

Amministrazione centrale Area Ricerca e Trasferimento Tecnologico Settore Dottorati, Assegni e Borse di Ricerca

D.R. Rep. n. 967/2023 - Prot. n. 90262 Attachments 2 of 08/08/2023

Year 2023 Tit. III Cl. 6 Fasc. 15 Sottofasc. 1

PUBLIC COMPETITION FOR ADMISSION TO -PH.D. COURSE IN PHYSICAL AND CHEMICAL SCIENCES - CYCLE XXXIX ACADEMIC YEAR 2023/2024

THE RECTOR OF THE UNIVERSITY OF L'AQUILA

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

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

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

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

IN FORCE OF to Art. 47 of Decree Law n. 77 of May 31, 2021, converted into Law n. 108 of July 29, 2021, under the heading "Equal Opportunity and Employment Inclusion in Public Contracts, the PNRR and the PNC;

IN FORCE OF D.P.C.M. of April 9, 2001 "Disposizioni per l'uniformità del trattamento sul diritto agli studi universitari" according to article n. 4 of law n. 390, December 2, 1991;

PURSUANT TO DD. MM. 509/1999 e 270/2004 which provides rules about the didactic autonomy of Universities:

PURSUANT TO D.M. n. 226 of December 14, 2021 "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";

PURSUANT TO D.M. n. 247 of February 23, 2022 which restated the gross annual amount of Ph.D. scholarships;

PURSUANT TO the rules for the admission of foreign students to the university course published on MIUR web site;

PURSUANT TO the Regulation of the Ph.D. Schools of the University of L'Aquila, renewed by Rectoral Decree n. 787/2022 of 2022, June 1st;

HAVING REGARD TO Ethical Code of University of L'Aquila issued by D.R. n. 1777/2022 of 2022, December 30th;

HAVING REGARD TO D.R. n. 895/2023 of 20/07/2023, by which the XXXIX cycle of Research Doctorates with administrative headquarters at the University of L'Aquila, including the Ph.D. Course in Physical and Chemical Sciences, was established and activated for the academic year 2023/2024;

HAVING REGARD TO the resolution of the Board of Professors of PhD course in Physical and Chemical Sciences of June 14, 2023, acquired as prot. n. 72904 of 05/07/2023; concerning the request to issue a call for applications for 6 additional position for the academic year 2023/2024, and the relevant attachments, transmitted by note of the Ph.D. Coordinator, acquired under prot. n. 73784 of 06/07/2023;

HAVING REGARD TO the resolution of the Board of Professors of PhD course in Physical and Chemical Sciences of July 13, 2023, acquired as prot. n. 78922 of 18/07/2023, concerning the request to issue a call for n. 1 Ph.D. scholarship within Spoke 5 of the National Centre for HPC, Big Data and Quantum Computing;



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TAKE NOTE that the selection procedure is aimed at calling for additional PhD positions financed with funds from the PRIN Projects, the European Project "TwistedNano" and the PNRR - National Centre for HPC, Big Data and Quantum Computing and that, therefore, no positions are available without a scholarship or supernumerary, nor positions that in various ways entail the suspension and/or renunciation of the scholarship;

TAKE NOTE that the financial coverage is fully borne by the above-mentioned research projects;

HAVING REGARD TO the minutes of the Academic Senate and of the Board of Administration meeting of 25/07/2023;

HEREBY DECREES ART. 1 ESTABLISHMENT AND ACTIVATION

- 1.Public competition procedures based on qualifications and examinations for admission to the Ph.D. Course in Physical and Chemical Sciences at the University of L'Aquila, for n. 7 places funded within the PRIN Projects, the European Project "TwistedNano" and the PNRR National Centre for HPC, Big Data and Quantum Computing.
- 2. The courses' duration is three years and start on 1st November, 2023.
- 3. The form attached to this announcement and which are an integral part of it, indicate the positions and the scholarships available, the research topics, the research project contact person, the methods and criteria for selecting candidates, the date for the examinations.

ART. 2 Requirements for Access

- 1. Those who, at the expiry of the deadline for submitting the application for admission, are in possession of one of the following qualifications can participate in the selection, without age or citizenship restrictions:
- a) master's or specialist degree;
- b) degree from the system prior to the Ministerial Decree n. 509/1999 (old system);
- c) second level academic qualification issued by institutions belonging to the AFAM (Higher Artistic and Musical Education) sector;
- d) qualification obtained abroad, recognized as equivalent to the aforementioned second level academic qualifications.

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.

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 certifications obtained (Bachelor e Master Degree), 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...).

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.

2. Those who already hold a PhD title are not eligible to apply.



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3. Candidates who, on the expiry date of this announcement, do not possess the requisites referred to in paragraph 1, will be admitted to the selection with reserve. The qualification required for access to PhD courses must be achieved by the completion date of the enrollment, and in any case no later than the start date of the course.

ART. 3 Applications, terms and conditions

1. The application form may only be submitted using the dedicated online procedure, available at: https://pica.cineca.it/univaq/dottsfc39.

