GUIDE FOR APPLICANTS
QuanG
HORIZON-MSCA-2021-COFUND-01

This Guide explains the principles of "Quantum Grenoble Doctoral Programme" cofounded by Marie Sklodowska-Curie Actions – HORIZON-MSCA-2021-COFUND-01, (hereafter quoted also as "QuanG").

There will be 4 calls for applications for in total 36 PhD fellowships in Quantum sciences and technologies in Grenoble.

First call timetable (9 fellowships):

October 7th, 2022 at 17:00 (Central European time)	Deadline for submitting applications online
November 7th 2022	Selection of candidates for an interview
December 7th to 14th 2022	Interview of the selected candidates
December 19th 2022	Information on the outcome of the selection
January 3th 2023	Acceptance of the positions will be required from the selected candidates

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Table des matières

1. The Essentials

What are the "Quantum Grenoble Doctoral Programme" MSCA COFUND actions?

The Doctoral Training in Quantum Sciences in Grenoble "QuanG" Cofunded by Marie Sklodowska-Curie Actions offers 36 PhD fellowships in the framework of the Horizon Europe programme. This offer is spread over 4 calls from 2022 to 2024 (one during autumn 2022, two in 2023, one during spring 2024). PhD projects will be hosted in one of the laboratories of the University Grenoble Alpes co-managed with CNRS, INRIA or CEA (See Annex 2). Fellows will enrol in one of the UGA Doctoral Schools (See Annex 1).

Who can apply?

There is no nationality or age criteria but the applicants must meet the following eligibility requirements:

- (**COFUND mobility rule**) Applicants should not be a current employee of the host laboratories and must have lived in France for more than 12 months during the 3 years immediately before the deadline of the co-funded programme's call.
- Applicants must have a master's degree or an equivalent diploma at the time of their enrolment. Applicants must be doctoral candidates, *i.e.* not already in possession of a doctoral degree. Eligible candidates can be persons having started but not finished a doctoral training, thus providing a second career chance to motivated and talented applicants.

Applications from female candidates are strongly encouraged.

Which research topics are supported?

Domains of physics, computer science, engineering, mathematics, chemistry, and humanities are eligible.

How does it work?

Each candidate will choose one research topic among the list provided on the web page, get in touch with the researcher proposing the topic and mature together with them the research project and the industrial secondment/international research visit(s).

Candidates have to apply within the specified deadlines by submitting the required documents. All eligible proposals will be evaluated. The recruitment committee will pre-select then interview around 20-25 candidates. A final list of around 9 selected fellows and 6 reserve list will be established.

What kind of contract will fellows have?

A 3-year French employment contract will be drawn up by UGA, this provides high quality healthcare, unemployment benefits, retirement. The fellows will receive 2300€ as monthly gross salary, for exactly 36 months. QuanG will cover yearly enrolment to University Grenoble Alpes Doctoral school which is around 380€.

First Call: Timing and selection procedure

- October 7th, 2022 at 17:00 (central European time): the full application form and the reference letters should be sent by email to quantum-grenoble-phd@listes.grenoble.cnrs.fr
- November 7th, 2022: selection of candidates for an interview
- December 7th to 14th, 2022: interview of the selected candidates
- December 19th, 2022: information on the outcome of the selection
- January 3th, 2023: acceptance of the positions will be required from the selected candidates

2. About QuanG COFUND

2.1 General aspects

The fundamental goal of the program is to train a new generation of PhD students into excellent quantum researchers capable of being pioneers in this emerging discipline. Grenoble is uniquely placed to address the new quantum challenges, offering all the necessary expertise (from fundamental to applied and industrial) on the same geographical site.

QuanG will provide outstanding supervision and training in research and transferable skills and strongly encourage minorities and women to enter the domain. Our holistic training will prepare the fellows for future employment in critical roles in companies and research centres across Europe.

The programme covers a broad scientific perimeter, and encompass all resources needed to develop quantum-based devices in the fields of quantum materials, quantum technologies and devices, quantum computing and software, quantum enabling technologies. QuanG scientific perimeter will also involve chemistry, electrical engineering, applied mathematics, computer sciences and humanities.

2.2 Eligibility criteria

There is no nationality nor age criteria. However, in agreement with MSCA rules, eligible candidates must fulfil the following criteria (in case of doubt, please do not hesitate to contact the QuanG helpdesk for checking):

- (**Mobility rule)** Candidates must show transactional mobility by having not resided or carried out their main activity (work, studies, etc.) in France for more than 12 months in the three years immediately before the deadline of the QuanG's call. Compulsory national service, short stays such as holidays and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.
- Candidates must have a master's degree or an equivalent diploma at the time of their enrolment. They must not have been awarded a doctoral degree.

