D.R. Rep. n. 843/2021 - Prot. n. 94279 Attachments 1

of 02/08/2021

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PUBLIC COMPETITION FOR ONE POSITION TO Ph.D. COURSE IN MATHEMATICS and MODELING - GRANT AGREEMENT N. 955479 OF THE PROJECT MOQS – MOlecular Quantum Simulations

ACADEMIC YEAR 2021/2022

**THE RECTOR
OF THE UNIVERSITY OF L'AQUILA**

IN FORCE OF law May 9, 1989 n. 168, concerning the establishment of the Ministero dell'Università e della Ricerca Scientifica e Tecnologica;

IN FORCE OF law August 13, 1984 n. 476, establishing rules on university scholarships;

IN FORCE OF law November 30, 1989 n. 398, establishing rules on university scholarships;

IN FORCE OF article n. 4 of the law of July, 3 July 1998 n. 210, which provides that the universities, with their own regulation establish the Ph.D. schools;

IN FORCE OF article 19 of the law of December, 30 2010 n. 240;

HAVING REGARD TO the D.P.C.M. of April 9, 2001 "Disposizioni per l'uniformità del trattamento sul diritto agli studi universitari" according to the article n. 4 of the law of December 2, n. 390;

IN FORCE OF legislative decree March 29, 2012 n. 68;

IN FORCE OF subsection 262 of the law of December 11, 2016 n. 232;

HAVING REGARD TO D.M. n. 45 of February 8, 2013 *"Regolamento recante modalità di accreditamento delle sedi e dei corsi di dottorato e criteri per la istituzione dei corsi di dottorato da parte degli enti accreditati"*;

HAVING REGARD TO the DD. MM. 509/1999 e 270/2004 which provides rules about the didactic autonomy of Universities;

HAVING REGARD TO the rules for the admission of foreign students to the university course pubblished on MUR web site;

HAVING REGARD TO the Regulation of the Ph.D. Schools of the University of L'Aquila;

HAVING REGARD TO Ethical Code and "Codice di Comportamento" of University of L'Aquila issued by D.R. n. 734/2020 of July 27, 2020;

HAVING REGARD TO the Grant Agreement n. 955479 of the project "MOqs - MOlecular Quantum Simulations";

HAVING REGARD TO the resolution of the Board of Professors of Ph.D. in Mathematics and modeling of February 10, 2021;

HAVING REGARD TO the public competition, based on qualifications and examinations, issued by D.R. n. 392/2021 of Avril 23, 2021, for n. 1 PhD position in Mathematics and modeling, at the University of L'Aquila, funded by the European MOQS Project - MOlecular Quantum Simulations - Grant Agreement n. 955479;

HAVING REGARD the D.R. n. 807/2021 of 07/20/2021 for the approval of the competition documents, published in the Official Register and on the University website on the same date;

UNIVERSITÀ DEGLI STUDI DELL'AQUILA
Amministrazione centrale
Area Ricerca e Trasferimento Tecnologico
Settore Dottorati, Assegni e Borse di Ricerca

HAVING AKNOWLEDGE that the winner of the competition has renounced the position, as per communication acquired to prot. n. 91764 dated 07/28/2021 and that, as is clear from the aforementioned decree, there are no other suitable candidates;

HAVING REGARD the note prot. n. 2695 of 07/23/2021, acquired on record on 07/26/2021 - prot. n. 89183, with which the Course Coordinator asked to re-launch the competition for n. 1 PhD position in Mathematics and modeling, funded by the European MOQS Project - MOlecular Quantum Simulations - Grant Agreement n. 955479;

HEREBY DECREES

ART. 1

Public competition procedures based on qualifications and examinations for admission to the Ph.D. Course in Mathematics and modeling at the University of L'Aquila.