Applications must be submitted from 11.00 a.m. (CEST) on 9 August 2023 and no later than the September 15, 2023 at 1 p.m. (CEST).

The application must be signed. The absence of the signature, or of the handwritten signature, implicates the exclusion from the public competition.

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.

In case the access to the platform is via SPID, it is not necessary to sign the application with one of the aforementioned methods.

- 2. When filling the application, candidates must:
- select the PhD course;
- select "ordinary seat";
- to express a preference for one or more thematic scholarships indicated in the form attached to the announcement;
- attach the qualifications required and indicated in the form attached to the announcement, and a copy of the identity document.

The lack of a copy of the identity document is cause for exclusion from the selection. All documentation must be attached in pdf format



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-pay an administration fee of € 10,00. Candidates can make fee payment by clicking on "Paga con Pago PA", selecting form of payment:

- ➤ Credit/debit card:
- ➤ Direct payment from bank account;
- > Other methods of payment and payment systems which allow for PagoPA procedures.

Only for candidates resident abroad: if it is not possible for candidates to pay using the PagoPA system, payment will also be accepted by bank transfer payable to: Università degli Studi dell'Aquila - Piazza Santa Margherita 2 - 67100 L'Aquila, avente le seguenti coordinate bancarie: IBAN: IT18T0538703601000000198036 - Codice SWIFT: BPMOIT22XXX - causale: "Entry in Ph.D. competition in ______". Only candidates making payment in this way are required, before deadline date, to attach a copy of the bank transfer payment and a declaration of failed administration fee payment by Pago PA.

Failure to pay the competition fee is cause for exclusion from the selection.

Under no circumstances can refunds be issued (i.e. exclusion, withdrawal, absence, etc.). The sole fee payment of \in 10,00 does not in itself constitute an application in the absence of an online application form, even if payment is made before the deadline.

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

3. The candidate can request one or two **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 20, 2023**, at 1:00 p.m. CEST.

Reference letters attached by the candidate will not be taken into consideration.

4. 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. 170/99, disabled candidates may request an individual examination (with the use of aids, any additional time required, etc.) to complete the required entry examinations.

According to the art. 15 of Law 183/2011 and following the interpretation done by the Directive of the Presidency of the Council of Ministers, signed by the Minister of Public Administration and Simplification, n. 61547 of 22/12/2011, the University can't accept certifications issued by other Public Administrations.

Therefore, if the titles declared by candidates and attached to the application for admission to the competition, have been issued by Italian public universities, they must only be self-certified.

Following the rules on self-certification, the University will verify the veracity of the self-certification, pursuant to the Consolidated Law on Finance. 445/2000.

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ART. 4 Examinations

1. The examination procedures and the date of the oral exam are indicated in form the Article 1.3 of the above reported scheme. This date is to be regarded as official legally-binding call.

Candidates will therefore not receive any other sort of call or summons by the University as to the exams prescribed for the Ph.D. Course they have applied for.

The candidate does not have to be present during qualification assessment procedures.

ANY CHANGES IN DATES AND TIMES WILL BE MADE PUBLIC ON THE UNIVERSITY WEB-SITE

A candidate who is not present at the time and place indicated for the examination will automatically excluded from the competition.

2. To sit the prescribed exams for the course applied for, candidates must be present on the dates and times indicated in the above mentioned scheme indicated in the art. 1 of this notice and provide a valid identification card.

Candidates, may request to sit the oral exam via web conference communication systems. 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 Commission to verify the candidate's identity.

Foreign candidates may take the oral test entirely in English.

3.During the interview, the Commission Board will assess the candidate's aptitude for scientific research, general preparation and suitability in relation to the research topics of the restricted topic grants chosen in the application form.

If one or more scholarships are not awarded due to the established lack of eligibility in the examination or because they were not chosen at the time of registration for the competition, the Commission may, after checking the availability of the candidate(s)/applicant(s), proceed to assess the eligibility of the candidate(s).

ART. 5 Examination Committee and competition rules

1. The Examination Committee, designated by the Board of Professors, is appointed by the Rector through a specific decree and is composed by a minimum of three to a maximum of five members among professors and assistant professors. At least one of the members must be full or associate Professor.

Having regard to Italian Law about "Equal Opportunities for Men and Women" and specifically to Art. 57 of the Leg. Decree n. 165, 30 March 2001, at least one third of the Examining Board has to be women, except impossibility to be demonstrated when the Board proposal is made. In any case the gender balance must be respected: each gender must be represented at least by one third of components.

Having regard to Art. 35 bis of the Leg. Decree n. 165, 30 March 2001, Individuals condemned for crimes – even if not yet sentenced – in Book II of the Italian Penal Code ("crimes by civil servants against public administration") cannot be nominated as members of the Examining Board.

Teachers who have issued letters of reference to candidates cannot be part of the exam boards.



