

CZS breakthroughs: Synthetics

Call for applications for universities within
the CZS focus topic Life Science
Technologies

Published on: 15 December 2023

Letter of intent deadline: 15 February 2024

Full application deadline: 15 April 2024

1 Thematic focus and objective

With the 'CZS breakthroughs' funding programme, the Carl-Zeiss-Stiftung is enabling universities to implement innovative, scientifically promising concepts. Projects that receive funding are intended to lead to internationally competitive research results.

The call for proposals addresses the entire spectrum from basic to application-oriented research. The call for applications 'CZS breakthroughs: Synthetics' focuses on research into the design of bio-based systems. The growing understanding of biology makes it possible to reproduce and adapt them. To that end, engineering approaches to design and construction are applied to biological systems. Accordingly, the call for applications should promote research that addresses those developments. For example, the interdisciplinary research projects unite molecular biology, biochemistry, biotechnology or genetic methods with engineering and IT. The research projects can pursue the following and other objectives: Adapting, designing, and synthesising organic molecules, biological components or systems; developing paradigms for treating illnesses; developing new biological production methods. Possible topics include organoids and artificial organs, synthetic biology, regenerative medicine, and gene and cell therapy.

The projects should create a connection between life sciences and engineering and advance personalised medicine through the development of new life science technologies. The research topics should have the potential to make future healthcare safe, sustainable and efficient.

The knowledge generated in the funding projects should be made useable for businesses and society through suitable methods. Therefore, the project applications must meet **at least one of the following criteria:**

- **Interdisciplinary nature**

The central scientific objective of the project must be jointly addressed by at least two disciplines, using their respective methods. In this context, interdisciplinarity is

understood to refer to interaction between scientific subjects according to the DFG subject classification system. Interdisciplinarity is ensured, for example, when scientists from the fields of biology and chemistry work together (<https://www.dfg.de/en/dfg-profile/statutory-bodies/review-boards/structure>)

- **Translation/transfer**

The project must consider potential applications for the research results to be elaborated. Transfer of knowledge and/or technology must be tackled by involving cooperation partners where appropriate. The willingness of these partners to participate in the project must be demonstrated in the form of a written letter of interest (LOI).

- **Complexity**

Lots of scientific approaches are based on a significant reduction of complexity in the laboratory and only work under these conditions. Often the solutions created in this manner can only be used and transferred to a limited extent. The maintenance of the complexity of natural systems and the core questions should be reflected in the methodological approaches of the application.

2 Scope and object of funding

Funding can be requested for up to a total of

EUR 5,000,000.

The funding period is five to six years. The earliest possible project start date is 1 December 2024 and the project must start by no later than 1 April 2025.

The following are eligible for funding as part of the programme:

- Scientific and technical personnel
- Material resources
- Junior research teams, post-doc and doctoral candidate positions

- Junior professorships (e.g. as tenure-track foundation professorship)
- Large-scale equipment and research infrastructures
- Networking activities

The universities are free to divide up the funding for which the application is submitted. A maximum of 20 per cent of the project funding amount may be used for investments. The requested funding must be justified accordingly.

In addition to the requested project funding, the Carl-Zeiss-Stiftung will contribute a overhead lump sum amounting to 20% of the project funding amount. The university will be responsible for deciding how to use the lump sum overhead, in consideration of the legal requirements. Please observe the instructions to that end in the application guidelines.

The Carl-Zeiss-Stiftung expects the number of doctoral candidates employed to match the amount of work associated with the activity, which may mean full-time roles. Furthermore, it expects that the employment contracts of scientific employees are concluded for the entire period of the respective qualification phase, regardless of the duration of the project funding.

Only applications from the science, technology, engineering and mathematics (STEM) fields shall receive funding.

