

## PUBLIC NOTICE

**INTERNATIONAL CALL FOR APPLICATIONS FOR THE SELECTION AND RECRUITMENT OF PHD CANDIDATES IN PURSUANCE OF ARTICLE 23 OF DECREE-LAW No. 57/2016, OF AUGUST 29<sup>th</sup>, WITH THE AMENDMENTS LAID DOWN BY LAW No. 57/2017, OF JULY 19<sup>th</sup>, AND COMPLEMENTARY LEGISLATION**

1. In the light of the favourable opinion of the Scientific Council of the *Faculdade de Ciências* (Science Faculty) of the *Universidade de Lisboa* (University of Lisbon), hereinafter also “the Faculty” or “FCUL”, as deliberated and approved during the procedures held on 25<sup>th</sup> July of 2018, and supported by the Rector decision, dated 7<sup>th</sup> of August 2018, notice is hereby given of the opening of an international selection procedure to recruit **15 PhD degree holders** to fill **15 PhD degree level positions**, to carry out research activities in the scientific domain of **Earth Sciences**, under the framework of an employment contract in public functions, for a fixed term period of three years, to develop projects according to the scientific areas and specific requirements listed below:

### **POSITION 2417**

Scientific Area: Meteorology

Required PhD Degree: Climatology and Climate Changes

Specific Requirements: Climatology, climate extremes and climate change; analysis of extreme precipitation events and floods and relationship with extratropical cyclones and Atmospheric Rivers (AR); Evaluation of AR in the past, present and future using global and regional climate models; numerical weather prediction to improve the forecast of AR.

### **POSITION 2418**

Scientific Area: Meteorology

Required PhD Degree: Environmental Engineering

Specific Requirements: Meteorological and climatic modelling; impacts of isolated or compound extreme weather events (droughts, heat waves and fires); interaction mechanisms between the atmosphere (pollution and extremes vs climate) and natural and human ecosystems (mortality, environmental impacts).

### **POSITION 2419**

Scientific Area: Physical Oceanography

Required PhD Degree: Geophysical Sciences and Geoinformation (Physical Oceanography)

Specific Requirements: Physical oceanography; Mid-latitudes Northeast Atlantic ocean circulation; mesoscale processes on the Iberian margin; Iberian Poleward Current; oceanic eddies; ocean modeling of the Iberian margin with the ocean model ROMS; interannual variability.

**POSITION 2420**

Scientific Area: Marine and Coastal Geology

Required PhD Degree: External Geodynamics

Specific Requirements: Coastal systems morphodynamic based in: numerical modelling (wave propagation and littoral currents), field observations (obtained in high-energy environments), remote sensing (video-monitoring and satellite imagery) and experience in programming, namely developing GIS, Matlab and python tools.

**POSITION 2421**

Scientific Area: Stratigraphy, Paleontology and Sedimentary Geology

Required PhD Degree: Analysis and evaluation of physical environment

Specific Requirements: Diatom paleoecology and micropaleontology; taxonomy and ecology of Quaternary freshwater to marine diatoms; use of diatoms in paleoenvironmental evolution studies (climate, sea-level) and in the uncoupling of natural versus anthropogenic drivers of past ecological change in sedimentary systems (estuaries, lagoons, dune-slacks, lakes).

**POSITION 2422**

Scientific Area: Ecology

Required PhD Degree: Plant Ecology

Specific Requirements: Modeling of vegetation dynamics in response to climate change. Modeling of plant-groundwater interactions based on field measurements of sap flow, stable isotopes. Impact of extreme weather (droughts and groundwater drawdown) on tree dendrochronology. Identify groundwater dependent vegetation and predict its evolution under climate change. Investigate the relationship between remotely sensed vegetation indices and groundwater level.

**POSITION 2423**

Scientific Area: Marine and Coastal Geology

Required PhD Degree: Earth Resources

Specific Requirements: Sedimentary and morphological dynamics of the Portuguese coast (integrated studies at seasonal to century time-scales); automatic characterization of morphometric parameters of sediments; development of coastal monitoring systems; geomatics applied to Geology (remote sensing, geographic information systems, image processing and analysis).

**POSITION 2424**

Scientific Area: Mineralogical Sciences, Petrology and Geochemistry

Required PhD Degree: Geology

Specific Requirements: Structural Geology and Tectonics with experience with geological mapping of deformed and metamorphosed regions and skills in geochronology, igneous petrology, metamorphic petrology and Paleozoic stratigraphy.