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- 2. The Commission can carry out the preliminary meeting and the meeting related to the evaluation of the candidates' qualifications electronically. Insofar as they are compatible, the rules of the University Regulations on the subject are guided (D.R. n. 319/2020 of March 17,2020).
- 3. 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=2207&lang_s=en and on the web site of the concerned Department and/or the Ph.D. web site.

At the end of the session the Examination Committee draws up the list of the interviewed applicants with the obtained scores.

This list, signed by the President and by the secretary of the Examination Committee will be published on the web site of the Department in Physical and chemical sciences and/or the Ph.D. web site on the same day of the oral examination.

ART. 6 Rankings and assignment of positions

1. Once all the interviews have been completed the Examination Committee draws up the final ranking list, for each research topic, according to the sums of the obtained scores.

In the case of having the same score, gender balance is taken into account (the gender that prevails is the less represented one among candidates placed in higher positions of the same ranking list). Where there are further equal results, the younger candidate will prevail.

Should a candidate win more than one of the scholarships offered, it will be up to the Commission to decide which scholarship to award to that candidate.

The University Administration makes this list public by publishing it on the official notice board of the University https://www.univaq.it/section.php?id=1391 and on the University web site https://www.univaq.it/en/section.php?id=2207&lang_s=en, once the validity of the examination procedure has been checked.

The applicants will obtain a Ph.D. position according to their position on the ranking list.

ART 7 Enrolment in Ph.D. Courses

1. Successful candidates must submit their enrolment through the University of L'Aquila official website https://www.univaq.it/en/section.php?id=2207&lang_s=en, within 15 days from online publication of selection results.

No information will be sent to the candidate's home. Candidates granted admission to the Course are responsible for checking enrolment dates and procedures.

Failure to enroll by the deadlines will be considered as drop out and the place will subsequently be assigned to the next candidate according to the ranking.

Successful candidates, who are admitted to the competition conditionally, will also have to produce self-certification that they have been awarded the degree within 3 days of obtaining it.

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The enrolment forms, available on the University website, duly signed, must be delivered to the "Settore Dottorati, Assegni e Borse di Ricerca", within the deadline foreseen for the enrolment. The documents can be delivered in one of the following ways:

• by certified e-mail (PEC) addressed to protocollo@pec.univaq.it.

The certified e-mail account used must be the candidate's personal account. The administration shall not accept documents from candidates using certified e-mail accounts belonging to other individuals or to institutions. The University Administration declines all responsibility for any non-deliveries or misdeliveries of the documents sent via PEC or in case the documents attached to it are non-readable or damaged. The date of submission will be indicated on the receipt sent automatically by the PEC system.

• by mail addressed to concorso.dottorati@univaq.it. All documentation must be attached in pdf format.

The documents to submit compulsory are the followings:

- a) Enrolment form;
- b) Self-Declaration in substitution of certification and Self-Declaration in substitution of attested affidavit in accordance with articles 46 and 47 of the Presidential Decree 28th December, 2000, n.-445 (using the forms available on the University website https://www.univaq.it/section.php?id=684);
- c) a copy of an identity document;
- d) a copy of the candidate's fiscal-code number;
- e) a copy of the candidate's "Italian-residency permit" (permesso di soggiorno) only for non-EU citizens.

Foreign citizens must declare possessing the following requisites:

- that they benefit from civil rights and right to vote in their country;
- 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, also, the following documents, translated and certified by competent Italian Diplomatic Authorities:

- copy of their university degree with "Declaration of Value" provided by the Italian Embassy/consulate operating in the student's country of residence;
- Transcript of records of the exams given during the degree course and marks awarded.

Alternatively, the winner may present the certificate of comparability issued by CIMEA as part of the agreement stipulated with the University of L'Aquila (https://www.cimea.it/pagina-attestati-di-comparabilita-e-verification-of-qualifications).

For the registration, please enter the service Diplome, via the following link https://cimea.diplome.eu/univaq/#/auth/login.

If the above documentation is not available at the time of enrolment, the candidate's enrolment shall be deemed "subject to verification". In this case all above mentioned compulsory documentation must be consigned by and no later than the 31st December 2023, failure to do so will result in expulsion from the course.

Candidates with a qualification obtained abroad, when they arrive in Italy, are required to deliver the originals of the documentation relating to the qualification to the Settore Dottorati, Assegni e Borse di Ricerca.

Scholarship winners must present a:



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- self-declaration to obtain the scholarship for the Ph.D. course they have earned admission to;
- Scholarship accreditation form.

Within 15 days from the start of the Ph.D. Course, candidates who have been conferred a scholarship must send by mail 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 website at www.inps.it).

False declarations shall 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.

2. Successful candidates who do not want to enroll in the course they have been selected for, must immediately send a signed letter of renouncement enclosing a photocopy (front-back) of their identity card.

When candidate, even if not winner of the competition, have right to be enrolled, the suitable candidate entitled to be enrolled will receive a communication to the e-mail address indicated on the application for participation in the competition. Candidates selected as replacements must write a letter of acceptance within three days of the aforementioned email. All other necessary documents indicated in this announcement must be consigned within, and no later than, ten days after receiving notification.

