

CAS-Fraunhofer joint training program for Chinese doctoral students in Germany

The Fraunhofer-Gesellschaft

The Fraunhofer-Gesellschaft, based in Germany, is the world's leading applied research organization. Prioritizing key future-relevant technologies and commercializing its findings in business and industry, it plays a major role in the innovation process. A trailblazer and trendsetter in innovative developments and research excellence, the Fraunhofer-Gesellschaft supports science and industry with inspiring ideas and sustainable scientific and technological solutions and is helping shape our society and our future.

At the Fraunhofer-Gesellschaft, interdisciplinary research teams work with partners from industry and government to turn pioneering ideas into innovative technologies, coordinate and implement system-relevant research projects and strengthen the German and European economies with a commitment to value creation that is based on ethical values. International collaboration with outstanding research partners and companies from around the world brings the Fraunhofer-Gesellschaft into direct contact with the most prominent scientific communities and most influential economic regions.

Founded in 1949, the Fraunhofer-Gesellschaft now operates 76 institutes and research units throughout Germany. Currently around 30,800 employees, predominantly scientists and engineers, work with an annual research budget of about 3.0 billion euros, 2.6 billion euros of which is designated as contract research. Around two thirds of Fraunhofer contract research revenue is generated from industry contracts and publicly funded research projects. The German federal and state governments contribute around another third as base funding, enabling the Fraunhofer institutes to develop solutions now to problems that will drastically impact industry and society in the near future.

The impact of applied research goes far beyond the direct benefits to the client. Fraunhofer institutes strengthen companies' performance and efficiency and promote the acceptance of new technologies within society while also training the future generation of scientists and engineers that the economy so urgently requires.

The Fraunhofer-Gesellschaft is a recognized non-profit organization named after Joseph von Fraunhofer (1787–1826), an illustrious researcher, inventor and entrepreneur hailing from Munich.

Fraunhofer CAS Joint Doctoral Programm

The joint training program for doctoral students has been running since 2008. So far over 100 CAS–PhD-students have been invited to conduct research for their PhD-theses at one of the Fraunhofer Institutes. The aim of the joint doctoral program is to promote the scientific exchange between Germany and China.

Initially the duration of the fellowship is limited to 12 months. Yet should the hosting Fraunhofer Institute, the Fraunhofer Executive Board as well as the CAS home institution agree, the stay may be prolonged for the duration of 12 months after the first year. In case of a prolongation the stipend will be provided by Fraunhofer. Students can apply for different institutes depending on their research fields and the willingness of the Fraunhofer Institute to participate in the program.

The following Fraunhofer Institutes do not participate in the program and must not be chosen as guest institutes:

- [Fraunhofer Institute for Process Engineering and Packaging IVV](#)
- [Fraunhofer Institute for Machine Tools and Forming Technology IWU](#)
- [Fraunhofer Institute for Applied Solid State Physics IAF](#)
- [Fraunhofer Institute for Molecular Biology and Applied Ecology IME](#)
- [Fraunhofer Institute for Algorithms and Scientific Computing SCAI](#)
- [Fraunhofer Institute for Communication, Information Processing and Ergonomics FKIE](#)
- [Fraunhofer Institute for Applied and Integrated Security AISEC](#)
- [Fraunhofer Institute for Secure Information Technology SIT](#)
- [Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOS](#)

The participating students will get familiar with the scientific work of the world's leading applied research organization, and they will experience the different way of life in Germany and German culture.

At the beginning of the research stay all participants will be invited to participate in an intercultural training which is organized by the Fraunhofer headquarters. Throughout the research stay the Fraunhofer headquarters offers a counselling service in English and Chinese.

Application process

If you are interested in this program, please have a look at the [Chinese homepage of the Fraunhofer-Gesellschaft](#). Click on the Chinese name of an institute and you will get more information like the research areas, ongoing research projects and contact details. It might be of interest as well to consult the research topics which were handed in by Fraunhofer.