Ph.D. Course in Mathematics and modeling	
Positions available	**1**
Financial employment	• First stage researcher
Start of business	October 1st, 2021
Grant Funding	Grant Agreement n. 955479 project "MOQS – MOlecular Quantum Simulations" – Topic title "High quality and hardware-efficient wavefunctions for quantum molecular simulations"
Local Project Coordinator	*Prof. Leonardo Guidoni* leonardo.guidoni@univaq.it
Project Description	The project deals with the development of new strategies to tackle the electronic structure of molecular systems using quantum computers. The use of Noisy Intermediate-Scale Quantum (NISQ) devices in combination with algorithms such as the Variational Quantum Eigensolver are a valuable route to reach the chemical accuracy for the evaluation of ground state molecular energies. A crucial role in this process is to design wavefunctions that are at the same time accurate and compact, in order to take advantage of low-dept circuits with a small number of gate operations. The student will develop hardware efficient wavefunctions and algorithms as well as error mitigation schemes. The methodologies will be applied to small molecular systems with electron correlation.
Candidate Profile	Candidates should hold a Master Degree in Physics or Chemistry with a strong background in quantum mechanics and molecular simulations. It is required a good knowledge of English as well as good skills in computer programming.
Duration	3 years
University Department Responsible for the Ph.D.Course	Department of Engineering, computer science and mathematics
Ph.D. Course Coordinator	*Prof. Davide Gabrielli* davide.gabrielli@univaq.it
Admission Pre-requisites	All Master-level Degrees in Physics or Chemistry or foreign degrees with certified equivalency or recognized as equivalent to the aforementioned qualifications. Candidates should have a strong background in quantum mechanics, molecular simulations, and computer programming.

	At the time of recruitment, the candidates must not have resied, or carried out his/her activity in Italy for more than 12 months in the 3 years prior to recruitment date. When starting their contract selected researchers should be within the first four years of their careers. This means being both within a four years window following their most recent graduation and not having been awarded a prior doctoral degree so far.
Admission Procedure	Qualification assessment and oral exam. Foreign applicants may sit the oral exam in English. Candidates residing abroad may request to take the oral exam via web (Microsoft Teams, Skype and other). In this case the candidate must specify the means they wish to use for their interview indicating a valid contact address. This request must be authorized by the testing commission once the identity of the candidate has been certified, to this end the candidate shall be required to show a valid identification document with recent photo during the oral exam.
Documents to be enclosed in the Application	1. CV 2. Candidates holding Italian Degrees must provide a self-certification concerning their Bachelor-level Degree and Master-level Degree with a list of exams taken and marks obtained (only for candidates who have obtained their Degree in Italy or a EU country); If the candidate has a foreign Degree obtained in a non-EU country, a copy of the Degree certification obtained with a transcript of records of the exams taken and an Italian or English translation provided by the applicant under his/her responsibility; any other documentation deemed useful for the qualification assessment (Diploma Supplement, declarations etc.). In any case, the examination commission reserves the right to evaluate the foreign Degree presented by the candidate. 3. The candidate must indicate the name of at least 2 contacts with their e-mail address. The referees will receive an e-mail with the instruction to write the recommendation letter directly on line. 4. A summary of their Master Degree thesis (*Max 2 pag.*) 5. Motivational letter that highlights the coherence between the candidate's profile and the positions referred to in this announcement. 6. Any publications and research projects in which the candidate has participated, deemed useful for the purposes of the evaluation. 7. Other qualifications deemed appropriate for evaluation. 8. Photocopy of the candidate's identity card and, for those who request to take the oral exam via web, a recent photograph is required.
Language(s)	**Assessment of foreign language skills** English language skills and competence shall be assessed during the oral exam. **Admission** The candidate may take the oral exam in ENGLISH
Exam schedule	*Evaluation of documentation:* September 8th, 2021 at the Department of Information engineering, computer science and mathematics. *Interview:* the interview will take place between September 10th and September 17th, 2021. The candidates admitted to the interview will receive an email by the Local Coordinator with the date and the time of the interview.