Failure to enroll by the deadline indicated is equivalent to tacit renunciation.

ART. 8 Public Employee

Public employees admitted to PhD courses must be placed on request on extraordinary leave for study purposes without paychecks for the duration of the course and take advantage of the scholarship.

Public employees who does not obtain the aforementioned unpaid leave from the institution to which he/she belongs will not be able to enrol or continue the course of study.

ART. 9 Grants

1. The grants available indicated in the Ph.D. chart are assigned according to the ranking lists drawn up by the Examination Commission.

A Ph.D. gross Scholarships consists of \in 16.243,00 which includes health and social security taxes that, on 2023, amounts to 35,030%, but only 11,677% is paid by the beneficiary.

From the fist year of each Ph.D. course, for each PhD student a research budget, not less than 10% of the total sum of the grant conferred, will also be available for research activity in Italy or abroad.

Scholarships are yearly provided and are renewed on the condition that the Ph.D. student has completed all programmed activities for the course during the previous year.

A Ph.D. scholarship cannot be cumulated 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 payment of the scholarship is done by monthly installment.

Candidates who have already benefited from other Ph.D. study scholarships in Italy (even if only for one year) are not eligible to receive another grant.



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If Ph.D. student does not respect what is indicated in article 15 paragraph 6 of Ph.D. regulations, his/her scholarship will be stopped.

2. The contract for research collaboration (research grant) is awarded, after comparative evaluation of merit, according to the order defined in the ranking list formulated by the Examination Committee.

The successful candidate will receive a gross living allowance per year of € 25.000,00 (including income tax and retirement pension contribution). This amount is subject to INPS (Social Security Service) contributions amounting to 35,03 % for the year 2023 of which 11,677 % is to be paid by the grant beneficiary.

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 allowance will be paid monthly.

ART. 10 Attendance Abroad

All Ph.D. students can carry out training periods abroad in qualified institutions. Such training or study periods abroad cannot be longer than 12 months and can be allowed in case they are foreseen by:

- a) The study program of the Ph.D. course;
- b) Upon advice of the course coordinator or board;
- c) Upon request made by the Ph.D. student.

The period of study abroad can be extended until 18 months at maximum only for the PhD in co-tutelle with foreing bodies.

All the Ph.D. students are entitled to an increase in the scholarship up to a maximum of 50% for the aforementioned training periods abroad.

<u>Before going abroad</u> the following documents must be sent to the above mentioned Ph.D. office by the Coordinator:

- Signed authorization by the course Coordinator for training/study periods abroad of 6 months or less or
 - Board resolution allowing a period of over 6 months;

The authorization must include:

- the source of financial coverage for the additional sum of the scholarship;
- indication of the fund to which the additional sum of the scholarship is to be sent, if this sum is to be paid by the Department;

Upon returning to Italy, or each month, the Ph.D. Coordinator shall present the Certification about study periods abroad, and shall request the payment of the scholaship increase.

ART. 11 Tuition Fees

All Ph.D. students are exempted from tuition payments. All Ph.D. students must only pay \in 156,00; the Regional tax (\in 140,00) and aduty stamp "marca da bollo" (\in 16,00). Late payment will result in a \in 52.00 fine.



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ART. 12 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.
- 2. The University provides insurance coverage for the entire duration of the Ph.D. course and for activities pertaining to the course.
- 3. Compatible employment activities shall be allowed for brief periods, following authorization from the Board of Professors, after hearing the favorable opinion of the supervisor, as long as such commitments do not pose any sort of conflict with the activities required within the Ph.D. course.
- 4. Interruptions in attendance shall be allowed for:
- a) Illness or injury for periods of 30 days or more;
- b) Military or civil service;
- c) Training courses for teacher certification.

Interruption may also be agreed for substantiated serious personal reasons after having received a positive opinion of the Board of Professors. Discontinuation does cannot be longer than six months one year according to the total course length Ph.D. students benefitting of interruption period must recover the entire time with consequent test delay for the move to following year and for the awarding of title.

- 5. 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.
- 6. 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. In this case the expelled Ph.D. student shall be liable for the sum of the scholarship conferred or for tuition fees.
- 7. 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.
- 8. Ph.D. students must preserve the confidentiality in information, knowings and materials that the organizations will make available for the study and research activities. They must not disclose beyond subject different by the ones that gave to them, in accordance with the Ph.D Course Regulation of this University.

ART. 13 Graduation

Students can write their Ph.D. thesis in Italian or in English, an abstract in English must also be provided. Students wishing to write their thesis in a language different form Italian or English must receive authorization from the Board of Professors.

The evaluation committee for Ph.D. thesis discussion will be appointed according to the Ph.D. Regulations of the University.

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A Doctoral Degree title (Dott. Ric. or Ph.D.) will be awarded following a positive assessment of the Ph.D. thesis, taking into account the achieved results.

ART. 14 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. 15 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 226/2021 and to the "Regolamento dei corsi di Dottorato di Ricerca" (Ph.D. regulations) of this University.

