

Progetto PNRR “QUOVADIS - QUantum Optimization Variational Algorithms for Higher-Dimensional Systems” per la realizzazione delle attività di ricerca previste nell’ambito del bando a cascata del Programma “Centro Nazionale per HPC, Big Data e Quantum Computing” - Spoke 10
Finanziato dall’Unione Europea - NextGenerationEU
CUP D43C22001240001

**SELECTION PROCEDURE FOR A DEPARTMENTAL RESEARCH GRANT
IN THE SCIENTIFIC AREA 02/PHYS-04 - THEORETICAL PHYSICS OF MATTER, MODELS, MATHEMATICAL METHODS AND APPLICATIONS**

Art. 1 - OBJECT

A selection procedure by qualifications is hereby opened for the assignment of n. 1 departmental research grants with a duration **24 months** and for a gross amount of **€ 55.127,69 (€ 27.563,85/anno)**

Research Title: **Quantum variational algorithms for quantum many-body scar states**

Research Project:

A quantum algorithm will be developed for the recognition of quantum scar states by classical optimization of quantum circuits.

The structure of the circuit itself will be optimized and the resilience of the algorithm to noise will be studied, extending the quantum algorithm to two-dimensional systems.

Scientific supervisor: **Prof. Giuliano Benenti**

The research will be performed at the Department of Science and High Technology located in Via Valleggio, 11 - Como (Italy)

Art. 2 - GENERAL REQUIREMENTS

All those who have received a **Master degree in Physics** who have an appropriate scientific-professional curriculum to carry out research activities established by this competition notice can participate in this public selection. **PhD in Physics** or equivalent qualification earned abroad **is required** for admission according to this competition notice. Candidates must have no criminal record.

Applicants in possession of degrees earned abroad, who have not obtained the declaration of equivalence, must enclose in the application form a translation into Italian and a declaration of value of the foreign degree by a qualified Italian Diplomatic or Consular Representative in the country of origin, according to the current Laws on the subject.

The degree earned abroad can be declared admissible by the Judging Commission, only for purposes related to the selection.

Qualifications must be possessed on the expiration date established for the submission of the application form.

Candidates will be admitted to the competition conditionally.

Those who have already received grants according to law n. 240 of 30 December 2010 for more than 6 years, except for the period corresponding to a PhD without scholarship within the maximum limit of the legal duration of the related course, cannot participate in the selection. For the purpose of the duration of the grant, periods spent on maternity or sick leave are not relevant according to the current regulations.

Art. 3 - INCOMPATIBILY

Personnel employed in Universities and in other public institutions can participate in the selection procedure, as of article no. 22, paragraph 1 of the Law no. 240 of 30 December 2010, but must resign should they obtain the research grant.

Civil Servants from different institutions from those mentioned in the paragraph above can receive the research grant, but must be placed on unpaid leave for the duration of the research grant.

The research grant is not compatible with enrolment in undergraduate courses, graduate courses, PhD courses with scholarship or medical specialization schools, in Italy or abroad, and with enrolment in other Schools/Courses which require mandatory attendance and prevent carrying out the activities established in the contract.

Relatives and in-laws within and including the fourth degree of a professor who is a member of the Department or the Structure which requested the Research Grant, or of the Rector, Director General or of a member of the University's Board of Directors cannot participate in the selection procedure for the assignment of a research grant.

The research grant cannot be cumulated with other kinds of granted scholarships, with the exception of those awarded by national or foreign institutions to aid, with periods of study abroad, the education of the Research Fellows. The research grant cannot be cumulated with subordinate work, with contracts of collaboration or with income deriving from freelance activities conducted in a continuous way.

The total duration of the relationship established with grant holders as per the present article and of the contracts as specified in art. 24 of the Law no. 240 of 30th December, 2010, with one or more public, private, or telematic Universities, and with all the institutions listed in art. 22, paragraph 1, of the Law no. 240/2010, cannot exceed the total duration of 12 years, even

non-continuous, with the same subject. As per the regulations in force, maternity and sick leave periods do not count in the duration of the above mentioned relationships.