3 Eligibility to apply

In general, the Carl-Zeiss-Stiftung's funding activity is restricted to the federal states of Baden-Württemberg, Rhineland-Palatinate and Thuringia. The following universities are entitled to submit applications as part of this call for proposals (the number of applications that can be submitted is shown in brackets):

Baden-Württemberg: Freiburg (1), Heidelberg (1), Hohenheim (1), Konstanz (1),
Tübingen (1),

Rhineland-Palatinate: RPTU (1), Koblenz (1), Trier (1), Mainz (2)

Thuringia: Ilmenau (2), Jena (2), Weimar (1)

An applying university can also submit a joint application with other scientific institutions (universities, colleges or non-university research institutions) from the three funding states, provided that this institution is a governmental or non-profit institution. The applying university must take the lead in this undertaking. This means that the organisational processing must exclusively be carried out via the university that submits the application, and this university must retain more than 50 per cent of the requested project funding amount.

It is also acceptable to include governmental or non-profit research institutions in other federal states (i.e. outside Baden-Württemberg, Rhineland-Palatinate and Thuringia), foreign research institutions and non-scientific non-profit institutions. Funding of up to 20% can be passed on to these institutions.

4 Selection procedure and criteria

The selection process consists of two stages.

- Two independent scientists will scrutinise all submitted applications in a written expert opinion. Based on the written expert opinions, a scientific selection committee initially selects the most promising projects.
- The selected applicants will be invited to present their project to the selection committee via video conference and answer questions from committee members.

The project representatives can expect to receive their invitation to present and answer questions by the middle of July 2024. The selection committee meeting will take place on 10 and 11 October 2024. The Carl-Zeiss-Stiftung will make the final funding decision based on the recommendations of the scientific selection committee. There is no entitlement to funding. No justification will be provided for rejection decisions; in particular no information will be given about the assessors' evaluations.

In reviewing applications, priority will be given to the following selection criteria:

Research work and strategy

- Quality of the research project (originality, expected findings, scientific importance), scientific preliminary work and schedule (originality, objective, working hypotheses)
- Alignment with the thematic focus of the call for proposals
- Proposed implementation of the characteristics of interdisciplinarity, translation/transfer and complexity, as well as the social and economic relevance of the research work
- Excellence and scientific reputation of the scientists involved (highly qualified research association and international visibility)

- Existing and planned internal university and inter-university and/or extra-university partnerships, e.g. with research institutions, companies or in networks/associations
- Alignment of the project with the university's research profile and strategic orientation, contribution to strengthening an existing research area
- Quality of the research data concept

Management

- Organisation and management of the project
- Integration and targeted promotion/qualification of early-career scientists
- Involvement of social stakeholders, possibly through a project advisory board (e.g. with people or organisations from other sectors such as society or industry)
- Measures for active promotion of diversity

5 Application

Applications may only be submitted via university management.

Universities intending to submit an application are asked to **submit a letter of intent** in PDF format to the Carl-Zeiss-Stiftung **by 15 February 2024**. This letter should include the topic and fundamental focus of the application and should not exceed one A4 page in length.

The deadline for the submission of full applications is 15 April 2024. Applications received after this date cannot be considered.

A funding decision is expected in **October 2024**.

Both the letter of intent and the applications must be submitted exclusively digitally to the following address:

Carl-Zeiss-Stiftung

Mr Phil-Alan Gärtig

foerderantrag@carl-zeiss-stiftung.de

If you have any questions, please contact Dr Phil-Alan Gärtig (phil-alan.gaertig@carl-zeiss-stiftung.de).

We offer Q&A rounds via Zoom on the following dates:

- Held on 22 January 2024, 4 pm to 5 pm:

<https://us06web.zoom.us/j/82007231831?pwd=yczdw7DlIxCS5KD18TehvqMHB4fPbcJ.1>

- Held on 19 February 2024, 2 pm to 3 pm:

<https://us06web.zoom.us/j/85027046372?pwd=dy8iel2LkQg5kLEv8r9oY6uRa4qFub.1>

Application guidelines

1 General formal requirements

- The application may be submitted in German or English.
- **Arial font, size 12 and single line spacing with page margins of 2.5 cm** must be used for applications.
- Applications, including all the necessary documents, must be submitted to the Carl-Zeiss-Stiftung exclusively electronically:

Both files (a PDF with application and attachments and the financing plan as an Excel file) must be available without password protection or access restrictions for reading, copying and printing. All files must be made available to the CZS by email (as an attachment or in the form of a link) to foerderantrag@carl-zeiss-stiftung.de.