This announcement is available at: https://www.univaq.it/section.php?id=2207&lang_s=en

Further information may be requested through HELP POINT ONLINE, accessible from the website https://help.univaq.it/

L'Aquila 08/08/2023

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

Ph.D. Course in Physical and chemical sciences				
Positions available	7			
Financial employment	n. 5 grants n. 2 contract for collaboration on research activities			
Funding source	 n. 1 grant financed by the Grant Agreement PON 2014/2020 "Oceanos" (60%) and the PRIN 2022 Project – Code 2022Z4RARB DAREDEVIL (PI: Natalia Di Marco – GSSI) (40%) - Scientific Director: Prof. A. Continenza n. 1 grant financed by the Grant Ecosystem ECS00000041 – VITALITY – Scientific Director: Prof. I. Daidone n. 1 grant financed by the Project PRIN 2022 – code 2022Z4RARB DAREDEVIL (PI: Natalia Di Marco – GSSI) - Scientific Director: Prof. A. D. Ferella n. 1 grant funded under the PRIN 2022 project – code 2022YYX3WJ - title "Towards the ultimate Dark Matter experiment: improved electrodes and neutron veto technologies for the next-generation xenon TPC for the direct detection of dark matter" - Scientific Director: Dr. C. Macolino n. 1 grant funded under Spoke 5 of research programme CN00000013 by the "National Centre for HPC, Big Data and Quantum Computing" - National Recovery and Resilience Plan, Mission 4 "Education and Research" - Component 2 "From Research to Enterprise" - Investment 1.4 "Strengthening research structures and creation of R&D "national champions" on some Key enabling technologies", CUP E13C22001000006 - funded by the European Union - NextGenerationEU - Scientific Director: Prof. R. Ferretti 			
Funding source	 n. 1 contract for collaboration on research activities financed under Grant Agreement n. 101046424 - European project "Twisted nanophotonic technology for integrated chiroptical sensing of drugs on a chip" - Scientific Director: Prof. A. Marini n. 1 contract for collaboration on research activities financed within the framework of the PRIN 2022 project - code 2022N738SA - entitled "Light-programmed two-dimensional meta-holograms for integrated neuromorphic computing" - Scientific Director: Prof. A. Marini 			
Grants subjects	 Dielectric properties of materials for the determination of energy loss by ionizing particles - Scientific Director: Prof. A. Continenza (alessandra.continenza@univaq.it) The aim of the project is the study of the dielectric properties of innovative materials for the determination of the energy loss by external particles (photons, electrons, ionizing particles). The study will be conducted through theoretical and computational approaches. Furthermore, measurements of the low emission properties of secondary materials on materials suitable for experimental verification are also envisaged. The development of the project requires skills in Physics or related subjects and a documented background in the study of condensed matter physics, electronic properties of solids and their computational and experimental study. Mechanisms of interaction between water and chemical and biological systems - Scientific Director: Prof. I. Daidone (isabella.daidone@univaq.it) The project aims to analyze the role of water in processes of chemical and biochemical interest. Particular attention will be dedicated to the study of the interaction mechanisms between water, substrate and enzyme in order to provide a better understanding of how these can affect the efficacy of potential inhibitors. The 			

development of the project requires expertise in Chemical Sciences, Physical Sciences, or related topics.

• Characterization of new materials for targeting light dark matter particles – Scientific Director: Prof. A. D. Ferella (alfredodavide.ferella@univaq.it)

The aim of the project is the characterization through laboratory measurements of new materials (Dirac and Weyl semimetals, superconductors and scintillators) which, thanks to their electronic properties, can be used as targets for light dark matter particles, with masses below GeV/c2. Subsequently, the possible modalities of detection, extraction and reading of the signals will be studied. Finally, a detector prototype will be designed and developed, combining the various experimental techniques and technologies previously tested, to detect any signals from "light" particles of dark matter. The development of the project requires expertise in Physics or related subjects and a documented background in the study of experimental particle or astroparticle physics.

• Development of new technologies for the realization of large electrodes for the future generation of Time Projection Chambers—Scientific Director: Dr. C. Macolino (carla.macolino@univaq.it)

The project aims to develop new technologies for the realization of large electrodes for the future generation of xenon TPCs (Time Projection Chambers) for the direct detection of dark matter. In particular, the project will concern the study, the realization and the measurement of the properties of different electrode prototypes and the measurements of their performances within a test TPC. Finally, the project will have as a further objective the study of the impact of the technology chosen for the electrodes on the electric field and on the quality of the analysis results expected in the next generation experiment. The development of the project requires skills in Physics or related subjects and a documented training in astroparticle physics.

• Modeling methods for the study of atmospheric processes underlying the development of severe events. — Scientific Director: Prof.ssa R. Ferretti (rossella.ferretti@univaq.it)

The project's objective is the application and/or development of modeling methods for the study on short, medium or long time scales of atmospheric processes that play a role in the development of severe events, whether they are precipitative, drought or with a strong environmental impact, in the scenario of climate change. The development of the project requires skills in atmospheric physics (Atmospheric Science and Technology for Meteorology and Climate) and a documented training in atmospheric physics.

