



## SELECTION ANNOUNCEMENT No. 2020S13

**BY QUALIFICATIONS AND EXAMINATIONS TO RECRUIT NO. 1 LEVEL I RESEARCH TECHNOLOGIST ON A FULL-TIME FIXED-TERM CONTRACT FOR 36 MONTHS (FINANCIAL POSITION EP1) PURSUANT TO ART. 24BIS OF LAW NO. 240 OF 30.12.2010, AND TO THE NATIONAL COLLECTIVE BARGAINING AGREEMENT OF 19.04.2018, AT THE DEPARTMENT OF CIVIL, ENVIRONMENTAL AND ARCHITECTURAL ENGINEERING.**

By implementing Art. 24bis of Law no. 240 of 30.12.2010 and the National Collective Bargaining Agreement of 19.04.2018, the University of Padua plans to recruit Level I research technologist by qualifications and examinations on a full-time fixed-term contract, for 36 months (financial position EP1) at the Department of Civil, Environmental and Architectural Engineering, for technical support to the research activity within the international project FC-MAELSTROM (Fully Coupled – Massively Parallel Simulator for Geological Formations), carried out in cooperation with Stanford University and Lawrence Livermore National Laboratory and aimed at developing a numerical code for the simulation of coupled processes in geological structures. The main objectives of the project in the field of research and technological innovation are: 1) development and analysis of numerical methods and solvers for the simulation of coupled flow and deformation processes in fractured porous media; 2) implementation of the algorithms in prototype codes and tests on reference benchmarks; 3) implementation of a software package in the OpenSource code GEOSX, managed by Lawrence Livermore National Laboratory, and application in problems related to the simulation of production and storage of subsurface resources from fractured geological media. In the development of the numerical methods, particular care will be devoted to the design, analysis and implementation of preconditioning techniques for the acceleration of iterative solvers based on Krylov's methods used in the monolithic solution of the block linear systems arising from the discretization of coupled problems. The implemented algebraic approaches will be the starting point for the development of techniques able to address coupled problems of increasing complexity, taking into account the specific physical features of the processes of interest.

The aforementioned activities require the following **professional skills, knowledge and competences**:

- technical support to the research activity and to the overall project management, having already carried out previous experiences in similar projects
- specific competences in the field of the development and application of computer codes for numerical simulations in geological formations, with an appropriate knowledge of the main physical processes of interest in subsurface engineering, and in particular in petroleum engineering.
- On summary, the required competences are:
  - important knowledge of fluid-dynamic and subsurface reservoir models;

- significant knowledge of the numerical techniques used in the simulation of flow and deformation processes in porous media;
- significant knowledge of programming languages for scientific computing, e.g., Fortran90, C++, Matlab;
- good skills in bibliographic research;
- very good knowledge of the Italian and English language;
- good skills in the organization and management of team work activities.

### Admission requirements

Candidates must have the following requirements by the selection announcement deadline:

- academic qualifications:

a second-cycle degree (*Laurea Magistrale*) (ex DM 270/04):

class LM-23 Civil engineering, or class LM-35 Environmental engineering, or class LM-24 Construction engineering, or class LM-26 Safety engineering, or class LM-22 Chemical engineering, or class LM-27 Telecommunications engineering,, or class LM-28 Electrical engineering, or class LM-30 Energy and nuclear engineering.

or a second-cycle degree (*Laurea Specialistica*) (ex DM 509/99):

class 28/S Civil engineering, or class 38/S Environmental engineering, or class 27/S Chemical engineering, or class 30/S Telecommunications engineering, or classe 31/S Electrical engineering, or class 33/S Energy and nuclear engineering

or a degree (*Diploma di Laurea V.O.*) (prior to DM 509/99) in Ingegneria civile, o Ingegneria edile, o Ingegneria per l'ambiente e il territorio, o Ingegneria chimica, o Ingegneria delle telecomunicazioni, o Ingegneria elettrica, o Ingegneria nucleare.

A degree (*Diploma di Laurea*) (prior to DM 509/99) in Ingegneria elettrica must be recognised as the equivalent of an LM-26 or LM-28 second-cycle degree (*Laurea Magistrale*) by the awarding university.

- specific professional qualification pertinent to the research:

**the candidate must be in possession of a PhD degree.**

Candidates **holding a foreign degree** may take part in the selection only after completing a degree-equivalency process pursuant to Art. 38, paragraph 3 of Legislative Decree DL 165/2001. Candidates are conditionally admitted to the selection procedure if the equivalency process is underway, but no final decision has been reached. They must have had their degree recognised as the equivalent of an Italian degree by the time they are recruited.