2.3 Working and Employment conditions

As non-permanent full-time employees under French law, fellows will benefit from free social security coverage and social benefits (for health, maternity/paternity leave if applicable, disability and death, unemployment, and occupational accidents, childhood care), and retirement financed by social contributions. Local public transportation costs will be taken in charge up to 50%. Fellows will be offered a high number of vacation days (42 days/year). Life in Grenoble is of high quality as the city has been recently labelled European Green Capital 2022.

Fellows will receive a financial support for a period of exactly 36 months. They receive 2300€ as monthly gross salary. Please be aware that registration fees to enrol in Doctoral School (around 500€ per year) are covered by QuanG.

The lab will provide fellows with a high-quality work environment: office space and furniture, scientific equipment, access to library and shared lab facilities (e.g. mechanical and electrical workshops), printing facilities and a personal computer. Fellows will be offered the opportunity to take French lessons in order to learn quickly how to communicate with their French environment.
In case of necessity, the International Student Office of UGA will assist the PhD fellows in searching for accommodation in Grenoble and support for administrative issues including visas, health, bank, etc.

2.4 Training, supervision and career guidance: typical activities of fellows

The training is provided at four different levels:

- **Scientific training**: a UGA PhD student is required to follow a minimum of 120 hours of doctoral courses/workshops: 40 hours for core Doctoral School scientific courses, 40 hours for multidisciplinary lectures/seminars, 40 hours dedicated to professional preparation.
- **Secondments**: Secondments are compulsory and can be done either in industry (at least 2 months) or in international laboratories (4 months). A list of partners accepting to host the fellows can be found on the web page. This list is non-exhaustive and the fellows can propose other secondments if they prefer. The QuanG programme will cover the accommodation and travel expenses associated to the secondment of personal travel allowance.
- **Events & Network**: Fellows will be offered a vast choice of networking events and actions proposed by the QuanG Governing Board. Fellows will have to take part to one or more actions from a dedicated list: QuanG final conference organization, Quantum across the borders, Sustainable quantum, Humanities for quantum, Communicate quantum science. These activities will complement their training by a "learning by doing" approach.
- **Career oriented**: Numerous training courses will be open to QuanG fellows to help them enrich, develop, and valorise their transferable skills. Integrity and ethics, gender and diversity consideration as well as data management and open science training will be a key training part of QuanG Programme.

The supervision and monitoring of QuanG fellows will rely on two main actions: daily scientific supervision and Research and career guidance.

All the habilitated supervisors have solid international track records and supervision experience of master students, PhD students and post-docs. Each QuanG supervisor will be required to attend a training on PhD supervision and is not allowed to supervise more than three doctoral students. Each fellow is supervised on a daily-basis by their supervisor. The Governing Board will offer to the supervisors/mentors a dedicated support though a yearly half-a-day workshop, to work on common vision of QuanG training and supervision.

The fellows will be accompanied through a career guidance system based on an initial Thesis Charter and a yearly follow-up. The initial thesis charter integrates the compulsory UGA charter and includes all the details of the doctoral project including: Detailed supervision arrangements, thesis topic and aims, training programme to be completed, overview and knowledge to be acquired by the student, data management and open science.

During the secondment, QuanG fellows will be under the responsibility of a dedicated local mentor. At the end of training years 1 and 2, each fellow and his/her supervisor will meet with the personal follow-up committee. The meeting will include a scientific seminar presentation and a scientific questions/answers session, an individual discussion of the committee separately with the fellow and with the supervisor and mentor.

2.5 Fellows obligations : open access, ethical issues, other

Following the Horizon Europe rules must guarantee open access to scientific publication and information on EU funding precisely:

- **Open access to scientific publications**. The fellows must ensure open access (free of charge online access for any user) to all peer reviewed scientific publications relating to their results; In particular, they must as soon as possible and at the latest on publication, deposit a machine-

readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications.

- **Information on EU funding**. Any dissemination of results (in any form, including electronic) must display the EU emblem and include the following text: "*This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie project QuanG.*"

Researches funded by the QuanG Cofund are engaged to the highest standards of research integrity and must fulfil the ethical procedure of Horizon Europe as detailed in the ethical Questionnaire (see Annex 3 for details). It takes into account the specificities of quantum, the intellectual properties, and confidentiality rights.

Regarding all other possible contract obligations or rights (such as pregnancy, childbirth, illness lasting more than a month, etc.) fellows have to follows the rules of Université Grenoble Alpes. However, they have the obligation to keep informed the QuanG board.

