Mathematics Clusters

PhD Positions

Call for proposals

Science

2019
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Chapter 1: Introduction / Mathematics Clusters

1 Introduction

1.1 Background

The mathematics clusters, which are unique in the world, are a successful Dutch concept. The first clusters were established in 2005 as a means of combating the fragmentation of research and teaching. The clusters give critical mass and focus to mathematics research and teaching in those areas where the Netherlands performs best. Thanks to this pooling of resources, mathematics in the country has remained at an internationally outstanding level.

Mathematics is divided into the following four clusters: DIAMANT (Discrete, Interactive and Algorithmic Mathematics, Algebra and Number Theory), GQT (Geometry and Quantum Theory), NDNS+ (Nonlinear Dynamics in Natural Systems), and STAR (Stochastics - Theoretical and Applied Research)\(^1\).

The mathematics clusters were evaluated in 2018 by the International Scientific Evaluation Board, on behalf of the Dutch Research Council (NWO). Each of the four clusters drew up a self-evaluation report and a research roadmap for the evaluation. The roadmaps are strategic documents that describe the long-term future plans for each cluster. The International Scientific Evaluation Board concluded that all four mathematics clusters merit an ‘Excellent’ qualification and, together, form the Dutch mathematics research infrastructure in which mathematicians are actively involved in an efficient and effective manner. One of the recommendations from the evaluation was that a call should be drawn up for all researchers from the four clusters in which PhD positions could be requested. You can find the roadmaps here: [https://www.nwo.nl/en/news-and-events/news/2019/09/mathematics-clusters-appraised-as-excellent-new-call-to-be-announced.html](https://www.nwo.nl/en/news-and-events/news/2019/09/mathematics-clusters-appraised-as-excellent-new-call-to-be-announced.html).

This brochure contains information regarding the submission of proposals for the sixth funding period of the mathematics clusters. The funding of these research proposals is for a PhD position at a Dutch knowledge institute. The research should be conducted within one or more of the four mathematics clusters: DIAMANT, GQT, NDNS+ and STAR.

\(^1\) More information about the mathematics clusters:


GQT: [http://www.gqt.nl/](http://www.gqt.nl/)

NDNS+: [http://www.ndns.nl/](http://www.ndns.nl/)

STAR: [http://www.eurandom.tue.nl/STAR/index.htm](http://www.eurandom.tue.nl/STAR/index.htm)
1.2 Available budget

A grant of M€4 is available for this call. The budget is to be divided between the four mathematics clusters; M€1 is available for each of the aforementioned clusters. Only research proposals considered ‘excellent’ or ‘very good’ are eligible for grants.

NWO has consulted with the boards of the mathematics clusters regarding the contributions that institutes/universities should be making for matching the applications. This has resulted in the matching percentages shown below and the related number of PhD positions eligible for grants (providing there are sufficient ‘excellent’ or ‘very good’ applications).

For DIAMANT and NDNS+, the matching percentage is set at 50%. This means that 50% of the salary costs of a PhD position should be paid by the institutes/universities. For GQT, the matching percentage is set at 20%, which means that 20% of the salary costs of a PhD position should be paid by the institutes/universities. This matching should be guaranteed in a letter to be attached to the application. For STAR, the matching percentage is set at 0%.

<table>
<thead>
<tr>
<th>mathematics cluster</th>
<th>matching percentage by institutes/universities</th>
<th>number of applications/PhD positions eligible for grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIAMANT</td>
<td>50%</td>
<td>8</td>
</tr>
<tr>
<td>GQT</td>
<td>20%</td>
<td>5</td>
</tr>
<tr>
<td>NDNS+</td>
<td>50%</td>
<td>8</td>
</tr>
<tr>
<td>STAR</td>
<td>0%</td>
<td>4</td>
</tr>
</tbody>
</table>

1.3 Validity of the call for proposals

The deadline for submitting preproposals is January 7, 2020, 14:00 hours CE(S)T.

The deadline for submitting full proposals is May 26, 2020, 14:00 hours CE(S)T.
2 Aim

In order to give an extra boost to the pooling of resources of Mathematics in the Netherlands and to its international position, this call will help consolidate the mathematics clusters (see action 4 in the Delta Plan for Dutch mathematics). The purpose of this call is to create additional PhD positions in mathematics. This call for proposals is intended for applications for innovative or high-risk scientific research with a research question of high quality and great scientific urgency within the four mathematics clusters. The proposed research should fall within one or more of the themes defined in the 2019-2029 research roadmaps of DIAMANT, GQT, NDNS+ or STAR\(^2\). It should also be relevant to one or more of the seven focus areas of mathematics, as described in the sector plan\(^3\).

The creation of these PhD positions will serve as an investment in the basic needs that the mathematics discipline meets in Dutch science, with the aim of contributing to an improvement to teaching and research capabilities.