**POSITION 2425**

Scientific Area: Meteorology

Required PhD Degree: Physics (Meteorology)

Specific Requirements: Meteorological and climate modelling; Dynamical systems applied to different non-linear mechanisms; fast cellular automata models to assess the role of atmosphere, vegetation and topography as drivers of growth and propagation of fires; generation of scenarios and risk maps to be used operationally in fire events.

**POSITION 2426**

Scientific Area: Condensed Matter Physics and Nanotechnology

Required PhD Degree: Physics

Specific Requirements: Photovoltaic materials; development of new materials and processes to improve efficiency and reduce cost of crystalline silicon solar cells; characterization of photovoltaic materials, solar cells and modules.

**POSITION 2427**

Scientific Area: Geographical Engineering

Required PhD Degree: Physical Oceanography

Specific Requirements: Geodesy (theoretical and applied) and time-series analysis; advanced numerical methods; development of new methods to analyse large GNSS-derived data sets available at Instituto Dom Luiz (IDL), with special attention to their stochastic properties.

**POSITION 2429**

Scientific Area: Geographical Engineering

Required PhD Degree: Geophysics and Geoinformation Sciences (Geographical Engineering)

Specific Requirements: Geodesy; effects of tropospheric delays on geodetic observables; effects of water vapor on spatial geodetic measurements (InSAR); integration of precipitable water vapor maps derived from interferometry in meteorological forecast models (extreme precipitation events); development of scientific cases for future geostationary SAR.

**POSITION 2430**

Scientific Area: Marine and Coastal Geology

Required PhD Degree: Economic and Environmental Geology

Specific Requirements: Dynamics and modelling of coastal processes; sedimentological studies and reconstruction of Holocene extreme coastal flooding events; provenance and dispersion analysis of coastal sediment; modelling of sediment transport related to tsunamis and extreme storms.

**POSITION 2431**

Scientific Area: Meteorology

Required PhD Degree: Meteorology

Specific Requirements: Meteorology; atmospheric modelling of 3D flows over complex topography; coastal atmospheric boundary layer circulations and atmosphere-land-ocean interactions; regional climate modelling; climate change and seasonal forecast; development and use of statistical downscaling methods for climate change assessment; strong programming (Fortran), and scripting (e.g. Python, NCL) skills, experience with Linux (or Unix) operating systems; experience with high performance computing.

**POSITION 2432**

Scientific Area: Physical Oceanography

Required PhD Degree: Physics (Physical Oceanography)

Specific Requirements: Regional and coastal physical oceanography; computational methods in science and engineering; morphodynamic of coastal areas and lagoons; storm surges; ocean and atmospheric modeling using regional ocean models and atmospheric models (physical and biogeochemical properties).

2. Applicable legislation:

a) Decree-Law No. 57/2016, of 29<sup>th</sup> August, amended by Law No. 57/2017, of 19<sup>th</sup> July, establishing the legal framework for recruitment of personnel with a PhD degree, designed to encourage employment in the fields of science and technology, in all areas of knowledge (RJEC). It will also be taken under consideration the provisions of the Regulatory Decree No. 11-A/2017, of 29<sup>th</sup> December;

b) The *General Law of Labour in Public Functions (Lei Geral do Trabalho em Funções Públicas -LTFP)*, approved in annex to Law No. 35/2014, of 20<sup>th</sup> June, and its subsequent amendments.

3. In pursuance of article 13 of the RJEC, the Selection Panel has the following composition:

*President:*

- Professor Luís Manuel Pinto da Rocha Afonso Carriço, Full Professor of the Department of Informatics and Diretor of FCUL.

*Members:*

- Professor Pedro Manuel Alberto de Miranda, Full Professor of the Department of Geographic Engineering, Geophysics and Energy of FCUL and Director of the Dom Luiz Institute
- Professor João Manuel de Almeida Serra, Full Professor and President of the Department of Geographic Engineering, Geophysics and Energy of FCUL
- Professor Maria da Conceição Pombo de Freitas, Full Professor and President of the Department of Geology of FCUL.

4. The primary work location will be at FCUL, established at Campo Grande in Lisbon (postal code: 1749-016 Lisboa) and/or other necessary locations for the development of research activities, in accordance with the guidelines approved by the FCUL Board of Directors.

5. The gross monthly salary the positions entitle is stipulated in paragraph 1 of article 5 of the Regulatory Decree (*Decreto Regulamentar*) No. 11-A/2017, of 29<sup>th</sup> December, corresponding to level 33 of the consolidated remuneration table (*Tabela Remuneratória Única*) approved by the Government Order (*Portaria*) No. 1553-C/2008, of 31<sup>st</sup> December, respectively 2,128.34 Euros, without prejudice to the provisions provided in paragraph 3 of article 5 of the aforementioned Regulatory Decree.