Assessment Criteria	The assessment procedure consists in two phases: qualification assessment and an oral exam. Scores are indicated out of a total of 100 points, assigned as follows: 1. Qualification assessment: Max. 50/100 points attributed through assessment of the candidate's CV, letters of recommendation, publications and other qualifications. The minimum score required for admission to sit the oral exam is 30/100. 2. Oral exam: Max. 50/100, with a 30/100 passing mark. The oral exam aim is to evaluate the candidate's aptitude and motivation for research. The interview be held on the following subjects: elements of quantum mechanics, element of quantum computing, molecular modelling techniques. The exam includes assessment of the candidate's English language skills. Foreign students may sit the oral exam in English.

ART. 2
Requirements for Access

Candidates holding a Master-level Degree or other University Degree corresponding to criteria specified in DM – Ministerial Decree – 509/1999, or those holding a foreign Degree with certified equivalency, within the deadline of this selection announcement, may, with no limitations as to age or citizenship, apply to participate in the Ph.D. selection process.

Candidates holding a foreign Degree who have not as yet obtained certified equivalency required for the admission to the Ph.D. course, must include the following documents in their application (necessary for the Examination Commission to evaluate the Degree as conforming to requirements):
- a copy of the Degree certification obtained with a transcript of records of the exams taken and an Italian or English translation provided by the applicant under his/her responsibility;
- any other documentation deemed useful for the qualification assessment (Diploma Supplement, declarations etc.).
The academic qualification held by the candidate must refer to a course with a duration of at least 4 years and allow the access to a Ph.D. course in the country in which it was awarded.
Eligibility of the qualification will be verified by the Course's Admission Committee and will only be granted for the sole purpose of admission to the chosen Ph.D. course.

The selection procedure is **NOT OPEN** to candidates who have already been awarded by a doctoral degree.

The selection procedure is **NOT OPEN** to candidates that at the time of recruitment, have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years prior to recruitment date. When starting their contract selected researchers should be within the first four years of their careers. This means being both within a four years window following their most recent graduation.

ART. 3
Applications

The application form may only be submitted using the dedicated online procedure, available at: https://pica.cineca.it/univaq/dott37-matemod-moqs/. Applications must be submitted **no later than the September 2nd, 2021 at 1:00 p.m. (CEST).**

The application must be signed, **missing the signature the application will be rejected**.

There are 3 methodologies to sign it and the candidate must select one of them and read carefully they directions.

- By digital signature using smart card, USB token or remote signature which allow the owner to sign general documents by means of a signature software or a Remote Signature web portal made available by the Auditor. Those who have a Digital Signature smart card or USB token shall verify that they are compatible with the Digital Signature system integrated in the system server. If so, the owner may sign the application directly in the system server (e.g. ConFirma);

- Those who do not have compatible digital signature devices and the Remote Digital Signature Owners who may access a web portal for signing general documents shall save in their own PC the .pdf file generated by the system and, without modifying it, digitally sign it in CAdES format. A .p7m file will be generated, which shall be saved and uploaded again in the system. Any editing to the file before signing with the Digital Signature shall interfere with the automatic check of correspondence between the content of such a document and the original, and this will bring to the application exclusion;

- If none of the above-mentioned options can be used candidates shall save in their own PC the .pdf file generated by the system and, without modifying it, print and sign it with full original signature in the last page of the printed document. A scanned .pdf copy of such a document shall be produced and the file thus obtained shall be uploaded to the system.

All required documents to be submitted, listed in the information sheet for the Ph.D. course, must be annexed to the application form, together with a copy of an identity document. All documentation must be attached in pdf format.

For all legal purposes, the application is to be considered as a self-certification of the data included therein and of the attached documents, in accordance with articles 46 and 47 of Italian Presidential Decree no. 445/2000 and subsequent amendments.

The candidate must request of at least **2 reference letters.** A notification will be sent automatically sent to the selected referee only when the application has been fully submitted. The referee must compile the reference letter scheme and submit it by the deadline of **September 6th, 2021 at 1:00 p.m. CEST**.
Reference letters attached by the candidate will not be taken into consideration.