2 Documents to be submitted

The universities are asked to provide the following documents and the completeness of these documents is a prerequisite for receiving funding:

2.1 Letter of intent

A university entitled to submit an application and intending to submit an application for the ‘CZS breakthroughs’ funding programme must submit a written letter of intent to the Carl-Zeiss-Stiftung by **15 February 2024**. Submitting an application at a later date is not possible if no letter of intent has been submitted. The letter of intent should enable the foundation to prepare the evaluation process for the application.

The letter of intent must include the following details:

- University submitting the application
- Managing department for the application and preliminary contact
- Application subject area (the project title may be modified in the final application, but the fundamental content area of the project must remain the same)
- A broad thematic outline of the application, which enables the foundation to identify suitable assessors (one A4 page)
- The letter of intent may contain suggestions, justified in bullet points, for up to three assessors whom the university believes would be suitable to assess the application in a professional and impartial manner according to the DFG criteria. We ask for contact details to be included. Good German skills are required
- Signed consent for storage of personal data in accordance with the template provided by the Carl-Zeiss-Stiftung

The letter of intent must be submitted exclusively electronically to foerderantrag@carl-zeiss-stiftung.de.

2.2 Application for the research project

A written application from the university (max. 20 A4 pages, excluding annexes), including the following details in the specified order, must be submitted by **15 April 2024**:

1. Master data
 - a. University submitting the application
 - b. Name of the research area and application title
 - c. Name of the discipline to which the research project relates (according to DFG subject definitions)
 - d. Application coordinator (name, work address, telephone and email address, web link)

- e. (One-sided) organisational chart, which demonstrates the integration and networking of the application plan in the university structure and, where applicable, with external cooperation partners
 - f. Financial details: funding requested from the Carl-Zeiss-Stiftung (personnel, material costs and investments), independent contribution by the university if applicable
 - g. Funding period requested (start and end date)
 - h. Specification of the most important research questions (up to four) that will be addressed as part of the project.
 - i. Summary of the research project in layman's terms (max. 100 words).
2. Abstract
 - a. Summary of the research project in layman's terms (max. one A4 page as a separate sheet).
3. Objective
 - a. Scientific goals and scientific innovation potential: What is the envisaged 'breakthrough' of the planned research? What are the unique selling points of the project?
 - b. Structural and strategic goals, alignment of the project with the strategic orientation and profile of the university
4. Work programme
 - a. Project planning

Milestone plan (according to Annex 1) with explanations on the proposed measures as well as on the (expected) interim goals; it should also outline risk management measures during the project period and list all responsible working groups and/or scientists.
 - b. Task division within the project group
 - c. Inclusion of the structural goals of interdisciplinarity, transfer/translation and complexity in the project

5. Research status
 - a. Significant developments in the relevant research area
 - b. Important and/or competing groups of researchers who are active in Germany and abroad in the relevant research field
6. Quality of the project group
 - a. Excellence and international visibility of the scientists and/or groups of researchers who comprise the project group
 - b. Integration of the project group in existing structures
 - c. Planned networking of the project group with external partners (e.g. research organisations or companies)
7. Translation/transfer
 - a. Social and economic relevance of the proposed project (e.g. transferability of the research results to practice, practised knowledge and technology transfer between science and business)
8. Long-term prospects
 - a. (Specific) measures for continuation
 - b. Long-term added value of the application project for the university
9. Animal testing (if planned)
 - a. Explanation of whether alternative methods will be used or developed or to what extent animal testing is essential to answer the research questions.
10. Research data concept
 - a. Concept for handling research data (with regard to data protection, open source, open access, shared databases, reproducibility).
11. Organisational and management structures
 - a. Measures for integration and promotion of early-career scientists
 - b. Project support (e.g. project council)
 - c. Measures for active promotion of diversity

12. Financial details

Please exclusively use the financing plan in Annex 2 to provide information on financial aspects of the project.