6. In view of the funding scheme foreseen for contracts to be awarded under the present procedure, the selection process and funding, relative to a specific position, will be terminated if the grant holder who gave rise to these proceedings, does not pursue his or her application to the said position.

7. The contract for each position will remain in force for a period of 3 years, being automatically renewed for subsequent periods of one year, up to a maximum duration of 6 years, unless:

a) The FCUL Scientific Council may propose termination based on an unfavourable evaluation of the work carried out by the PhD candidate (under the terms of the current Faculty regulations), which must be communicated to the interested party up to 90 days prior to the final term of the initial contract or of any of its subsequent renewals;

b) By application of any of the causes for termination provided for in article 289 of the LTFP;

c) The public employer, or the employee, shall communicate in writing, up to 30 days prior to the final term of the contract or of any of its subsequent renewals, their desire not to renew it, thus ensuring the termination of the fixed-term work contract born of the present procedure.

8. Portuguese nationals, foreign and stateless persons, holding a PhD degree in the scientific area or branch of knowledge of the open positions may submit applications to this selection procedure, as may those whom, under the terms of Decree-Law No. 341/2007, of 12<sup>th</sup> October, regulated by Government Order (*Portaria*) No. 227/2017, of 25<sup>th</sup> July, have been recognized as holders of a PhD degree, with all inherent entitlements, or to whom, under the terms of Decree-Law No. 283/83, of 21<sup>st</sup> June, equivalence or recognition of the PhD degree was granted and possess a scientific and professional curriculum revealing the appropriate profile for the research activity to be developed.

8.1 Equivalence, recognition or registration of the PhD degree must be obtained by the candidate within the deadline, to proceed with the delivery of the documentation that proves that he/she meets the requirements of admission to competition, and is therefore eligible to conclude his employment contract in public functions.

9. Formal procedure for applications:

9.1 Under penalty of exclusion, applications must be submitted through the FCUL *online* competition platform, available at: <https://ciencias.ulisboa.pt/dl57>

Applications sent by e-mail or through any other means will not be accepted.

9.2. The application, under penalty of exclusion, must be accompanied by the following documents, including proof of the conditions set out in point 8 regarding eligibility for this selection procedure:

a) Application Form - Declarations, fully completed, dated and signed, in accordance with the form available in: <https://ciencias.ulisboa.pt/dl57>. The use of this form is compulsory.

b) Copy of the Certificate of Qualifications or of the Diploma related to the title of PhD degree;

c) *Curriculum vitae* (CV) of the candidate, detailed and structured according to the items in points 13 and 15 of this Notice;

d) Research project (maximum 10 A4 pages, letter Times New Roman 12, with spacing between lines of 1,5), which focuses on the scientific area and specific requirements defined for the position to which the candidate is applying, contemplating the following items:

- Synopsis
- Framework for the FCUL mission and the strategic program of an FCUL's R&D unit
- Research plan and methods (for 3 and 6 years)
- Expected results and impact
- Expected indicators (at 3 and 6 years) considering the items 15.1 to 15.4 of this Notice;

e) Copies of the publications/works that the candidate considers most representative/relevant, up to a maximum of five;

f) Other documents, of an optional nature, the applicant justifies as being relevant to the assessment of his or her application.

9.3 The documents referred to in points a) to f) of section 9.2 must be submitted electronically, through the platform on the Faculty of Science website, available at: <https://ciencias.ulisboa.pt/dl57>, until the last day of the deadline of the competition, which is set at 30 working days after publication of this Notice in the Portuguese Government Gazette (*Diário da República*), counting as of the first business day following the publication date.

This notice is also published on the Public Employment Exchange Portal (Bolsa de Emprego Público) and on the websites of the contracting institution and the Foundation for Science and Technology (FCT, I.P.) in Portuguese and English.

9.4 Applications and documentation may be submitted in Portuguese or English although, if a member of the Selection Panel does not know the Portuguese language, the President of the Selection Panel may request that, within a reasonable timeframe, the candidate translates into English a document previously submitted in Portuguese.

10. By decision of the FCUL Director, candidates who do not comply with the provisions of point 9 will not be admitted to the selection procedure, as well as candidates who do not submit in their application the documents referred in points a), b), c) and d) of section 9.2, or that present them in an illegible manner, incorrectly filled, or invalid. The Director is also empowered to require any candidate, in case of doubt and for the purposes of admission to the competition, provides documents supporting his or her statements.

