

**G L A
C E R
H U B**

Guide for Applicants

2024 Competitive Research Internships



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Introduction to GlaCerHub

The GlaCerHub project strives to support the virtuous innovation and economic cycle by capitalizing on the present-day competitive advantage of the advanced glass and ceramics industry to create a place-based innovation ecosystem in the border region between South Moravia (Czechia), and Trenčín (Slovakia), a region with long tradition of glass and ceramics production.

The GlaCerHub consortium will create a dynamic, specialist innovation ecosystem for the advanced glass and ceramics sector by stimulating new synergies between industry, academia, government, society and other European innovation Ecosystems. In the long term GlaCerHub will become a self-sustaining entity, supporting the creation, development, piloting and protection of strategic technologies, training of all stakeholders from the quadruple helix, and creating and supporting technology transfer.

There are several participating organisations with a different status: coordinator (Trenčianská univerzita Alexandra Dubčeka v Trenčíně), partners (VUT, Cartago Ventures SL, Rona a.s., Slovenská obchodná a priemyslá komora, Activair s.r.o., Buest Business a.s., JCMM, z.s.p.o.) and associated partners (AGC Trenčín, s.r.o., JIC, z.s.p.o., Město Trenčín, Kreativný institute Trenčín, n.o.; TreCera s.r.o.; Trenčianský samosprávny kraj). Detail description can be found at: <https://www.glacerhub.eu/>

The aim of this competition is to identify top 6 students between 2024 and 2026 and provide them with a 0,3-FTE-working contract at JCMM for a period of 10 months per person. The proposals have to fit domains as described in chapter 2.2.

1. Basic Information

1.1 Terms

For the purposes of this competition, the following terms mean:

- 1) **administrator** is JCMM, z.s.p.o. – (formerly South Moravian Centre for International Mobility) which is one of the consortium partners and organizes the competition
- 2) **applicant** is a student enrolled in a full-time doctoral study program at a Czech/Slovak university who applies for the internship
- 3) **evaluators** are experts in relevant fields in academia as well as professionals from the private sector and/or administration who provide expertise to evaluate submitted applications

1.2 Partner Universities

The partner universities are:

- a) Brno University of Technology
- b) Alexander Dubček University of Trenčín, Slovakia

1.3 Eligible students

The competition aims to support doctoral students. The selection of candidates is based on excellent academic track record, experience and extraordinary activities of the applicants related to the research and science. The quality of the submitted project and the team/facilities are also considered.

1.4 Eligibility Criteria

The competition is open and its rules set no quota of applicants for partner universities, faculties or departments. Therefore, do not hesitate to register. Follow all eligibility criteria describe below

Eligibility Criteria:

- be a full-time student at any university in the Czech or Slovak republic

- be enrolled in doctoral study programmes along the duration of the project
- project proposal falls within the research domains defined by GlaCerHub

All applicants declare their compliance with the eligibility criteria before submitting the application. Only the selected holders document officially their compliance with the eligibility criteria before signing an agreement with the administrator. Compliance with the criteria can be documented by a study confirmation issued by a partner university.

All applicants must also grant the administrator their approval to process the data provided in the application and its transfer to the third parties in order to evaluate the application or to disseminate its outputs. The full name and academic degrees of the applicants and their supervisors, the project title and the training department can be made public.

Please note that holders of the Brno Ph.D. Talent competition both former and current are not eligible applicants!

1.5 Time Schedule

The following schedule is indicative and minor changes may occur.

Table 1: Time schedule of the GlaCerHub Competition

Activity	Time period	Date
Competition Announcement		1/5/2024
Call Open & Registration of Applicants	1/5/2024 – 30/6/2024	
Call Deadline		30/6/2024
Formal Review of Applications (1st Round)	1/7/2024 – 10/7/2024	
Expert Review of Applications (2nd Round)	10/7/2024 – 15/8/2024	
Publication of Competition Results		15/8/2024
Signing the Grant Contracts	16/8/2024 - 31/8/2024	
Duration of Internships	1/9/2024 – 30/6/2025	

Note: JCOMM reserves the right to adjust the timetable in case of technical, administrative and/or legal circumstances.