3. How to apply

Before submitting, please check that you fulfil the eligibility criteria (see point 2.2) and be aware that this program will support only PhD projects with an advisor that belongs to a lab co-managed by UGA (See Annex 1 & 2). In case of any additional questions, the applicant has the possibility to contact the helpdesk of the QuanG team by email quantum-grenoble-phd@listes.grenoble.cnrs.fr The selection process is divided in 4 steps, described below.

3.1 Step 0: Call – List of research topic published, opening and diffusion of the call

Research topics will be prepared by the researchers of the host laboratories (in line with QuanG axes) validated by the QuanG Governing Board and posted on a dedicated page of the QuanG website.
Each candidate will choose one topic among the list, get in touch with the researcher proposing the topic and mature together with them the research project and the industrial secondment/international research visits. A mandatory element will be the interdisciplinary self-assessment of the project. The candidates will also have to consider ethic (see Annex 3).

3.2 Step 1: Application – Written application and pre-selection for interview

Candidates must fill the application form and sent it to the following mail address: quantum-grenoble-phd@listes.grenoble.cnrs.fr The application form will require the following information/documents:

- Applicant and Thesis information
  - Identity proof (copy of passport);
  - Summary of the Thesis Project;
- Scientific program;
  - Scientific project description
  - Driving forces and outcomes of the project
  - Connection between the thesis supervisors and the applicant
  - Assets and suitability of the candidate for the project
  - Interdisciplinary aspects
  - Ethics
- Program specific information
- Curriculum Vitae of the applying student

- Two reference letters: one from the head of the Master Programme (or equivalent) and the other one from a previous supervisor;
- One cover letter indicating why the applicant wants to prepare a PhD, what they expect from these three years, and what are their plans for their future career.
- Complete statement of the student's exam results

Candidates have also to declare that they fulfil the eligibility conditions (see point 2.2) More precisely :

I undersigned [First Name LAST NAME] declare that I comply the following MCSA eligibility rules:
– Applicants should not be a current employee of the host laboratories
– Applicants must not be living in France for more than 12 months during the past 3 years at the deadline of the co-funded programme's call
– Applicants must be doctoral candidates, i.e. not already in possession of a doctoral degree at the deadline of the co-funded programme's call

The final application form will be signed by the candidate, the supervisor, and the host laboratory director. Please, be aware that your personal data are collected and processed by the Research Executive Agency and/or the European Commission and the Université Grenoble Alpes.

3.3 Step 2 : Interview – Interview and short list of student to be hired and reserve list

The applications will be sent to at least two external Referees. On the basis of their assessment, the Recruitment Committee will choose the candidates to interview. The assessment criteria are detailed in section 5 below. All candidates will be informed of the outcome of this first selection step. Candidates selected for the interview are invited to Grenoble. Hotel and travel costs will be directly taken in charge by QuanG to ensure equity of chances. This is the occasion to visit the labs and to exchange with future supervisors.

Interviews are conducted by a Recruitment Committee panel (including external experts and UGA representatives). Each candidate has 10 min of presentation (typically a short CV, main scientific achievements, research project and benefit of the fellow on-site visit) and 15 min for questions.

Recruitment committee establishes a ranking of the candidates in order of merit. The project manager will communicate the decision to the applicant by mail. She will release the short and reserve list on QuanG Website.

3.4 Step 3: Enrolment – Acceptance of the positions and enrolment

Candidates are asked to accept the fellowship within 2 weeks after receiving the offer. Once accepted, the enrolment procedure will start and will be conducted by the administrative staff at UGA.

4. Timetable and specific information for Call 1

4.1 Timetable

October 7th 2022 at 17:00 (Central European time)	Deadline for submitting applications online
November 7th 2022	Selection of candidates for an interview
December 7th to 14th 2022	Interview of the selected candidates
December 19th 2022	Information on the outcome of the selection

January 3th 2023	Acceptance of the positions will be required from the selected candidates

4.2 Composition of committees

The three consortium bodies involved in the evaluation and selection are the Governing Board, the Recruitment Committee, and the Redress Committee.

Governing board is composed of the Programme Manager, Scientific advisors, Project Assistant, Synergy and Visibility Advisor and Training advisor. Its responsibility is to validate the application falls with the list of project areas, eligibility requirements check, overall process management.

Recruitment committee is composed of the Governing board, 1 representative of intersectoral partners, 8 external experts (selected on one call, renewed for each call). Its responsibilities include: the choice of application reviewers' external experts, selection of the candidates admitted to the interview, interviews and ranking.