Choose up to **three** institutes, which match exactly your research focus (kindly consider the list of institutes which do not participate in the program). The Fraunhofer Institutes which might act as a hosting unit has to be selected with care. A good match of your research focus with the research area of the Fraunhofer Institute increases your chances of success.

In the first phase of your application, you should prepare the documents, which are required by UCAS. Please refer to the UCAS website <https://wwwucas.ac.cn> to download the application documents. Kindly add the

duly signed Fraunhofer Privacy Policy as well as a detailed CV which depicts all the colleges/universities attended, your academic degrees and your work history. Your application must be submitted to Ms. Maoli Li of UCAS till December 22, 2023.

After UCAS has completed its selection process the Fraunhofer Representative Office in Beijing and the Fraunhofer Headquarters will conduct a pre-selection and will invite all the shortlisted candidates for an (online) interview in March/April 2023. Based on this interview the Fraunhofer Representative Office Beijing/Fraunhofer Headquarters will select the candidates who are eligible to apply at the Fraunhofer Institute of their choice. Please do not contact the Fraunhofer Institutes before the interview.

After the pre-selection of candidates by the Fraunhofer Representative Office Beijing and the Fraunhofer Headquarters the application phase at the Fraunhofer institutes will start in May 2024 and selected candidates will send their applications to the Fraunhofer Institutes.

Q&A

1. Who will sponsor the students?

CAS is responsible for funding the costs of the first year. In case Fraunhofer agrees to prolong the stay for another 12 months the scholarship will be provided by Fraunhofer.

2. Where can I find more information on Fraunhofer and the research topics of the Fraunhofer institutes:

- Online info session on Fraunhofer and the joint program for doctoral students on November 22, 2023, 8 am CET. Please send an E-mail to Mrs. Maoli Li (李茂力 limaoli@ucas.edu.cn) to register for the workshop till November 20, 2023
- Website of Fraunhofer Office Beijing: [德国弗劳恩霍夫应用研究促进协会-北京代表处 \(fraunhofer.cn\)](http://fraunhofer.cn) (in Chinese)
- Website of Fraunhofer Germany: <https://www.fraunhofer.de/en.html> (in English)
- List of institutes and research establishments in Germany: <https://www.fraunhofer.de/en/institutes/institutes-and-research-establishments-in-germany.html> (in English)
- Fraunhofer Magazine: <https://www.fraunhofer.de/en/media-center/publications/fraunhofer-magazine.html> (depicts research topics of Fraunhofer, in English)
- Annual Report 2022: [Annual Report \(fraunhofer.de\)](https://www.fraunhofer.de/en/annual-report) (in English)
- Thematic brochures (e.g., AI, biological transformation): <https://www.fraunhofer.de/en/media-center/publications/brochures.html> (in English)
- Films about current research topics: <https://www.fraunhofer.de/en/media-center/videos/videos-2021.html> (in English)

3. How many institutes can each student choose?

Each student may apply for up to three institutes.

4. How to choose a suitable contact person?

Find a contact person on the Fraunhofer Institutes' websites (a list of all the institutes is available on the official website: <https://www.fraunhofer.de/en/institutes/institutes-and-research-establishments-in-germany.html>) according to your own research area or ask the Representative Office in Beijing for support. In general, your contact person must be a head of a department. It might be of interest as well to consult the research topics which were handed in by Fraunhofer (please refer to the attachment).

5. How to prepare for the interview?

You should prepare some brief information about yourself, your academic background, your PhD-project, a study proposal for your stay at Fraunhofer, the reason why you wish to work at a Fraunhofer Institute and your expectations for living and working in Germany. Parts of the interview will be conducted in English.

6. I have not yet received a reply by the Fraunhofer Institute. Should I send another enquiry?

Since your potential hosts are quite busy their response might take up to one month. Please be patient and refrain from frequent enquiries regarding the status of your application.

7. How can I get a visa after receiving offer?

You will receive an invitation letter by e-mail, which will be issued by the Fraunhofer Headquarters. You are responsible for the visa application process. Kindly check the current visa guidelines on the homepage of the German embassy. To prove the adequate financial resources for your research stay in Germany a blocked account might be required.