2. Application Form

The applicants, who meet the eligibility criteria, can apply for the competition by submitting an electronic application. The applications are submitted during the registration period to a project administrator.

The applicant is responsible for the accuracy and completeness of the information provided in the application. If the applicant does not provide all the mandatory information, the application is formally invalid and cannot be accepted for evaluation. If the applicant provides inaccurate or incomplete information, it will be reflected in a reduced score. Applications containing false or unsupported data will be rejected. If any part of the application exceeds the maximum length allowed, then the extra pages will not be taken into account during the evaluation.

Overview of the application and its mandatory parts:

- **Applicant's CV** (1 page)
 - o name, surname, address, email/cell phone number
 - o discipline and the start date of doctoral studies, name of your university
 - o education and qualification for solving the proposed project
 - o professional practice/practical experience, internships, solved scientific projects
 - o relevant results of scientific activities and academic awards
 - o other relevant information
- **GlaCerHub Project** (2 pages)
 - o motivation, objectives and original contribution
 - o theoretical framework, methods and techniques, basic references
 - o time schedule and key milestones

- o impact on/benefits for the South Moravian Region and/or Trenčín region – optional item
- **Team and Facilities** (1 page)
 - o supervisor and expert consultants, their contribution to the project, their qualification for guiding the applicant, main research activities, selected results of scientific and pedagogical activities, awards and recognitions etc.
 - o institution(s) where the project will be solved, including visits & interactions with relevant collaborators/partnes
 - o other relevant information

All three parts of the application must follow the above structure and presented in a **single PDF**. The application should be 4 pages long, it may begin with a start page, which contains the project title and the applicant's name and it is not counted in the page limit. The application must be sent to GlaCerHub project manager by e-mail before the set deadline (to ease the administration for us please use the file name in the following format: „surname_name_2024“).

Working language for presenting this application is English.

A template will be available on the JCMM GlaCerHub project web page (subpage of the JCMM web).

The document must have the following format: font Times New Roman (or similar) of size at least **11 points** (references and notes can be written in 10 pt. font); single spacing or higher; all margins at least 2 cm wide; the heading of each page must contain the applicant's name and the competition title "GlaCerHub Project Competition" page number must be indicated at the footnote. Other text format and graphic layout depend on the needs and preferences of each applicant (tables, graphs, pictures, etc.).

2.1 Applicant's CV

A professional CV provides information on your education, qualification and achievements. Highlight the results of your previous studies, science related activities, particularly those related to your discipline and the topic of your project. We also recommend mentioning student awards, language exams and other accomplishments.

The permitted length of the CV is **one page**. Be brief and give only relevant and verifiable information.

The evaluators may check the information and the administrator may require proof of the data given in the CV.

Mandatory content of the applicant's CV:

1) DISCIPLINE AND STUDIES

Provide your personal data, name of your training institution and your field of study, date of admission, contact details

2) EDUCATION AND QUALIFICATION FOR SOLVING THE PROJECT

Detail your education and qualification in logical sequence, so that it clearly explains your specific competencies and qualities. Emphasize those that will help you solve the proposed project. You can also provide a list of special courses you have attended.

3) PRACTICAL EXPERIENCE, INTERNSHIPS, SCIENTIFIC PROJECTS

Mention your experience with scientific projects that you have designed and solved yourself. You can also provide a list of scientific projects in which you have participated and explain how. Provide information on your practical experience and training including a brief job description. Give a list of your internships or participation in university and professional organizations. Mention also summer schools you have attended and indicate their focus.

4) RESULTS OF SCIENTIFIC ACTIVITIES AND ACADEMIC AWARDS

List the results of your scientific activities and academic awards during the course of your studies.