- n. 2 contract for collaboration on research activities aimed at carrying out research concerning:
- Exploitation of surface plasmon polaritons for the enhancement of chiro-optic sensitivity in nanophotonic devices European project "Twisted TwistedNano Scientific Director: Prof. A. Marini (andrea.marini@univaq.it)

The aim of the project is the exploitation of surface plasmon polaritons to obtain an increase in chiro-optic sensitivity in nanophotonic devices. In particular, the project focuses on the study of the circular dichroism of drugs in solution placed on a metal surface. The theoretical study involves the calculation of the electronic and vibrational hyperpolarizability of reparixin and the modeling of the plasmon excitation in the Kretschmann and Otto configuration to (i) identify the conditions of enhancement of the circular dichroism and (ii) model the rotation of the polarization. This will allow the estimation of the enantiomeric concentration of the drug solution and will support the development of lab-on-a-chip devices for the chiral characterization of solutions having a volume of a few nanoliters. The development of the project requires skills in Physics or related subjects and a documented background in theoretical Nanophotonics.

Fellowship subjects



	Development of nanophotonic devices for integrated processing of optical information and neuromorphic computation – PRIN 2022 project - Scientific Director: Prof. A. Marini (andrea.marini@univaq.it) The project aims at the development of a new generation of nanophotonic devices for the integrated processing of optical information and neuromorphic computation. By exploiting the spatial modulation of light to optically control the nonlinear optical transient response of two-dimensional semiconductor materials, the aim is to develop a new class of active meta-holograms that enable artificial intelligence via on-chip photonic hardware. The development of the project requires skills in Physics or related subjects and a documented background in theoretical Nanophotonics.		
Duration	3 years		
University Department Responsible for the Ph.D.Course	Department of Physical and chemical sciences		
Web-site	https://dsfc.univaq.it/it/la-ricerca/dottorato.html		
Ph.D. Course Coordinator	Prof. Massimiliano Aschi massimiliano.aschi@univaq.it		
Admission Pre-requisites	All Master-level Degrees or foreign degrees with certified equivalency or recognized as equivalent to the aforementioned qualifications. Within the deadline indicated in this call for applications, candidates who are expected to obtain the above mentioned Degrees by no later than the enrollment, and before the Ph.D. programme's start date may also apply.		
Admission Procedure	Qualification assessment and oral exam. Candidates may request to sit the exam via web (Microsoft Teams, Skype and similar). Foreign candidates may take the oral test entirely in English. Candidates must provide valid contact details and they must have valid photo-ID to be shown during the oral exam.		
Examination topics	The oral test is aimed at assessing general knowledge of physics or chemistry according to the type of skills acquired in the Master's degree. In addition, the oral test will focus on the topics listed below for each research subject: - Dielectric properties of materials for the determination of energy loss by ionizing particles - Scientific Director: Prof. A. Continenza Radiation-matter interaction; dielectric properties of semiconductors and metals; electronic structure of solids and its theoretical modelling. - Mechanisms of interaction between water and chemical and biological systems - Scientific Director: Prof. I. Daidone Molecular Dynamics, structural properties of protein systems. - Characterization of new materials for targeting light dark matter particles - Scientific Director: Prof. A. D. Ferella Direct detection of dark matter; experimental methods for particles detection; experimental astroparticle physics. - Development of new technologies for the realization of large electrodes for the future generation of Time Projection Chambers - Scientific Director: Dr. C. Macolino Radiation-matter interaction; astroparticle physics; detection of rare events. - Modeling methods for the study of atmospheric processes underlying the development of severe events Scientific Director: Prof. R. Ferretti Basic physics and chemistry; meteorological models for climate and environment.		



	- Exploitation of surface plasmon polaritons for the enhancement of chiro-optic sensitivity in nanophotonic devices – European project Twisted TwistedNano - Scientific Director: Prof. A. Marini Nanophotonics; radiation-matter interaction.	
	- Development of nanophotonic devices for integrated processing of optical information and neuromorphic computation – PRIN 2022 project - Scientific Director: Prof. A. Marini Nanophotonics; radiation-matter interaction.	
How apply	The application must be submitted only via the online procedure available at: https://pica.cineca.it/univaq/dottsfc39 . The documents must be attached in pdf format. The application and the attached documents are submitted automatically by closing the online procedure. So, no hard copy of the application and of the documents must be sent to the office.	
Documents to be enclosed in the Application	 1.Curriculum Vitae 2.Candidates holding a degree from an Italian university must provide: Self-certification concerning their Bachelor-level Degree indicating final mark and list of exams taken and marks obtained; Self-certification concerning their Master-level Degree course indicating final mark and list of exams taken and marks obtained. 3.Candidates enrolled in an Italian Degree Course must include: Self-certification of their Bachelor-level Degree indicating final mark and list of exams taken and marks obtained; Self-certification of the exams so far taken in their Master-level Degree course indicating marks obtained. 4.Applicants with foreign Degrees must follow the directions explained in article n. 2 of this call. 5. The candidate can indicate the name of one or two professors with their e-mail address. The referees will receive an e-mail with the instruction to write the recommendation letter directly on line. 6. A summary of their Master Degree thesis (Max 2 pag.) 7. Motivational letter that highlights the coherence between the candidate's profile and the positions referred to in this announcement. 8. Any publications and research projects in which the candidate has participated, deemed appropriate for evaluation; 9. Other qualifications deemed appropriate for evaluation. 10. Photocopy of the candidate's identity card. 	
Language(s)	Assessment of foreign language skills English language skills and competence (written and spoken) shall be assessed during the oral exam Admission Foreign candidates may take the oral exam in English	
Exam schedule	Evaluation of documentation: September 21, 2023 at 10:00 a.m. Interview: September 25, 2023, at 10:00 a.m. at the Department of Physical and Chemical Sciences – Classroom "Signorelli" - Coppito – L'Aquila	
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, motivational letter, publications and other qualifications. The minimum score required for admission to sit the oral exam is 30.	