8. When can I move to Germany?

The time of departure varies according to your personal schedule and the waiting time for the granting of the visa. Currently the waiting time for a visa is quite long and we assume that you will start your research stay in the end of 2024 at earliest.

9. What is the working language in the institutes?

English and German. A German language test is not required.

10. Which certificates will be accepted as proof of my English language skills?

Fraunhofer accepts the following certificates: GRE, IELTS, TOEFL, CET6.

11. Will I get support to settle in?

The administration as well as the colleagues in the hosting guest institute will support you to get familiar with everyday life in Germany. Moreover Fraunhofer headquarters will organize an intercultural training and will offer counselling in English as well as Chinese in case of any problems.

Contact details:Fraunhofer Representative Office Beijing**Ms. Lin Zhu**

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Job profiles and research topics

1. Fraunhofer Institute for Structural Durability and System Reliability LBF:

PhD student in the Division of Plastics

The Fraunhofer-Gesellschaft (www.fraunhofer.com) currently operates 76 institutes and research institutions throughout Germany and is the world's leading applied research organization. Around 30 000 employees work with an annual research budget of 2.9 billion euros.

The Fraunhofer Institute for Structural Durability and System Reliability LBF in Darmstadt works together with industry and research at a top national and international level. The institute's main research activities focus on specific issues in the areas of structural durability, system reliability, smart structures and plastics.

Developing domestically available renewable resources is one of the key contributors to achieving a sustainable plastics economy. Lighthouse projects combine a range of expertise from various Fraunhofer Institutes in order to tackle socially relevant and scientifically challenging tasks. The flagship project NASS is dedicated to the disturbance of the water balance due to climate changes, the interplay of plastics and water in weathering, and understanding of manageable and controllable raw material and derives an intelligent management. The team researches the release of contaminants from building materials under diverse and extreme weathering simulations, provides solutions for the evaluative capture of contaminants, including through non-target chemical analysis and microbial impact analysis, and develops bioaugmented filtration systems for contaminant removal and degradation. It demonstrates sustainable, resilient application scenarios for optimized and intelligently controlled, high-quality secondary uses that sustainably conserve drinking water and groundwater resources.

As part of the team, we are in demand of a PhD student with the focus on the analysis of weathered plastics and the release of leachables during weathering. This project will include the optimization of analytical methods, development of novel weathering protocols, and identifying hidden challenges along the way. A position is available in the Division of Plastics at the earliest possible date:

What you will do

Work on scientific research and development projects in cooperation with partners from both the private and public sectors

Develop, validate and implement scientific methods, procedures and tools

Develop a weathering cycle to replicate extreme weather events and impact loads

Devise a method for accumulation of contaminants in water during weathering

Feedback for material development, Identification of relevant pollutant classes and critical weather conditions

Optimizing the analytical tools towards the scientific challenge

Support project planning and the preparation of proposals and offers in the acquisition of new projects

Contribute to the publication and presentation of scientific research results in journals and at national and international conferences and conventions

What you bring to the table

Completed university degree in chemistry, physical chemistry or similar

Very good understanding of plastics and/or analytics

The desire to dive into new challenges

Confidence in formulating, communicating and recording complex technical issues

Very good knowledge of written and spoken English
Flexibility, as well as the ability to work both in a team and independently

What you can expect

A diverse range of highly relevant projects

A creative environment and technology at the highest level

A springboard into the industry

We value and promote the diversity of our employees' skills and therefore welcome all applications — regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity.

With its focus on developing key technologies that are vital for the future and enabling the commercial utilization of this work by business and industry, Fraunhofer plays a central role in the innovation process. As a pioneer and catalyst for groundbreaking developments and scientific excellence, Fraunhofer helps shape society now and in the future.

If you have any questions, please do not hesitate to contact:

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Fraunhofer Institute for Structural Durability and System Reliability LBF

www.lbf.fraunhofer.de

2. Fraunhofer Institute for Software and Systems Engineering ISST

The Fraunhofer ISST invites applications for the following topics:

Data Spaces, data sharing, data-driven business models, data protection, data privacy

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