The application is automatically sent to the University when the online procedure has finally been completed. Therefore, no paperwork needs to be delivered or sent to the University's offices.

Candidates are invited to complete applications for the selection process well in advance of the closing date specified in this call. Candidates are responsible for verifying that the procedure is completed correctly. No complaints will be accepted for any malfunctioning of the IT system due to overload experienced by candidates near the closing date.

After the deadline of the call it will no longer be possible to change the application for participation.

In force of Italian Law no. 104/92, as amended by Italian Law no. 17/99, disabled candidates may request an individual examination (with the use of aids, any additional time required, etc.) to complete the required entry examinations.

In accordance with Italian Law no. 170/2010, candidates with specific learning disabilities are allowed 30% more time to complete written exams, if required for the selection process for admission to the chosen Ph.D. course, subject to a request for an individual examination. The request must be written in accordance with the instructions available as part of the online application procedure for the selection process.

ART. 4
Examinations

The examination procedures and the dates of the exams are indicated in art. 1.

The Candidates will receive communications about the admission, the date and the time of the interview by email from the Local Project Coordinator.

A candidate's absence at the time and place indicated for examinations will automatically mean he/she renounces to participate at the competition.

Candidates are not required to be present during the evaluation procedure of the submitted documents.
Applicants admitted at the interview must be present on the dates and times indicated with a valid identification card.
Candidates may request to sit the oral exam in english language.

The interview may be carried out via video conference communication systems (e.g. Microsoft Teams, Skype). In this case, the candidate is required to provide contact information in their application and guarantee the use of a web-cam to allow the Examination Committee to verify the candidate's identity.

ART. 5
Examination Committee
Assessment Criteria and Ranking List

The Examination Committee is appointed by rectoral decree and is composed by a minimum of three to a maximum of five members among professors and assistant professors.

The candidate's scores will be indicated out of a total of 100 points.

The results of the assessment of the qualifications will be published on the web site of the University https://www.univaq.it/en/section.php?id=2055&lang_s=en and on the Department website: *http://people.disim.univaq.it/~dottorato_mate_mode/.*

The interview will focus on the topics indicated in the sheet (art.1).
At the end of the session the Examination Committee draws up the list of the interviewed applicants with the obtained scores.
The lists, signed by the President and by the secretary of the Examination Committee will be published on the site of the Department at which the test was conducted, on the same day of the oral examination. (*http://people.disim.univaq.it/~dottorato_mate_mode/*).

Once the competition have been completed, the Examination Committee draws up two final ranking lists, The University Administration makes this list public by publishing the list on the official notice board of the University and on the University web site provided, the validity of the examination procedure has been checked.

Candidates will be admitted to the course according to the order established in the general merit ranking within the limit of the places specified in the announcement.

In case of equal merit, the Ph.D. position will be conferred to the younger candidate.

This selection is also valid to get the employment position as first stage researcher.

ART. 6
Enrolment in Ph.D. Courses

The successful candidate, **within September 27th, 2021**, must send the following documents using the forms available on the web-site to: Settore Dottorati, Assegni e Borse di Ricerca dell'Università – Palazzo Camponeschi – Piazza Santa Margherita, 2 – 67100 L'Aquila:

a) enrolment application to the first year of the Ph.D. Course for the academic year 2021/2022, on certified paper "carta legale" in accordance with art. 46 and 47 of the Presidential Decree of 28 December, 2000, n-445, containing the following:

- self- certified declaration of citizenship

- self-certified secondary (high) school Diploma;

- self-certified Degree certificate indicating final mark;

- statement declaring that the applicant is not also enrolled in a University Degree Course or a School of Specialization or any other Master-level course, university-level vocational course or other doctoral or Ph.D. course;

- statement declaring that the applicant shall, for the full duration of the Ph.D. Course, NOT ENROL in any other university course, as specified above.