The recipient of the research grant can attend, also in excess and without scholarship, PhD courses, provided that they pass admission tests.

The participation of the recipients of research grants in Master's degrees is incompatible.

Art. 4 - APPLICATION AND DEADLINES

The application to participate in the selection, as well as the qualifications held, and the documents and publications helpful for the procedure, must be submitted, under penalty of exclusion, via computer, using the dedicated procedure available at: <https://pica.cineca.it/uninsubria/>

The electronic application requires the possession of an e-mail address in order to carry out the self-registration procedure. The candidate will have to enter all data required for the production of the application and attach the documents in PDF format. A maximum of no. 30 documents for publications and no. 30 documents for other qualifications to be evaluated, can be attached, with a maximum size of 30 Mb.

The application form must be completed in all its parts, as indicated in the electronic procedure, and must include:

- A scientific and professional CV
- A copy of a valid ID card

No other forms of submission of applications or useful documentation for participation in the procedure are allowed.

Within the application deadline, the procedure can be saved in draft mode. The date of electronic submission of the request for participation in the selection is certified by the computer system through an automatic receipt, which will be automatically sent via e-mail.

At the end of the period for submission, the system will no longer allow access and sending the electronic form.

Every application will be assigned an identification number, which, together with the selection procedure code in the application information, must be specified for any subsequent communication.

The process of compiling and submitting electronic applications must be completed no later than 12.00_{noon} of 15th November 2024.

The submission of the application form must be completed and concluded as follows:

- **Sign your document on the ConFirma server**

To digitally sign the document, you must have specific hardware which is compatible with the ConFirma service (for example, smart card or USB device with a digital certificate of subscription issued by an accredited certifying body). After signing, it will be possible to download the signed PDF file

- **Digitally sign the document on your electronic device**

To digitally sign the document, you must have specific hardware (for example, smart card or USB device with a digital certificate of subscription issued by an accredited certifying body) and a digital signature software with which you may create, starting from the PDF file of the document downloaded from this site, a signed pdf.p7m file. The pdf.p7m file must be uploaded again to the website

- **Sign the application (no digital signature)**

If you can't sign the document digitally as specified in the other sections, you need to download the PDF file of the application, print it, sign it, scan it in a PDF file and upload it again to the website.

ATTENTION: a copy of a valid ID card must be attached as the last page of the scanned PDF, after the application form pages (this step can be skipped if a copy of the document was uploaded as an attachment of the application form).

Applications without the candidate's signature will be declared inadmissible.

Foreign nationals who reside in Italy can take advantage of the self-certification above, when substantiating states, facts and personal qualities certifiable by public or private Italian entities (article no. 3 of the Decree of the President of the Republic no. 445 / 2000).

Foreign nationals who do not reside in Italy cannot use in any way the institution of self-certification (article no. 3 of the Decree of the President of the Republic no. 445/2000).

Qualifications, certifications and publications which do not comply to the abovementioned indications will not be taken into account. In the application of the rules on self-certification, the University will verify the accuracy of the substitutive declarations and self-certifications pursuant to the Decree of the President of the Republic no. 445/2000.

Only the documents received by the final deadline indicated in the call will be considered valid. The addition of qualifications earned or presented after the expiration date of the deadline of the call will not be admissible to the selection procedure.

Reference to documents and publications previously submitted for participation in other selection procedures in this or other Administrations is not allowed.

Candidates must provide at their expense to the restitution of qualifications and publications sent to participate in the selection procedure, prior to agreements with the Research and Internationalization Office of the University of Insubria.

All the information regarding the selection will be notified in the University Official Notice Board and on the University website: www.uninsubria.it.

Art. 5 - SELECTION PROCEDURE

The selection procedure is carried out through a comparative evaluation of the CVs and possible interview of the candidates who have applied, on the basis of their qualifications and publications.