Redress committee is composed of the Programme Manager, Project Assistant, and 2 independent experts. Its responsibility is to follow-up redress procedure.

5. Evaluation criteria and selection procedure

5.1 General

The main criteria for the selection of the application are the quality of the candidate and the quality of the research project. However, the motivation and the quality of the advising will also be evaluated.
Each criterion will be graded from 0 to 5 with the following guideline:
0 – The application fails to address the criterion or cannot be assessed due to missing or incomplete information.
1 - Poor. The criterion is inadequately addressed, or there are serious inherent weaknesses.
2 - Fair. The application broadly addresses the criterion, but there are significant weaknesses.
3 – Good. The application addresses the criterion well, but a number of shortcomings are present.
4 – Very good. The application addresses the criterion very well, but a small number of shortcomings are present.
5 - Excellent. The application successfully addresses all relevant aspects of the criterion. Any shortcomings are minor or none.

5.2 Selection Step 1 and 2 - evaluation criteria and procedure

Step 1 and 2 of the selection will rely on a specific set of criteria as described before. At step 1, the committee will evaluate all complete applications received at the deadline. The threshold for decision of interview selection is an average score superior or equal to 12 with a minimum of 3 on each criterion. Following step 2, the applicant's final score will be determined as a combination of both scores (30% weight to application, 70% to interview).

Step 1			**Step 2**	
Application file evaluation criteria, Threshold > 12			**Interview evaluation criteria**	
Quality of the scientific programme and adequacy to research objectives of the teams and QuanG	**Experience & scientific background** in particular in the field of quantum physics, quantum materials and cryogenics, or its transverse axis (applied mathematics, computer science, chemistry, electrical engineering, humanities for quantum): research experience, international network, and scientific production	**Candidate Profile**: -Academic trackers: Consistency of career objectives, PhD candidature, academic awards and honours -Quality of L+M Thesis, grades and test scores -Strength of recommendation letters -Personal experience or interests (openness & creativity, earlier mobility experience, oral language skills...)	**Interview quality**: Quality of presentation, ability to address a new subject	**Quality of the answers** to the questions of the interviewers: logical and clear answers, scientifically sound. Demonstration of problem-solving abilities and critical thinking. Excellent mastering of fundamental concepts is requested.
0-5	**0-5**	**0-5**	**0-5**	**0-5**
Weighting (application)			**Weighting (interview)**	
40%	30%	30%	40%	60%
Ranking: in case of ex aequo - gender and minority aspect or handicap situation will be given priority				
30% of final score			**70% of final score**	

5.3 Redress procedure

All applicants are entitled to request a redress procedure at each step of the selection process if they believe the results of the eligibility checks are incorrect or if they believe there has been a shortcoming in the way their proposal has been evaluated.

A Redress Committee will examine requests for but will not call into question the scientific or technical judgement of appropriately qualified experts.

Requests must be:

- Related to the evaluation process or eligibility checks.
- Set out using a dedicated form, available on the web, including a clear description of the grounds for complaints
- Received within the time limit specified on the call

Only one request for redress per proposal will be considered by the Committee. A reply will be sent within 10 days from the deadline for redress requests.

Annex 1: QuanG hosting laboratories

The fellows can choose among one of the 17 QuanG hosting laboratories, co-managed by UGA:

- **IMEP** : Institut de Licroélectronique Electromagnétisme et Photonique
- **LAHC**: Laboratoire d'Hyperfréquences et de Caractérisation
- **IPhiG**: Institut de Philosophie de Grenoble
- **IRIG**: Institut de Recherches Interdisciplinaires de Grenoble
- **PHELIQS**: Laboratoire PHotonique ELectronique et Ingénérie QuantiqueS
- **MEM**: Modeling and Exploration of Matter Lab
- **SPINTEC**: SPINtronique et TEchnologie des Composants
- **IF**: Institut Fournier
- **Neel** : Institut Néel
- **LIG**: Laboratoires d'Informatique de Grenoble
- **LPMMC**: Laboratoire de Physique et de Modélisation de Milieux Condensées
- **PACTE**: Laboratoire de sciences sociales
- **LMGP**: Laboratoire des Matériaux et du Génie Physique
- **LTM**: Laboratoire des Technologies de la Microélectronique
- **LJK**: Laboratoire Jean Kutzmann
- **LNCMI**: Laboratoire National des Champs Magnétiques Intenses
- **SiMap**: Science et Ingénierie des Matériaux et Procédés
- **TIMA**: Techniques of Informatics and Microelectronics for integrated systels Architecture Lab

Annex 2: Doctoral Schools of the University Grenoble Alpes supporting the QuanG programme