11. Approval on absolute merit in each position:

11.1. The Selection Panel shall deliberate on a candidate's approval or non-approval based on absolute merit using a justified roll-call vote, where no abstentions are permitted.

11.2. Candidates will be approved on absolute merit if they obtain the favourable vote of more than half of the Selection Panel members.

11.3 Candidates will be approved on absolute merit if they have a scientific and curricular pathway relevant to the scientific area (s) and specific requirements defined for the position to which they are applying, and taking into account their adequacy based on the additional criteria identified in 15.5.

11.4 An unfavourable vote for approval on absolute merit can still be justified by failure to comply with the following circumstance: that the Scientific Project prepared by the candidate appears to be clearly insufficient and disregarding of the scientific area(s) and specific requirements defined for the position to which he or she is applying, suffering from serious inaccuracies or is not supported by the previous work of the candidate.

12. Under the terms set forth in article 5 of the RJEC, the selection will be carried out by evaluation of candidates' scientific and curricular careers.

13. Evaluation of candidates' scientific and curricular careers is based on the relevance, quality and topicality of:

- a) Research, technological and cultural or artistic production in the last five years which the candidate considers most relevant;
- b) Applied research, or practice-based work, undertaken in the last five years and which the candidate believes to have had the greatest impact;

- c) Knowledge extension and dissemination activities undertaken in the last five years, namely in the context of promotion of culture and research practice, which the candidate believes to be most relevant;
- d) Management of science, technology and innovation programmes, or experience in observing and monitoring the scientific and technological system or higher education systems, in Portugal or abroad.

14. The Selection Panel may increase the five-year period set out in the previous section, at the candidate's request, when justified by documented proof that his or her research activity was suspended for reasons related to social protection, parental leave, prolonged serious illness and other situations that may legally account for non-attendance of work.

15. The criteria for evaluation are those set out herein, with the additional criterion set out in point 15.5 and emphasis on the curriculum vitae, and the contributions considered of most relevant by the candidate:

15.1. Quality of scientific, technological, cultural or artistic production in the last 5 years which the candidate deems to be most significant, and relevant to the research project planned to be undertaken. This parameter will be given the weight of 60%, taking into account the following:

*i)* Scientific publications: a parameter which includes books, book chapters, articles in scientific journals and proceedings of international conferences authored or co-authored by the candidate, considering:

- their nature;
- their impact;
- the scientific/technological level and innovation;
- the diversity and multi-disciplinarity;
- the international collaboration;
- the importance of the candidate's contributions for the current state of the art;
- the importance of the papers/works selected by the candidate as being the most representative, as far as their contribution to the development and progress of scientific area of the position.

*ii)* Creation and strengthening of laboratory resources: a parameter that takes into account the participation and coordination of initiatives by the candidate that have resulted in the creation or reinforcement of laboratory infrastructure of an experimental and / or computational nature in support of research.

*iii)* Recognition by the international research community: a parameter which considers:

- Awards from scientific societies;
- Editorial activities in scientific journals;
- Membership of editorial boards of scientific journals;
- Coordination of and participation in programme committees of scientific events;
- Invited lectures in scientific meetings and in other institutions;
- Membership of research societies with competitive membership criteria and similar distinctions.

*iv)* Authorship and co-authorship of patents, models and industrial designs, considering their nature, territorial scope, technological level and results obtained.

*v)* Organization of and participation in research projects: a parameter which includes the candidate's coordination of and participation in research projects, subject to competitive selection procedures, considering the:

- Territorial scope and size;

- Technological level and the importance of the contributions;
- Innovation and diversity.

*vi)* Promotion of research work: a parameter which covers the candidate's demonstrated ability to organize and lead research teams;

*vii)* Mentoring and supervision of students, interns and research grantholders: a parameter which takes into account the supervision of doctoral, master degree and undergraduate students, interns and research grantholders, considering the number, quality, scientific and technological scope and impact of the resulting publications, dissertations, theses, and final coursework, and highlighting award-winning and internationally recognized research work.

15.2. Applied research work, or practice-based work, which the candidate developed in the last 5 years and considers having the greatest impact, and most relevant to the research to be undertaken; the weight of this factor will be pondered at 15%, considering the:

*i)* Vocational training and lifelong learning: a parameter which considers participation in and organization of training technological activities for citizens, businesses and the public sector, noting their nature, technological intensity and the results obtained;

*ii)* Provision of services and consultancy as part of the institutional mission: a parameter which considers participation in activities involving the business environment and the public sector, noting the type of participation, project size, diversity, technological intensity and innovation;

*iii)* Design, planning and production of scientific works: a parameter which considers the added value of relevant professional experiences for the activities of the Faculty.