Notification of the interview will be given to individual candidates using the e-mail address provided in the application or by registered post at least 7 days before the interview or the interview will be supported with a remote mode via computer media for audio and video, with the recognition of the identity of the candidate.

The interview will focus on the drawing of professional experience oriented candidate to assess the suitability of the check object in the pursuit of research.

Failure to attend the interview is considered to be explicit and definitive manifestation of the will of the candidate to give up the selection.

To take part in the interview, candidates must show a valid identification document.

The interview will be public.

Disabled candidates, according to Law n. 104/1992, should make a specific request for any assistance needed in order to take part in the interview.

For the evaluation of the candidates, the commission has 70 points, of which:

- Scientific and professional curriculum: up to a maximum of 60 points
- Scientific publications: up to a maximum of 10 points.

CURRICULUM (UP TO 60 POINTS)

- 1) the Master degree maximum 20/70 points and in particular:
 - score 110/110 cum laude 20 points
 - score from 105 to 110 15 points
 - score 99 to 104 10 points
 - score 80 to 98 5 points
- 2) PhD maximum 15/70 points
- 3) previous scientific research activities (contracts, scholarships, commissions, certificates...) maximum 15/70 points
- 4) other additional qualifications maximum 10/70 points

PUBLICATIONS (UP TO 10 POINTS)

5) maximum scientific publications points maximum 10/70

For inclusion in the final ranking, if you make the interview, the candidates must have obtained a minimum score of 40/70.

At the end of the evaluation procedure the ranking will be published in the University Official Notice Board and on the University website: www.uninsubria.it.

The final list is approved by the Director of the Department and will be posted on the University's official online Board and on the website as notification to those concerned.

The merit ranking will be used in the case of withdrawal or termination of the research grant; in this case, the position will be offered to the next candidate in the ranking list, provided that the period proposed for the contract is not less than one year.

Art. 6 - EXCLUSION

Candidates are admitted with reservation.

The following imply exclusion from the procedure:

1. submission of the application after the expiration date of the call
2. failure to sign the application form
3. lack of participation requirements
4. existence of situations of incompatibility.

Exclusion is provided for with a motivated decision of the Director of the Department and will be communicated to the candidate using the e-mail address provided in the application.

Art. 7 - WITHDRAWAL

Should candidates decide to withdraw from the procedure, they should send the withdrawal form via email at: segreteria.dipsat@uninsubria.it.

Art. 8 - RECRUITMENT AND HRS4R

The recruitment of fixed-term researchers (or Established Researchers, using the European definition) will conform to the European Charter for Researchers (ECR), the Code of Conduct for the Recruitment of Researchers (CCRR) and the Code of Ethics, code of conduct and principles of research integrity of the University of Insubria, which provide the general framework for the guidelines and requisites for the roles, responsibilities and rights of

these positions, thus guaranteeing that selections procedures are open, transparent and meritocratic.

The University of Insubria received the European Quality Award “HRS4R - Human Resources Strategy for Researchers” in February 2019: such certification recognizes organizations their efforts to implement the Charter and Code in their policies and practice, and identifies the universities and institutions which create and promote a stimulating and encouraging research environment.

Art. 9 - COLLABORATION CONTRACT

The selection result is communicated to the recipient of the research grant, who will have to sign the private-law contract within a specified period, otherwise they will forfeit. This fixed-term contract does not represent in any way a permanent contract of employment and does not give right to be admitted to permanent positions within the University. The University provides equal opportunities to men and women.

The conditions are indicated by the contract and governed by the Regulations.

The position has a duration of **24 months** and can be renewed for periods of not less than one year, up to a maximum of a total of six years, including those within different institutions and universities, with the exception of the period in which the grant was received together with a PhD, not exceeding the legal duration of the course.

The contracts referred to in Article no. 24 of Law no. 240/2010, also with different universities and research institutions, as described in paragraph no. 1 of article no. 3 of this call, may in no case exceed twelve years, including non-consecutive ones. For the purposes of the abovementioned contract, periods spent on maternity or sick leave, in accordance with the current regulations, are not considered.

