

Call for Proposals

No. 18

1 April 2019

Priority Programme “Geometry at Infinity” (SPP 2026)

In March 2016, the Senate of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) has established the Priority Programme “Geometry at Infinity” (SPP 2026). The programme is designed to run for six years; the present call invites proposals for the second and last three-year period.

This programme combines research in differential geometry, geometric topology, and global analysis. Crossing and transcending the frontiers of these disciplines it is concerned with convergence and limits in geometric-topological settings and with asymptotic properties of objects of infinite size. The overall theme can roughly be divided into the three cross-sectional topics convergence, compactifications, and rigidity.

Examples of convergence arise in Gromov-Hausdorff limits and geometric evolution equations. The behaviour of geometric, topological and analytic invariants under limits is of fundamental interest. Often limit spaces are non-smooth so that it is desirable to generalise notions like curvature or spectral invariants appropriately. Limits can also be used to construct asymptotic invariants in geometry and topology such as simplicial volume or L^2 -invariants.

Compactifications reflect asymptotic properties of geometric objects under suitable curvature conditions, possibly in a large scale sense. Methods from topology, differential geometry, operator algebras and probability play a role in this study. Important issues are boundary value problems for Laplace or Dirac type operators, both in the Riemannian and Lorentzian setting, as well as spectral geometry and Brownian motion on non-compact manifolds.

Besides continuous deformations rigidity is essential for many classification problems in geometry and topology. It appears in geometric contexts, typically in the presence of negative curvature, and in topological and even algebraic settings. Rigidity also underlies isomorphism conjectures relating analytic, geometric and homological invariants of infinite groups and more general coarse spaces.

Proposals for this Priority Programme should address research questions in geometry at infinity as indicated by (but not restricted to) the above sample topics. Ideally they contribute to establishing an interdisciplinary research environment. It is advisable to state explicitly the relation of the proposed project to the overall programme as well as to other (potential) projects. More detailed information on the thematic focus of the Priority Programme is available at the programme’s website.

Proposals for the second three-year funding period have to be submitted starting 5 August and no later than **15 October 2019** via DFG's secured portal "elan".

Principal investigators of projects from the first funding period may submit a renewal proposal for a currently running project by selecting it in the "proposal overview" in "elan", where an option for a renewal proposal is offered. Registered applicants who wish to submit a new project need to select "Proposal Submission – New Project – Priority Programmes", where they will find the programme guidelines (guideline 50.05, in particular, part B), the instructions for preparing project proposals (guideline 54.01) as well as a template (in rtf-format). The proposal has to be structured as shown in the template – however, it is admissible to prepare the proposal as a pdf-file, e. g., using LaTeX, instead of using the rtf-file. The submission process itself can be reached by clicking on "Start online form", followed by selecting "SPP 2026/2".

If you have never before submitted a proposal to DFG through "elan", you need to register in advance. This can be done online by yourself – however, it takes one to two working days to be confirmed by DFG staff. If you need to register, please complete your registration before **10 October 2019**. If your contact data in "elan" is outdated, please also update it before that date.

Note that the descriptions of the projects and all CVs need to be prepared in English. Further, DFG's rules for publication lists (guideline 1.91) need to be respected: Beside the general bibliography, every proposal should include a list of up to ten publications by the applicant(s) (and/or members of her/his/their group) that relate directly to the project. Any academic CV submitted to the DFG must not list more than ten publications, which describe best the scientist's profile. Publications in these lists need to be classified as a) refereed publications (published articles and monographs; accepted articles with note of acceptance by the journal) or b) other publications (e. g., preprints on arXiv), which need to be accessible online (please mention the arXiv number or provide links).

A review meeting with reviewers and applicants will be held at Physikzentrum Bad Honnef (close to Bonn) on **5 March 2020**. Please check the Priority Programme's website for possible additional information which may be communicated there.

Further Information

More information on the Priority Programme is available under:
www.spp2026.de

DFG's portal "elan":
<https://elan.dfg.de>

DFG's forms and guidelines for Priority Programmes:
www.dfg.de/spp/formulare

For further scientific information, please contact the Priority Programme's coordinator:
Prof. Dr. Bernhard Hanke, Institut für Mathematik, Universität Augsburg, hanke@math.uni-augsburg.de

For administrative and formal inquiries please contact:
Dr. Carsten Balleier, DFG, phone +49 228 885-2063, carsten.balleier@dfg.de
Heike Delmotte, DFG, phone +49 228 885-2883, heike.delmotte@dfg.de