	 Oral exam: The oral exam aim is to evaluate the candidate's aptitude for scientific research, general preparation and preparation on the subjects indicated for each research topic in the section "Examination topics". The exam includes assessment of the candidate's English language skills. Foreign candidates may take the oral test entirely in English. The minimum mark for the oral test is 30 points, the maximum mark is 50 points. 	
Title evaluation results publication	Title evaluation results shall be published on the University website https://www.univaq.it/section.php?id=2207 and on Department website: https://dsfc.univaq.it/en/	



Technical guidelines for the submission of the application form for Ph.D. Course in Physical and chemical sciences - XXXIX cycle

Applications must be submitted from 11.00 a.m. (CEST) on 9 August 2023 and no later than the September 15, 2023 at 1 p.m. (CEST).

Online form available at: https://pica.cineca.it/univa/dottsfc39.

- 1. The application form must only be submitted online. No hard copy of the application must be sent by post.
- 2. Before filling in the application form, please read carefully the selection announcement, in particular the PhD course table in order to verify the eligibility criteria and the documents to be submitted.
- 3. WATCH OUT: ALL DOCUMENTS MUST BE UPLOADED IN PDF FORMAT AND, IN SOME CASES, THEY MUST BE PRINTED, SIGNED AND UPLOADED. WE ADVISE APPLICANTS TO USE A PC CONNECTED WITH A PRINTER AND A SCANNER.
- 4. It is possible to fill in the application form by logging in at different times and saving the data. In order to access the application form that has been partly completed you must click on Modify to complete it.
- 5. Further information may be requested through HELP POINT ONLINE, accessible from the website https://help.univaq.it/
- 6. For technical problems contact support via the link at the bottom of the page https://pica.cineca.it/univaq.
- 7. Applicants with foreign qualifications that have not been legally recognized as equivalent to Italian degrees must read art. 2 of the selection announcement and upload the required documents in the relevant section of the online application.
- 8. After the application has been correctly filled in and submitted, applicants will receive an email with the confirmation of the submission.

1. DATA REGISTRATION

To start the registration go to the website https://pica.cineca.it/univag/dottsfc39.

Access can be done via SPID. In the absence of SPID, at the first access applicants need to register by clicking on 'Register' and fill in the required data. If applicants already have LOGINMIUR credentials, they don't need to register again. They must access with their LOGINMIUR username and password in the relevant field LOGINMIUR.

In case you forgot username and password, click on 'Forgot your credentials?'.

After completing the data, click on 'New Registration'. Applicants will receive an email with the data to confirm their registration. In case you don't receive or cannot read the email, contact support via the link at the bottom of the page https://pica.cineca.it/univag.

2. APPLICATION FORM ACCESS

Once registered it is possible to access the website https://pica.cineca.it/univaq/dottsfc39.



and login with username and password to fill in the application form by clicking on 'New Submission'. Before filling in the application form, applicants can modify their personal data by clicking on the top right button (User Profile) and select what to modify.

The first section to be filled in is "PHD COURSE": the applicant must select the Ph.D. course in Physical and chemical sciences.

The candidate must express a preference for one or more themed scholarships, by opening the appropriate menu.

After that, the candidate is allowed to sit the oral exam abroad by skype or similar technologies. For that he/she must communicate a skype address or other links.

WATCH OUT: after completing each section of the form, the applicant must click on the button "SAVE AND PROCEED". Only if the data have been correctly filled in, the applicant can go to the next section. Otherwise error messages will display and will be compulsory to correct the data.

The section named "DECLARATIONS" display a list of declarations concerning the veracity of data inserted and the treatment of the personal data inserted in the application form.

The third section to be filled is "PERSONAL DATA". This section is partially filled by transferring data from the registration procedure thus the candidate must complete the missing items. In case of mistakes in personal data, applicants can modify them by clicking on the top right button (User Profile).