Renewal is still subject to a positive evaluation of the activities by the Department's Board, as well as to availability of budgetary funds.

For non-EU citizens, the grant will start when they have obtained the residence permit for scientific research, and from the actual beginning of the research activity.

Art. 10 - REMUNERATION

The annual amount of the research grant is of **€ 55.127,69 (€ 27.563,85/anno)** inclusive of the taxes which must be paid by the recipient.

The University will provide medical insurance and third-party civil liability.

The amount is tax free according to article no. 4 of the Law no. 476 of 13/08/1984 and is subject, on social security matters, to the regulations according to article no. 2, paragraph 26 and following amendments and additions, of the Law no. 335 of 8/08/1995.

The grant will be paid in monthly instalments.

Art. 11 - SUSPENSION OF THE CONTRACT FOR MATERNITY AND SICK LEAVE

The research activity is suspended for maternity leave.

To such a case there apply the provisions of the Decree of the Ministry of Labor and Social Policies of 12/07/2007, published in the Official Journal no. 247 of 23/10/07. Sick leave is regulated by article no. 1, paragraph 788 of the Law no. 296 of 27/12/2006 and following amendments and additions.

During the period of mandatory maternity leave, the amount paid by the National Institute for Social Security (INPS), according to article no. 5 of the abovementioned Decree of 12/07/2007, will be integrated by the University to match the total amount of the research grant.

The period of mandatory maternity leave must be made up for after the natural expiration of the contract, as provided by the law, upon decision of the Director of the Department.

Art. 12 - TERMINATION BY THE RECIPIENT OF THE RESEARCH GRANT

The recipient has the right to terminate the relationship, by notifying the Director of the Department with a notice of at least thirty days by email at: segreteria.dipsat@uninsubria.it.

Failure to notify will entail withholding remuneration for a sum related to the period of failed notice.

Art. 13 - TERMINATION OF THE CONTRACT

Should the Research Fellow not continue the activities provided for in the research program without justification or in case of serious and repeated shortcomings, the contract may be terminated upon reasoned request of the research Coordinator, authorized by a resolution of the Department's Board.

The contract is automatically terminated, without prior notice, in the following cases:

- undue failure to commence or undue delay of the activity;
- undue suspension of the activity for a period exceeding 15 days;
- serious infringement of incompatibility, according to article no. 7 of the Regulations.

- negative assessment of the research activity on the part of the Department's Board.

The termination provisions are ordered by the Director of the Department.

Art. 14 - PROCESSING OF PERSONAL DATA

In applying the Legislative Decree no. 196/2003 and the UE 2016/679 - GDPR, the University undertakes to respect the confidential nature of the information provided by the candidate. All data provided will be handled only for purposes connected to the selection procedure and to the management of the collaboration relationship, with respect to the current regulations as provided for in the attached document.

Art. 15 - INFORMATION ON THE APPLICATION OF REGULATIONS REGARDING THE PREVENTION OF CORRUPTION

The University, in the implementation of the legislation on the subject, has adopted a three-year plan for the prevention of corruption and appointed a Committee for the Prevention of Corruption.

The three-year plan is published on the institutional website at <https://www.uninsubria.it/amministrazione-trasparente/altri-contenuti/prevenzione-della-corruzione>

Any reports can be sent to: anticorruzione@uninsubria.it

Art. 16 - ADMINISTRATIVE PROCEEDINGS

According to Law n. 241 dated 7/08/1990 Dott. Santo Zema Phone: +39 (0) 31.2386110 e-mail: santo.zema@uninsubria.it is in charge of the competition notice.

Art. 17 - FINAL RULES AND INFORMATION

For matters not provided for in this call, please refer to the applicable laws and regulations on the subject.

This call will be published on the University's official online Board and on the "Calls" page of the University, of the Ministry of Education, University and Research and of the European Union websites.

Como, *date of digital signature*

The Director of the Department
Prof.ssa Michela Prest
Digitally signed