**The degree-equivalency process must be started before the selection-announcement deadline, otherwise the candidate will be excluded from the selection procedure. Candidates must inform the procedure manager that they have applied for degree equivalency.**

The degree-equivalency application form is available at:

<http://www.funzionepubblica.gov.it/strumenti-e-controlli/modulistica>

- italian citizenship (Italians who are not citizens of the Republic of Italy have the same rights as Italian nationals), or citizenship of an EU Member State. Following implementation of Art. 7 of Law 97/2013, the following may also apply for the selection procedure: family of citizens from an EU Member State who do not have citizenship of an EU Member State, but do have the right of residence, or the permanent right of residence; and third-country nationals with a long-term EU permit of stay, with refugee status, or with subsidiary protection status;
- candidates with full political rights;
- candidates who are physically suitable for the position;
- candidates who have completed their military service.

**Non-Italian nationals are required to:**

- have full civil and political rights in their country of origin;
- fulfil the same requirements as Italian nationals, but do not need Italian citizenship;
- have a good knowledge of Italian.

**Application form**

The application form and appendices for this selection announcement **must be submitted online** with the Pica platform at: <https://pica.cineca.it/unipd/tipologia/pta>.

To apply online, candidates must have a valid email address so that they can register with the system. They must also provide all of the information needed to complete the application and attach the required documents in electronic form.

The system allows the application to be saved in draft form until the submission deadline. The online application procedure and submission must be completed by **2 pm on May the 19<sup>th</sup> 2020, when the selection announcement closes.**

The system will certify the date that the online application form is submitted by emailing candidates an automatic receipt. Once the submission deadline has expired, the system will shut down access and applications can no longer be sent.

If necessary, a submitted application form can be withdrawn and another one submitted **before the application deadline (2 pm on May the 19<sup>th</sup> 2020).**

Each application will be given an identification number which must be included in any correspondence, along with the selection announcement code stated in the online procedure. Candidates must complete each and every part of the application form in accordance with the online instructions. The application is to be completed as follows:

- with a digital signature using a smart card, USB token or remote signature that enables the user to sign documents with signature software. Alternatively, a web portal may be used to provide a certified remote signature. Candidates with a smart card or USB token for digital signing can check for compatibility with the server's digital-signing system. If compatible, the user may sign the application on the server;

- candidates who do not have compatible digital-signing devices and users of remote digital signatures without web portal access for signing documents will have to save a system-generated pdf file on their computer. After which, they must not edit the file and e-sign it in CADES format. A file with a p7m extension will be generated and uploaded into the system. If the file is edited before the e-signature is applied, the system will be unable to verify whether the content of this document matches the original. If this occurs, the application will be rejected.
- If none of the aforementioned options are available:  
print and hand-sign the application form, then upload **a scanned copy along with a scanned form of identification. Candidates not providing identification may be excluded from the selection procedure.**

The system may be momentarily offline for technical reasons.

Non-Italian candidates are to submit their application form as per the methods and deadlines stated in this application procedure.

Documents must be in a static, non-editable format and must not contain executable codes or macro-instructions. PDF is the preferred format. Documents must not exceed 30 MB.

The University of Padova is not liable for undelivered correspondence should candidates not provide a complete address, or when late or no notification is provided should the address on the application form change. Nor is it liable for problems caused by third parties, misfortune or force majeure.

For additional information or queries about the application procedure, please contact the Technical and Administrative Personnel office on +39 049 827 3159 - 3494 between 9 am and 1 pm.

Contact the following email address for technical problems only: [unipadova@ceneca.it](mailto:unipadova@ceneca.it).

Candidates must state under their own responsibility their surname and first name, their date and place of birth, their permanent address, any telephone number, any criminal convictions and pending criminal procedures, that they enjoy full political rights, their military-service status, a detailed statement they meet the aforementioned requirements, and the exact contact address for any correspondence.

Candidates are admitted to the selection procedure conditionally. Should any of the requirements not be met, candidates may be excluded from the selection procedure at any moment, even after they have taken the tests.

## **Selection**

Candidates are selected by qualifications and an oral examination.

A total of 90 points are awarded for qualifications and examinations. They are divided as follows:

- 30 points for qualifications;
- 60 points for oral examination.

