Italian territory, upon their request, 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. In that case these 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 Protocol office of Politecnico di Bari, Via Amendola n. 126/B, 70126 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;
- 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. 60/2016.

The gross amount of the research fellowship contract is € 19.367,00 (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, 24/01/2017

The Rector
Prof. EUGENIO DI SCIASCIO