In the view of the Carl-Zeiss-Stiftung, the following costs are included in the overhead lump sum and therefore cannot be requested as part of the project funding:

- Costs from a business perspective that are based on internal cost allocation, unless they are based on project-specific expenditures (such as data centres or other scientific services)
- Expenditures for construction and furnishing measures and rent
- Expenditures for general institutional equipment (such as IT infrastructure, office furniture, and protective clothing), for office material, postage and telecommunications fees, or internet access
- Expenditures for devices not directly connected with the project
- Expenditures for completing or repairing devices not directly connected with the project
- Operational and maintenance costs (such as electricity, gas, water, and coolants)
- Contributions to property insurance, expenditures for letters of protection, memberships
- Fees collected by authorities in connection with the implementation of the project
- VAT amounts, insofar as input tax can be deducted

Applications received by the Carl-Zeiss-Stiftung after 15 April 2024 cannot be considered.

2.3 Annex to application

Please attach the following documents to your application:

1. Milestone plan in accordance with Annex 1
2. Financing plan in Excel format in accordance with Annex 2

Please enclose a financing plan with the application as an annex, which should be created as an Excel table using the template and submitted as an **xlsx file**. The individual cost items should be shown **rounded to 1,000 euros**. The personnel costs must be calculated according to the regulations of the applying institution(s). Expected pay increases during the funding period should be appropriately considered when calculating the requested funding amount.

The overhead lump sum is calculated automatically per project year from the sum of the funding requested from the Carl-Zeiss-Stiftung and will be added to the total funding sum.

The financial plan contains the following information:

- a. Basic facilities and independent contribution by the university

What basic facilities (personnel, laboratory space, large equipment, etc.) and, if applicable, what independent contribution will be provided by the university at which point in time?

Providing an independent contribution is not mandatory. If you choose to provide a contribution, it can be in the form of additional staff positions, material resources or similar. Further third-party funds acquired for the requested project are also assigned to the independent contribution. These should be clearly marked as such separately.

- b. Funding requested

Specification of the requested funding, broken down by personnel, equipment and investment funds, incl. brief justification.

In the event a junior foundation professorship forms part of the application, details should be provided to indicate at which point the university continues the funding of the foundation professorship independently from its budget.

c. Forwarding of funding

If an application is submitted in cooperation with other organisations, clarification should be provided as to which funds will be forwarded to external partners for which activities.

3. Scientists

A list of involved scientists with details of each scientist including their title, institute membership and web links

4. Organisations

A list of organisations (institutes and organisations of the university and, where applicable, other universities and external organisations involved) involved in the application project with their associated addresses and web links

5. Transfer partner

The willingness of the collaboration partner to participate in the project must be demonstrated in the form of an LOI.

6. Publication list

List of the most important publications (up to ten) connected to the application proposal and published by the scientists involved in the project group (publications in the last five years)

7. Further proof of qualification

List of up to ten further important points relating to proof of qualification (e.g. research prizes, patents, roles, etc.) that distinguish the scientists in the project group

8. CVs

Short CVs of up to ten key scientists involved in the project in alphabetical order (each comprising a maximum of one A4 page)

9. Third-party funding

List of the ten most important funding measures from third-party funding organisations for the past three years which have a thematic link to the application proposal according to the table template in Annex 3

These guidelines on submitting applications, including annexes and the call for proposals, can be accessed at: <https://www.carl-zeiss-stiftung.de/en/programme/czs-break-throughs/life-science-technologies-synthetics>