- **CSV**: Doctoral school chemistry and Life Science
- **EEATS**: Doctoral school Electronics, Electrical Energy, Automatic control, Signal processing
- **MSTII**: Doctoral school of Informatics and Mathematics
- **PHYS**: Doctoral school of Physics
- **PHILO**: Doctoral school of Philosophy
- **SHPT**: Doctoral School Humanities, Political and Territorial Sciences
- **IMEP2**: Doctoral School of Engineering Materials Mechanic Environment Energy Process and Production

Annex 3: Ethical Issues

Fellows funded by the QuanG Cofund are engaged to the highest standards of research integrity, this means in particularly that researchers will be advised, trained and engaged to:

- Present their research goals and intentions in an honest and transparent manner.
- Design their research carefully and conduct it in a reliable fashion, taking its societal impact into account.
- develop the skills and competencies they need to practice Open Science -
- Use appropriate techniques and methodologies (including data collection and management).
- Exercise due care for research subjects, may they be human beings, animals, environment or cultural objects.
- Ensure objectivity, accuracy and impartiality when disseminating the results.
- Allow as much as possible and considering the legitimate interest of the student access to research data, in order to enable research to be reproduced.
- Make the necessary references to their work and that of other researchers.
- Refrain from practicing any form of plagiarism, data falsification or fabrication.
- Avoid double funding, conflicts of interest and misrepresentation of credentials or other research misconduct.

Researches funded by QuanG Cofund must fulfill the ethical procedure of Horizon Europe as detailed in the following ethical Questionnaire.

Ethical Issues Questionnaire

This questionnaire summarizes potential ethics issues that your research proposal could raise following the intentional, EU and French laws as specified in the Grant Agreement of QuanG-HORIZON-MSCA-2021-COFUND-01-101081458 between the Research Executive Agency of the European Commission and the University Grenoble Alpes (UGA).

Name of the applicant:

Please answer all questions. If one of the issues applies to your proposal be aware that documents must be provided to confirm the possibility of funding your research. Moreover, in case the funding is confirmed you also have to also account for your ethical considerations in the proposal and all along your PhD thesis. If you have any doubt do not hesitate to contact the QuanG administrative team for further information.

1. HUMAN EMBRYOS/FOETUSES	YES	NO
Does your research involve Human Embryonic Stem Cells (hESCs)?	☐	☐
Does your research involve the use of human embryos?	☐	☐
Does your research involve the use of human foetal tissues / cells?	☐	☐

2. HUMANS	YES	NO
Does your research involve human participants?	☐	☐
Does your research involve physical interventions on the study participants?	☐	☐

3. HUMAN CELLS / TISSUES	YES	NO
Does your research involve human cells or tissues (other than from Human Embryos/ foetuses, i.e. Section 1)?	☐	☐

4. PERSONAL DATA	YES	NO
Does your research involve personal data collection and/or processing?	☐	☐
Does your research involve further processing of previously collected personal data ('secondary use')? (including use of pre-existing data sets or sources, merging existing data sets, sharing data with non-EU member states)?	☐	☐

5. ANIMALS	YES	NO
Does your research involve animals?	☐	☐

6. THIRD COUNTRIES	YES	NO
In case non-EU countries are involved, do the research related activities undertaken in these countries raise potential ethics issues?	☐	☐
Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?		
Do you plan to import any material-including personal data- from non-EU countries into the EU?		
Do you plan to export any material -including personal data- from EU to non-EU countries?		
If your research involves low and/or lower middle-income countries, are benefits-sharing measures foreseen?		
Could the situation in the country put the individuals taking part in the research at risk?		

7. ENVIRONMENT & HEALTH and SAFETY	YES	NO
Does your research involve the use of elements that may cause harm to the environment, to animals or plants?	☐	☐
Does your research deal with endangered fauna and/or flora and/or protected areas?	☐	☐
Does your research involve the use of elements that may cause harm to humans, including research staff?		

8. DUAL USE	YES	NO
Does your research involve dual-use items in the sense of Regulation 428/2009, or other items for which an authorization is required?	☐	☐

9. EXCLUSIVE FOCUS ON CIVIL APPLICATIONS	YES	NO
Could your research raise concerns regarding the exclusive focus on civil applications?	☐	☐

10. MISUSE		
Does your research have the potential for misuse of research results?	☐	☐

11. OTHER ETHICS ISSUES		
Are there any other ethics issues that should be taken into consideration? Please specify:	☐	☐

☐ By checking the box, I confirm that I have taken into account all ethics issues described above and that, if any ethics issues apply, I will complete the ethics self-assessment and attach the required documents.

Signature of applicants