## Qualifications

Candidates will be assessed on the following qualifications:

|  |               |
|--|---------------|
| 1) final grade of the Master Degree or equivalent  | 5 points max  |
| 2) relevance of the PhD Degree to the ERC Domains PE8_3 or PE1_17: the candidate shall state the relevance of his/her PhD to the PE8_3 or PE1_17 domains in his/her application, (s)he will also have to specify the title for his/her final doctoral thesis and provide a list of the activities (s)he has carried out during his/her doctoral training | 5 points max  |
| 3) Scientific publications   | 20 points max |

The score awarded for qualifications will be out of 30.

EU candidates must provide all of the statuses, information and qualities that they deem useful for the assessment of their qualifications in a statutory declaration, as per Art. 46 and 47 of Presidential Decree DPR no. 445/2000. Non-EU candidates are not allowed to use a statutory declaration, as per Art. 3 of Presidential Decree DPR no. 445/2000.

**Certificates issued by the European Union or Italy's Public Administration must not be submitted.**

Publications must be attached to the application form and be true copies of the original.

Abstracts and academic work published before the selection-announcement deadline will be accepted for assessment. Non-printed publications (electronic works only) will be assessed, but do not need to comply with the formalities envisaged for printed works (see Legislative Decree of the King's Lieutenant no. 660 of 31.8.1945).

Candidates will be notified of their qualification-assessment result before they take the oral examination.

## Examinations

Examinations will comprise an oral examination, that will focus on the following topics:

- computer science (programming language for scientific computing)
- language (Italian, English)

- technical knowledge (numerical methods for the discretization of PDEs and solution of linear systems)

**Examinations (calendar and locations)** will be published on the University of Padova's Official Register (<https://protocollo.unipd.it/albo/viewer>) and on the University of Padova website (<https://www.unipd.it/selezione-2020S13>) **starting from 2.30 pm on May the 20<sup>th</sup> 2020.**

Publication of this calendar is considered to be notification.

Approved candidates must come on the date and at the time specified above. No further notice will be given.

Candidates must show a valid ID document before being admitted to the oral examination.

Any candidates not coming to the examination will be deemed to have waived their place, regardless of the reason.

The examinations pass mark is 21/30 (7/10).

All Commission sessions during the oral examination are public. At the end of each oral examination, the Commission will draw up a list of the candidates assessed with a score for those who have passed the examination. This list, which is signed by the Commission Chair and the Secretary, will be posted on the noticeboard of the Department of Civil, Environmental and Architectural Engineering, Via Marzolo, 9 35131– Padova, and on the University of Padova website at <https://www.unipd.it/selezione-2020S13>.

Candidates can access the list with a personal password provided to all selection participants.

### **Overall ranking**

The final score is calculated by adding up the score for the oral examination and the score for qualification assessment.

The overall ranking will be published in the University of Padova Official Register. Any appeals may be filed the day after the ranking is published.

The overall ranking is effective immediately.

The winner is entitled to the gross annual salary for the EP category, financial position EP1, as per the University section of the current National Collective Bargaining Agreement (CCNL), as well as to an additional quota as specified in the "University Regulations for Recruiting and Regulating 'Fixed-term Research Technologists', in accordance with Art. 24 bis of Law no. 240 of 30 December 2010." The salary will be paid into a bank or post-office account only.

The administration may decide not to draw up the agreement should there cease to be the need, opportunity or resources to proceed.

The ranking is valid for three years from its publication date and may be used to recruit additional fixed-term technologists with the same profile and level. All other aspects of employment will depend on the University's specific needs.

Anything not stated above is covered by the "University Regulations for Recruiting and Regulating 'Fixed-term Research Technologists', in accordance with Art. 24bis of Law no. 240 of 30 December 2010", available at: <http://www.unipd.it> (see "Statuto e Regolamenti").

Pursuant to Law no. 241 of 7.8.1990, the selection-procedure manager is Maria Zanato – *Ufficio personale tecnico amministrativo*, Riviera Tito Livio, 6, Padova, Italy.

The Technical-Administrative Staff office (*Ufficio personale tecnico amministrativo*) is open to the public at the following times:

From Monday to Friday from 10 am to 1 pm and on Tuesday and Thursday from 3 pm to 4.30 pm.

NB: This selection announcement has been translated into English for publication purposes only. The Italian version is valid for all legal purposes and for the resolution of any disputes.

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Padua

The Director-General

Alberto Scuttari

*digital signature (ex Legislative Decree 82/2005)*

|                                |  |
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