5) OTHER RELEVANT INFORMATION

Finally, you can mention the knowledge and skills you have acquired in your everyday activities, which are not necessarily evidenced by official certificates and diplomas. In other words, make the list of your skills, knowledge and qualification complete. Describe clearly your language, technical, computer, presentation and other skills and abilities acquired during your studies, through seminars or informal training courses and free-time activities.

2.2 GlaCerHub Project

Your GlaCerHub project should contribute to the overall goals of the GlaCerHub project and should fit one (or more) technical domains/dimensions. Specific focus should be consulted with supervisors from CEITEC BUT and/or TnUAD.

Technical dimension:

1. Processing of novel ceramic and glass-ceramic materials
 - High-Entropy ceramics (including transparent and luminescent);
 - Transparent ceramic materials for photonic applications;
 - Lead-free piezoceramic materials and their composites;
 - Piezoelectric materials with mechanoluminescence properties;
 - Glass waste recycling - second life of waste glass.
2. Additive Manufacturing and 3D printing of glass and glass-ceramic materials
 - Robocasting additive manufacturing of ceramics and ceramic matrix composites;
 - Vat-photopolymerization of ceramic materials;
 - Additive manufacturing of ceramic lattice structures;
 - 3D printing of glass materials for advanced applications;
3. BioEngineering
 - Intrinsically osteoinductive calcium phosphate ceramics;

- High strength and biodegradable ceramic based composites;
- Glass and glass-ceramics materials for biomedical applications;
- Advanced in vitro testing of bioceramics, glass and composite materials and scaffolds;

4. Advanced Coatings

- Deposition of plasma spraying coatings;
- Electrochemical deposition of coatings;
- Synthesis and production of powders through spray drying;

The project should have a length of **two pages** of A4 paper size, including all charts, diagrams and references. Your supervisor can help you with its elaboration; however, do not forget to highlight your own contribution and explain the share of your work. Write clearly, be informative and brief.

Please note: The project has to be carried out at the partner universities as specified in the paragraph 1.2.

Mandatory content of the project description:

1) MOTIVATION, YOUR ROLE, OBJECTIVES AND ORIGINAL CONTRIBUTION

Give a short overview of the proposed project. Explain clearly your personal role in the project and your motivation to solve the identified problem, reveal the expected benefits. The introduction should describe clearly and concisely the objectives and original contribution. Avoid general statements.

2) THEORETICAL FRAMEWORK, METHODS AND TECHNIQUES, BASIC REFERENCES

In this part of the project, describe the project design. Demonstrate the viability and originality of the proposed approach and its professional level. Explain what techniques and methods you chose and why you prefer them. Describe briefly the current state of knowledge of the problem addressed in your project and mention the previous work on the topic (if any). Focus on key references to show that you are familiar with relevant literature and that you are able to manage the project in detail but refrain from excessive and redundant referencing.

3) TIME SCHEDULE AND KEY MILESTONES

The project should be divided into stages. Each stage should have its own target and the achievement of all stages should guarantee the accomplishment of the overall objective. Define the milestones and set them in a time frame so that you can monitor and evaluate the implementation of the project.

4) IMPACT ON THE SOUTH MORAVIAN REGION AND/OR TRENČÍN REGION – AN OPTIONAL ITEM

Provide description what is the impact of your project for the benefit of the South Moravian region and/or Trenčín Region. This item is optional.

2.3 Team and Facilities

An effective supervision over the applicant's project and training as well as high quality facilities guarantee that applicant will successfully manage the proposed project. The permitted length is **one page** A4.

1) SUPERVISOR AND EXPERT CONSULTANTS

Give a list of expert consultants who will significantly contribute to the project and ensure its professional quality. Explain their specific contribution, their qualification and key results of their previous work as well as their experience in supervision and mentoring of students. It is not necessary to mention all the consultants or collaborators.