- statement declaring that the applicant shall adhere to and attend all activities prescribed for the Ph.D. Course they have been selected for in accordance with the decisions taken by the Board of Professors;

- statement declaring that the applicant shall ask the Board of Professors for authorization to accept, or continue to carry out, any other type of "external" work while they are enrolled in the Ph.D. Course;

b) photocopy of the applicant's identification document;

c) photocopy of assigned fiscal-code number;

d) photocopy of the applicant's "permesso di soggiorno", Italian-residence permit, only for no EU-citizens;

e) a passport-size photo;

f) receipt of payment of the regional university tax of €140,00 to be paid via bank transfer to: "Azienda per il Diritto agli Studi Universitari, bank account: BPER,/Code or IBAN: IT 88D 053 870 3601 000 000 040 909".

Foreign citizens must declare possessing the following requisites:
1) that they benefit from civil rights and right to vote in their country;
2) that, aside from Italian citizenship, they possess all other requisites required for citizens of the Italian Republic.

Applicants holding a university Degree awarded abroad must enclose the following documents, translated and certified by competent Italian Diplomatic Authorities:
- copy of their university degree indicating their final mark;
- Degree transcripts indicating the exams taken during their course and marks awarded.

If the above documentation is not available at the time of enrolment, the candidate's enrolment shall be deemed "subject to verification" (con riserva). In this case all above mentioned compulsory documentation must be submitted **by and no later than 31st December 2021, failure to do so will result in expulsion from the course.**

Within 15 days from the start of the Ph.D. Course, the successful candidate must send a mail addressed to: Segreteria Amministrativa Contabile of the Department of Engineering, computer science and mathematics, disim.sac@strutture.univaq.it, whit a photocopy of a receipt from the INPS (national social security service)

certifying that they have been registered in "posizione contributiva alla gestione separata" (for information visit the INPS web-site at www.inps.it).

False declarations lead to the candidate's expulsion from the Ph.D. course and to prescribed sanctions for such offenses, vacant positions will be assigned to other candidates according to the ranking list.

Successful candidates who do not want to enroll in the Ph.D. course they have been selected for, must immediately send a signed form of renouncement enclosing a photocopy (front-back) of their identity card, by mail or certified e-mail (PEC).

Candidates selected as replacements must write a letter of acceptance within three days of notification that they have been accepted. All other necessary documents indicated in this announcement must be submitted within, and no later than, ten days after receiving notification.

ART. 7
Salary amount

The Research employment contract, indicated in the Ph.D. chart (art. 1) is assigned according to the ranking list drawn up by the Examination Committee as established in the previous art. 5.

The successful candidate will receive a gross living allowance per year of € 40.967,00 (including income tax and retirement pension contribution). This amount is subject to INPS (Social Security Service) contributions amounting to 34,23% for the year 2021, of which 11,41% is to be paid by the grant beneficiary.

The successful candidate will receive a total mobility allowance of € 7.200,00 and a family allowance (depending on family status at the date of recruitment) of € 3.000,00.

The above salary cannot be accumulated with other grants except for those provided by national or foreign institutions which are aimed at integrating the Ph.D. student's research activity with periods abroad.

The total of the living, mobility (family) allowance will be paid monthly.

ART. 8
Lessons Abroad

During the appointment the Ph.D. student has to spend time in other participating institutions through a secondment scheme, according to the Local Project Coordinator advise.
The Ph.D. student before going abroad, must sent to the Ph.D. office, *Settore Dottorati, Assegni e Borse di Ricerca,* the following documents*:*
- signed authorization by the course Coordinator for training/study periods abroad of less than 6 months or
- board resolution allowing a period of over 6 months.

Upon returning to Italy the Ph.D. student shall present to the course Coordinator the certification from the foreign institution stating the Ph.D. student's attendance, to be transmitted to *Settore Dottorati, Assegni e Borse di Ricerca.*

ART. 9
Tuition Fees

The full tuition amounts to the required Regional university tax as specified in the art. 6.
In case of delayed payment the students has to add to the previous amount the tax of € 52.00.