In the following section "Admission requirements" applicants must select one out of the four options proposed. After that applicants must specify the qualification awarded or to be awarde by the completion date of the enrollment, and in any case no later than the start date of the course (November 1st, 2023).

In the following section "FURTHER DECLARATIONS" the applicants must compulsory declare the level of knowledge of English language and if they are in situations preventing the receiving of the scholarship and/or of special needs.

In the section named "ATTACHMENTS" the applicant can upload the identity card (or passport) and all the qualifications and certifications required in order to participate to the selection.

The references letters cannot be uploaded in this section: for these letters the applicant must follow a different procedures written above.

The applicant can write a self-declaration about the degree obtained and about all the exams passed. The self-declaration concerning the degrees obtained, can be written in a simple paper according to the scheme available below, or downloading the concerned form if it is available on the website of the home University.

The applicant must read carefully the list of documents required for the Ph.D. course, in order to speed up the procedure.

In this section you must upload the documents requested for the recognition of the foreign academic degree (art. 2 of the selection announcement - Admission of applicants with foreign (non-Italian) qualifications). The files must be in pdf format and readable. For each file a brief description is needed.

Now, the candidate who has completed the application must return to the "Dashboard" and perform "Verify" If the system detects errors it is necessary to edit the application and proceed with "Verify" again. If the system does not indicate any errors, the candidate returns again to the "Dashboard" and selecting "Payment" makes the payment of the contribution of € 10.00 through "Pago PA" (Note: only candidates residing abroad, who do not have an Italian bank account, can make the payment by bank transfer).



After completing this section applicants will be redirected to the dashboard where they can see the draft of their application form. By pressing the bottom "Sign and submit" the process is finalised. By clicking on "Sign" bottom the process is finalise and the PDF file of application is generated.

The application must be signed. <u>The absence of the signature, or of the handwritten signature, implicates</u> the exclusion from the public competition.

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

According to article 3 of the call the possible methodologies are the following:

- 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.

In case the access to the platform is via SPID, it is not necessary to sign the application with one of the aforementioned methods.

In case the applicant decides to sign the PDF file he/she must verify that the file that is going to be upload is complete because the system accept only one PDF file.

After the submission applicants will receive an email with the confirmation of the submission. Applicants will always be able to login to their account, personal data and application form.

3. REFERENCE LETTERS

The applicant must indicate the names and addresses of two referees at maximum. The applicant must write in the form the official email address of the referee. A private email address is not allowed.

The referee will be informed of the candidates requirement and receive a reference letter form that he/she must submit by 20Th September 2023 at 1 o'clock p.m. CEST.

We advise applicants to inform referees that they will receive the request. When the referee fills in the letter and submits it, the applicant will receive an email specifying that the letter has been upload. Applicants, however, can always check the status of the request. Reference letters uploaded by applicants or sent by the referent directly to the university, will not be taken into consideration.

If applicants wish to change the referee they must contact support via the link at the bottom of the page https://pica.cineca.it/univaq.



4. APPLICATION FORM MODIFICATION OR WITHDRAWAL

Modifications of the application form after the pdf has been created are possible:

- If they have submitted the application form and received the email of confirmation applicants cannot modify the application form but they will be able to withdraw it following the relevant procedure available on the dashboard and submit a new application form.
- If they have created the pdf file but they have not completed the submission (the pdf file has not been uploaded yet and so they haven't received the email of confirmation) then they must contact support via the link at the bottom of the page https://pica.cineca.it/univaq and ask to have the application re-opened. In the email they must specify the reason of their request, the ID of their application form and attach copy of their identity document.







Self-Declaration in substitution of certification (art. 46 D.P.R – 28th December 2000, n.445)

and/or

Self-Declaration in substitution of attested affidavit (art. 47 D.P.R 28th December, 2000 n.445)

The undersignedbirth)	born in (place of birth)		on (date of
residing in (city/State/Country) at (address)			Postal code
	DECLARES:		
1) in compliance to art(s). 46,47 art following Degree:	nd 38, D.P.R 28/12/2000	0, n.445 that he/she ha	s been conferred the
Bachelor-level Degree in (title) Degree)	at	(name of University of	College issuing the mark
and that he/she passed the following exam	ns:		
EXAM (title of the exam/course)	MARK 	DATE	
2) in compliance to art(s). 46,47 and Degree:	38, D.P.R 28/12/2000, r	n.445 that he/she will be	confer the following
Master-level Degree in (title) Degree)	at (i	name of University or C	College issuing the
and that he/she passed at today the follow	ving exams:		
EXAM (title of the exam/course)	MARK	DATE	



The undersigned declares that he/she is aware of the sanctions applied in case of false statements established in art.76 D.P.R. 28/12/2014, n.445 and of the consequent loss of any benefits obtained by making false statements as established in art. 75 D.P.R. 28/12/2014, n.445.

The undersigned, under penalty of nullity of the application	tion, shall enclose a photocopy of a valid ID.
Date,	
	(Applicant's signature)