Call for Proposals

Priority Programme „Computational Connectomics" (SPP 2041)

The Senate of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) has established the Priority Programme "Computational Connectomics" (SPP 2041). The programme is designed to run for six years. The present call invites proposals for the second three-year funding period.

The field of connectomics aims to comprehensively describe the physical and functional coupling among the neural elements of the brain. Understanding brain networks across different scales is an important step towards understanding brain function. However, further progress will hinge on a close interplay of experiment, theory, and computational analysis. Connectomics data sets will be huge, representing prototypical "big data" that cannot be easily visualised and intuitively grasped by the human brain. These data sets will be highly structured and far from random, however. The goal of the Priority Programme is to uncover this structure, understand the principles governing the organisation of the connectome, and understand how it forms through development and learning, how it gives rise to normal function, how it changes when we age or acquire a disease, and how such changes affect its function.

Along these lines, we invite research proposals to facilitate the automated reconstruction of connectivity from different types of data sets and support the curation and open-access distribution of large-scale connectomics data sets (Theme A), undertake systematic analyses of complex connectivity networks (Theme B), develop theories and models of their structure and development and explain how this structure gives rise to neural activity and cognitive functions (Theme C). Each project should take the form of a collaboration between two or more investigators with complementary expertise. Projects that combine at least two of the above research themes are particularly welcome.

We encourage applications for projects which: 1) study brain connectivity in different species from microscopic to macroscopic levels with the goal of obtaining

comprehensive connectivity maps, 2) have a clear and innovative computational component, 3) have a clear plan for sharing data, analysis software and models, 4) study the dynamics of brain connectivity across different time scales, 5) study changes in brain connectivity during development and learning, 6) foster close interaction of experimental and theoretical research.

We discourage applications for projects which: 1) are not focussed on the topic of connectomics as described above, 2) do not involve multiple PIs with complementary backgrounds and expertise, 3) aim mostly at data collection without an innovative data analysis or modelling component, 4) have no clear plan for sharing any data, analysis software, and models, 5) focus on functional connectivity without advancing our understanding of the underlying structural connectivity, 6) focus on altered connectivity in knock-out animals.

The present call opens up the opportunity to collaborate with principal investigators in Japan on the basis of partnership project applications. PIs in Japan can apply for their own funding through the Japan Agency for Medical Research and Development (AMED). Joint proposals will be individually and separately reviewed by DFG and AMED following the review processes of the respective funding authority. The results of the review process will be shared between the agencies. Support will be granted for those proposals where both DFG and AMED recommend funding. Please note that AMED sets a limit for the funding of joint projects to a maximum of three proposals. Within the scope of this SPP, AMED defines the following research areas of interest for collaborative Japan-Germany partnership project applications:

- Macroscale neuronal connectivity for psychiatric disorders
- Clinical Connectomics for Deep Brain Stimulation (DBS) and repetitive Transcranial Magnetic Stimulation (rTMS)
- Multi-scale mechanisms in stroke and epilepsy

Proposal Submission

Proposals must be written in English and submitted by **17 July 2020 (N.B. On 21 April, 2020, the deadline was extended to 1 July 2020)**. Please note that proposals to the DFG can only be submitted via elan, the DFG's electronic proposal processing system (elan). For collaborative Japan-Germany partnership project applications, PIs in

Germany must submit the proposal to the DFG. Collaborators in Japan should be registered as cooperation partners. Please submit CVs of the cooperation partners and a budget plan for the project part in Japan as attachments.

Collaborating PIs in Japan must submit their proposals to AMED using the online application system e-Rad. Instructions can be found here: SICORP (https://www.amed.go.jp/en/program/list/03/01/003.html). The joint project description must be identical in the proposals submitted to DFG and AMED.

In preparing your proposal to DFG, please review the programme guidelines (form 50.05, section B) and follow the proposal preparation instructions (form 54.01). These forms can either be downloaded from our website or accessed through the elan portal. In addition to submitting your proposal through elan, please send an electronic copy (pdf format) to the programme coordinator (see below).

Applicants must be registered in elan prior to submitting a proposal to the DFG. If you have not yet registered, please note that you must do so by **3 June 2020** to submit a proposal under this call; registration requests received after this time cannot be considered. Also, if you are planning to move to a different institution (e.g. with a Temporary Position for Principal Investigators) you need to register the new institutional address beforehand. The registration requests are handled manually by DFG staff. You will normally receive confirmation of your registration by the next working day.

If you would like to submit a proposal for a new project within the existing Priority Programme, please go to Proposal Submission – New Project – Priority Programmes and select “SPP 2041/2 Computational Connectomics” from the current list of calls. Proposals for the renewal of an existing project from the first funding phase can be submitted under Proposal Submission – Proposal Overview/Renewal Proposal.

Proposal review by DFG will be done by an international expert panel on the basis of the written documents. There will be no quota for the funding of national and

collaborative Japan-Germany partnership projects. The envisaged start of funding is January 2021.

For collaborative Japan-Germany partnership project applications, please note the clauses for the transfer of personal data:

An applicant's personal data contained in a proposal submitted by the applicant, will be transferred, if necessary, to the Japan Agency for Medical Research and Development (AMED). Note that their base or place of data processing is not located in a member state of the European Union or in another state party to the Agreement on the European Economic Area. This information is transferred as part of the decision-making process on the proposal and in conjunction with implementing the project. Before transferring this data the DFG ensures that AMED has an adequate level of data protection in place through sufficient guarantees. For this purpose, the DFG concludes standard data protection clauses as adopted by the European Commission (Art. 46 (2) (c) GDPR) with AMED. A copy of the agreed "*Standard contractual clauses for the transfer of personal data from the Community to third countries (transfer between parties responsible for data processing)*" can be sent on request by contacting Kim Marita Wind at the DFG Head Office.

Further information

Please submit the proposal via the electronic system elan:
https://elan.dfg.de

The DFG forms 50.05 and 54.01 can be found at:
www.dfg.de/foerderung/formulare

Instructions for collaborating PIs in Japan on joint proposals for Germany-Japan collaborative projects (SICORP):
https://www.amed.go.jp/en/program/list/03/01/003.html

Contact person for questions related to the Priority Programme:

Prof. Dr. Jochen Triesch, Frankfurt Institute for Advanced Studies, phone +49 69 798-47531,
triesch@fias.uni-frankfurt.de

Contact person for questions related to the application or review process:
Dr. Christoph Limbach, DFG, phone: +49 228 885-2895, christoph.limbach@dfg.de

Contact person for administrative matters:
Kim Marita Wind, DFG, phone: +49 228 885-3106, kim.wind@dfg.de

Contact person for collaborating PIs in Japan on joint proposals for Germany-Japan collaborative projects (SICORP):
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https://www.amed.go.jp/en/news/proposals.html