ART. 10
Rights and Duties

1. Ph.D. students are obliged to attend lessons and carry out all prescribed activities regularly in accordance with the programs and schedules set by the Board of Professors and according to the Coordinator of the EU-Network – **MOQS – MOlecular Quantum Simulations**;

2. He/She will have to partecipate to the activities of the EU-Network – **MOQS –MOlecular Quantum Simulations**. as specified by the Program and/or required by the Project Coordinator and/or Supervisors, including involments in meetings, schools, workshops and training activities;

3. During the appointment the Ph.D student has to spend time in other participating institutions through a secondment scheme, according to the Local Project Coordinator advise. In particular, 5 months are planned at the IBM laboratories in Zurich and 1 month at the CINECA center in Bologna.

4. He/She will write up the results of research activity and present research papers and publications at meetings and conferences as advised by Supervisors.

5. The University provides insurance coverage for the entire duration of the Ph.D. course and for activities pertaining to the course;

6. Interruptions in attendance shall be allowed for, illness or injury for periods of 30 days or more;

7. Maternity/paternity leave and leave for adoption or foster care may also be authorized. Maternity-leave laws and regulations as indicated in Gazzetta Ufficiale n. 247 of 23rd October, 2007 shall be applied only to scholarship holders.

8. A Ph.D. student's unexcused absence or non-fulfillment of obligations shall result in his/her exclusion from the course by the Board of Professors.

9. Ph.D. students enrolled at the University of L'Aquila may carry out limited teaching or tutoring activities within the University's Bachelor and Master-level degree courses if so established and programmed by the Board of Professors in agreement with the University Department.

ART. 11
Graduation

The Ph.D. thesis can be written in Italian or in English and has to have an abstract in Italian or English. The Ph.D. thesis can be written in a language different form Italian or English provided the Board of Professors's authorization.
The evaluation committee for the Ph.D. thesis defence will be appointed according to the Ph.D. Courses University Rules.

The title of Doctoral degree (Dott. Ric or Ph.D.) will be awarded provided a positive evaluation of the Ph.D. thesis, taking into account the achieved results.

ART. 12
Head of the Competition Procedure

According to art. 5 of law 07/08/1990, n. 241, the Head of the Settore Dottorati, Assegni e Borse di ricerca of the University of L'Aquila (Piazza Santa Margherita, 2 – Palazzo Camponeschi - L'Aquila) shall be responsible for the competition procedure.

ART. 13
Legal Reference

For all other matters not foreseen or included in this announcement we shall refer to Law n. 210 of 03/07/98, Law n. 240 of 30/12/2010, Ministerial Decree 45/2013 and to the "Regolamento dei corsi di Dottorato di Ricerca" (Ph.D. regulations) of this University and to the Grant Agreement N. 955479 of the project "MOQS - MOlecular Quantum Simulations".

This announcement is available at: https://www.univaq.it/en/section.php?id=2055&lang_s=en

and may also be accessed through path: Home » Research » Research training » Research Doctorates » Announcements, assessment committees, ranking.

Further information may be requested by contacting the competent Ph.D. office:
Settore Dottorati, Assegni e Borse di Ricerca – tel. 0862/432055/432062/432061/432032
e-mail: dot@strutture.univaq.it.

Further information concerning the EU Project "MOQS" may be requested by contacting the Local Project Coordinator:
Professor Leonardo Guidoni – tel. 0862/434211 e-mail leonardo.guidoni@univaq.it.

L'Aquila, 2 August 2021

The Rector of the University of L'Aquila
Signed Prof. Edoardo Alesse

Unità Organizzativa Responsabile: *Settore Dottorati, Assegni e Borse di Ricerca*
Palazzo Camponeschi - Piazza Santa Margherita, 2 – 67100 L'Aquila - e-mail dot@strutture.univaq.it – fax 0862/431214
Responsabile del Settore: Rossana Rotondi – tel. 0862/432032
Per eventuali informazioni rivolgersi a: Simonetta Ricciardi – tel. 0862/432055 - Gabriella Marcelli – tel. 0862/432062 -Valeria Gentile – tel.- 0862/432061

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