2) DEPARTMENT AND COOPERATING INSTITUTIONS

High quality facilities may be crucial for successful implementation of the project. Describe briefly the facilities available at your training institution necessary for the proposed project. If your training institution lacks some special equipment, consider collaboration with other academic institutions or private sector and describe its rationale and benefits.

3) OTHER RELEVANT INFORMATION

Finally, it is possible to provide other relevant information that you want to emphasize and which cannot be mentioned in other parts of the application.

2.4 Preparing the Application

Here are some general hints you should follow while preparing your application. Dedicating enough time to designing your project and writing the application is key for achieving the best results in the competition. The evaluators focus on your detailed state-of-the-art knowledge of the chosen problem. The evaluators will also examine whether your project addresses important and current scientific problems within a technical domain(s) of your choice. The project design and viability are also very important criteria.

Your application should give clear answers to the following questions:

- **What problem is addressed in the project?**
- **Why are you interested in this topic and what is your role in the project?**
- **How do you plan to solve the problem?**
- **What are the expected results of the project?**

Keep in mind that the evaluators decide whether your project is worthwhile and well-designed, whether you are able to carry it out and the proposed outcomes are realistic. The addressed problems must be important, but not overly ambitious. It is important to clearly and strictly distinguish what you intend to do yourself and what will be done by your collaborators.

All of the above will be judged only upon your application. The evaluators will only learn the facts you provide them in your application. Your goal is to "sell" your previous results and achievements and to highlight your exceptional qualities in comparison to other applicants. Therefore, pay extra attention to make your application clear and informative. Avoid inaccurate or misleading data. Remember that vague or incomprehensible information may be the cause for a reduced score.

Ask yourself whether each sentence is clear and really necessary for understanding the project. Let your colleague or friend, who is not familiar with the project, read your proposal. Ask whether a reader understands your proposal. Such informal criticism can be very helpful.

3. The Competition

The competition has 2 rounds:

1. Formal review of applications
2. Expert review of applications

3.1 Formal Review of Applications

In the first competition round, the administrator carries out a formal review of applications. Only the applications that meet all the formal criteria pass to the second round for an expert peer review. Applications that do not meet the formal criteria are invalid and cannot be accepted for further evaluation. JCMM reserves the right to contact applicants for further clarification in during the formal review stage.

The application is checked against the following formal criteria:

- The application has been submitted during the registration period by the set deadline
- The application provides all the mandatory information specified in this guide
- The application is complete and provides all the required information
- The application has the required form, layout, length and language

3.2 Expert Review of Applications

In the second round of evaluation the applications are reviewed remotely by expert evaluators. The administrator ensures that each application is reviewed by at least 2 evaluators in order to establish the ranking of applicants. The evaluators review all assigned applications independently by scoring and commenting key parts of the application (applicant, project, supervisor & facilities). The aim of the comments is to provide feedback to the applicants, which they may use to improve their projects regardless of their result in the competition.