15.3. Activities of knowledge extension and dissemination, developed in the last 5 years, in particular in connection with the promotion of culture and research practice, which the candidate considers to be the most significant, and relevant for the proposed research project. This factor will have a weight of 15%, considering:

*i)* Industrial and intellectual property;

*ii)* Technical legislation and standards: a parameter which considers participation in drafting legislative proposals and standards, noting their nature, territorial coverage and technological level;

*iii)* Publications for the dissemination of scientific and technological research: a parameter which considers articles in journals and at national conferences and other publications for the dissemination of science and technology research, with due note taken of its professional and social impact;

*iv)* Services rendered to the scientific community and society: a parameter which considers the participation in and organization of programmes to disseminate scientific and technological research, considering their nature and results obtained, when carried out with:

- the scientific community, namely through the organization of conferences and lectures;
- the media;
- businesses and the public sector;
- the public in general.

15.4. Contribution to management activities of science, technology and innovation programmes, or experience in the observation and monitoring of the research and technological system or the higher education system, in Portugal or abroad, which is relevant to the project planned to be undertaken. This factor has a weight of 10%, considering:



- i) Positions in bodies at the university, faculty and research unit: a parameter which considers the nature and the responsibilities of those positions;
- ii) Other positions: a parameter which considers positions held in national and international scientific organizations.

15.5. When weighing the evaluation criteria outlined in points 15.1 to 15.4, each of the Selection Panel members must consider the following additional parameters, under the following conditions: relevance and quality of the proposed research project for the position the candidate is applying for, considering the strategic aims of the FCUL program and of the research unit recruiting the position.

16. The Selection Panel, when deemed necessary, may request the candidate present additional documents supporting what is stated and relevant to the analysis and classification of his or her application.

17. Classification (scoring) of the candidates:

17.1. Each Selection Panel member shall award each candidate a score of 0 to 5 points for each evaluation criterion, and will proceed to rank candidates in accordance with their overall score which is determined by adding the scores obtained on each of the evaluation criterion, taking under consideration the weight of each parameter.

17.2. Candidates are ordered according to the method depicted in section 3 and following of Article 20 of General Rules for Recruitment of Full, Associate and Assistant Professors, of the University of Lisbon (*Regulamento Geral de Concursos da ULisboa*), published in *Diário da República* as *Despacho* N.º 2307/2015, of 5<sup>th</sup> March.

17.3. The Selection Panel will deliberate by absolute majority of votes, no abstentions are permitted.

17.4. The final position of each candidate will reflect his overall ranking according to the method stipulated in point 17.2.

18. Minutes of the meetings of the Selection Panel shall be drawn up, summarizing the proceedings, depicting the votes of each of the Selection Panel members and the grounds of such votes. These minutes will be made available to candidates upon formal request.

19. The final decision of the Selection Panel is homologated by the Rector, however the Director of FCUL is responsible for the respective contract.

20. False statements made by any candidate will be punishable according to the law.

21. The list of approved and non-approved candidates, as well as the list of the final-ranking of all the candidates for each position will be posted on FCUL's premises, at the address mentioned above, and will be notified by email subject to delivery receipt notification, without prejudice to the provisions of articles 110 to 114 of the Code of Administrative Procedure (*Código do Procedimento Administrativo*).

22. Preliminary hearing and deadline for the Final Decision: once notified, candidates have 10 working days to contest the projected decision. Within 90 days, from the deadline for submission of applications, the final decisions of the Selection Panel will be announced.

23. The present selection procedure is exclusively intended for each of the vacant positions and may be terminated until the time of the homologation of the final ranking list of candidates, and will expire as soon as each of the positions are filled.

24. Policy on non-discrimination and equal access: FCUL actively pursues a policy of non-discrimination and equal access, which means that no candidate may be given special privileges, be benefitted or suffer prejudice, in any way, or be deprived of any right, by reason of ancestry, age, sex, sexual orientation, marital or family status, financial circumstances, educational attainment level, origin or social class, genetic inheritance, reduced ability to work, handicap, chronic illness, nationality, ethnic or racial origin, land of origin, language, religion, political or ideological convictions or union membership.

25. The signature of the contracts resulting from this procedure is subject to the acceptance of the costs arising therefrom as eligible for funding by FCT and the signature of the respective addendum to the FCUL-FCT program contract.

8<sup>th</sup> August 2018 – The Director, Professor Luís Manuel Pinto da Rocha Afonso Carriço