Table 2: Evaluation Scale

	EXCELLENT (100-81p)	ABOVE AVERAGE (80-61 p)	AVERAGE (60-41 p)	BELOW AVERAGE (40-21 p)	POOR (20-0 p)
Applicant	<p>+ demonstrates excellent results, how applicant's level is unique compared to other applicants</p> <p>+shows great qualification and motivation for chosen studies, for reaching the project objectives and obtaining original and scientifically valuable results</p>	<p>+demonstrates very good results, which are above average compared to others</p> <p>+great motivation for successful studies and accomplishment of the project objectives, expectations of acquiring original and scientifically valuable results</p>	<p>+demonstrates average results</p> <p>+well motivated to complete the project</p> <p>+expected results may be a useful addition to the current knowledge</p>	<p>+the information provided shows that results and experience of the applicant are below average</p> <p>+It can be assumed that the applicant is not sufficiently qualified and motivated to complete the project and obtain scientifically valuable results</p>	<p>+the information provided shows very poor results and experience of the applicant</p> <p>+It can be assumed that the applicant is not qualified and motivated to complete the project and obtain scientifically valuable results</p>
Project	<p>+very well designed, based on an original idea, with clear objectives</p> <p>+in terms of originality, importance and proposed solutions, the project proves an extraordinary quality which well exceeds the common level</p> <p>+the results promise a significant original contribution to the scientific knowledge</p>	<p>+very well designed, based on a new idea, with clear objectives</p> <p>+ In terms of originality, importance of ideas and proposed solutions, the project's quality is above average</p> <p>+the results may be useful for further development of scientific knowledge</p>	<p>+based on correct assumptions, contains interesting ideas, the proposed solution is viable, its quality is average compared to other projects</p> <p>+the project design is generally correct but not fully clear in details and requires additional work</p> <p>+ the project objectives can be achieved</p>	<p>+original contribution of the project is unclear, expected results have minimal impact on the development of scientific knowledge</p> <p>+methodology is incomplete and the objectives cannot be achieved without additional adjustments</p> <p>+the design and the time schedule are not suitable for reaching the objectives</p>	<p>+ the original contribution of the project is negligible or none</p> <p>+the project is just a variation of a known solution</p> <p>+the methodology does not allow the achievement of the objectives, the time schedule is inadequate, it is not based on correct assumptions</p>
Team and Facilities	<p>+supervisor, external consultants and department facilities provide a supportive and inspiring environment</p> <p>+their experience and excellent results guarantee successful project implementation and applicant's training</p>	<p>+very good department facilities and reputable supervisor and external consultants with necessary experience and significant results</p> <p>+It can be considered as a guarantee for successful project implementation and applicant's training</p>	<p>+department facilities, supervisor and consultants are at average level</p> <p>+standard results and experience</p> <p>+the team and facilities are sufficient for successful project implementation and applicant's training</p>	<p>+the information provided shows that the department, supervisor and consultants are below the average, demonstrate minimum international experience and collaboration</p> <p>+the team and facilities do not provide a credible guarantee for successful project implementation and applicant's training</p>	<p>+the information available suggests that the results of the department, supervisor and consultants are very poor</p> <p>+negligible or no international experience</p> <p>+the team and facilities do not guarantee successful project implementation and applicant's training</p>

Table 3: Score Calculation

Evaluated Area	Partial score	Weight	Total points
Applicant	0 – 100 points	30 %	0 – 30 points
Project	0 – 100 points	50 %	0 – 50 points
Team and Facilities	0 – 100 points	20 %	0 – 20 points
Total	–	100 %	max. 100 points

In the next phase, the second review is made available to the evaluator for revision of applicant's scoring and comments. At this stage, the evaluators can correct their views having taken into account the opinion of the second evaluator.

When all the applications are reviewed, the administrator sets up the ranking of applicants after the evaluation round. The ranking of applicants is determined by the overall score of their application. The overall score is a simple average of two expert reviews.

The final results of the competition will be announced on the JCMM website. There is no legal entitlement to grant an internship.

Conclusion

The successful applicants will sign a work contract with the administrator. This is expected to be signed shortly after the announcement of the final results. One of the prerequisites to conclude the agreement is to provide a confirmation of student status of an applicant and, if requested by the administrator, other documents referred to in the application.

The winners will be awarded a 0,3 FTE working contract (DPČ) with JCMM for a period of 10 months.

There will be a commitment to submit a brief monitoring report in the middle of the period and a final report at the end of the contract. Details and content of the reports will be drafted jointly by the administrator and supervisors.

Holders of the contract can be asked to present their projects to stakeholders at events that are related to GlaCerHub promotions and presentations. The dates and arrangements will be announced in due course.

Likewise, they are obliged to follow obligations related to EU promotions and acknowledgements (details will be provided in the contract)

Contact

If you have any further questions regarding the competition, please, do not hesitate to contact us.

Mr. Michael Doležal, GlaCerHub project manager at JCMM; e-mail: michael.dolezal@jcmm.cz

The application should be submitted to this email address not later than June 30, 2024 midnight!