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The roadmap of DIAMANT starts on page 24, GQT starts on page 51, NDNS+ starts on page 76 and STAR starts at 106.

\(^3\) The description of the mathematics sector can be found in the Sectorbeeld Beta Wetenschappen. Focus areas from page 49: https://www.nwo.nl/actueel/nieuws/2018/12/onderzoeksrioriteiten-vestgesteld-in-sectorbeelden.html
3 Guidelines for applicants

3.1 Who can apply

Full, associate and assistant professors and other researchers\(^4\) with a comparable appointment can submit an application if:

- they are employed (i.e. hold a salaried position) at one of the following organisations:
  - Universities established in the Kingdom of the Netherlands;
  - University medical centres;
  - NWO and KNAW institutes;
  - the Netherlands Cancer Institute;
  - the Max Planck Institute for Psycholinguistics in Nijmegen;
  - the DUBBLE Beamline at the ESRF in Grenoble;
  - NCB Naturalis;
  - Advanced Research Centre for NanoLithography (ARCNL);
  - Princess Máxima Center.
- and also have an appointment period for at least the duration of the application procedure and the entire duration of the research for which the grant is being applied for. Personnel with a zero-hour appointment is excluded from applying.

Exceptions to the required appointment duration can be made for:

- Applicants with a ‘tenure track’ appointment that does not cover the full duration of the project. In such cases, applicants must prove by letter that adequate supervision for the full duration of the research has been guaranteed for all researchers on whose behalf they are applying for a grant.

Additional conditions:

- Applicants may submit a maximum of one proposal in this round.

3.2 What can be applied for

For a research proposal in this round, one PhD position may be applied for. The budget modules (including the maximum amounts) available with this call for proposals are shown in the table below. For the applications for PhD positions in the DIAMANT, NDNS+, and GQT clusters, the institutes/universities should provide their contributions through matching. For DIAMANT and NDNS+, the matching percentage is set at 50%. This means that 50% of the salary costs of a PhD position should be paid by the institutes/universities. For GQT, the matching percentage is set at 20%, which means that 20% of the salary costs of a PhD position should be paid by the institutes/universities.

\(^4\) In this Call for Proposals, “researchers” refers to both women and men.
Chapter 3: Guidelines for applicants / Mathematics Clusters

<table>
<thead>
<tr>
<th>Budget module</th>
<th>Maximum amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>One PhD position, according to VSNU or NFU rates⁵</td>
</tr>
</tbody>
</table>

Explanation of budget modules for personnel

Funding for the salary costs of personnel who make a substantial contribution to the research can be applied for. Funding of these salary costs depends on the type of appointment and the organisation where the personnel are or will be appointed.

- For university appointments, the salary costs are funded in accordance with the VSNU salary tables applicable at the moment the grant is awarded
  - [www.nwo.nl/salary-tables](https://www.nwo.nl/salary-tables).
- For university medical centres, the salary costs are funded in accordance with the NFU salary tables applicable at the moment the grant is awarded
  - [www.nwo.nl/salary-tables](https://www.nwo.nl/salary-tables).
- For personnel from universities of applied sciences and other institutions, the salary costs are funded on the basis of the collective labour agreement salary scale of the employee concerned, based on the Handleiding Overheidstarieven 2017.
- For the Caribbean Netherlands, the Dutch government employs civil servants on Bonaire, Sint Eustatius and Saba under different conditions than in the European part of the Netherlands.

For the budget modules “PhD” a one-off individual bench fee of € 5,000 is added on top of the salary costs. This bench fee is intended to encourage the scientific career of the project employee funded by NWO. Remunerations for PhD students/PhD scholarship students at a Dutch university are not eligible for funding from NWO.

The available budget modules are explained below.

**PhD (including MD-PhD)**

A PhD is appointed for 1.0 fte for a duration of 48 months. The equivalent of 48 full-time months, for example an appointment of 60 months for 0.8 fte is also possible. If a different duration of appointment is considered necessary for the realisation of the proposed research, then as long as this is properly justified, the standard time can be deviated from. However, the duration of appointment must always be at least 48 months.

### 3.3 When can applications be submitted

The deadline for the submission of compulsory preproposals is January 7, 2020, 14:00 hours CE(S)T.

The deadline for the submission of full proposals is May 26, 2020, 14:00 hours CE(S)T.

When submitting a proposal using the ISAAC online application system, your details should also be entered online. It is therefore advisable to begin the application process at least one day before the deadline for this call for proposals. Applications submitted after the closing date will not be considered.

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⁵ For personnel outside the Netherlands, the local rates are reimbursed up to a maximum of the VSNU rates.
3.4 Preparing an application

Every applicant may submit a preproposal. You may only submit a detailed proposal if the preproposal has passed through the first stage (see the assessment procedure).

Applications must be drawn up in English using the application form. The forms can be downloaded from the online application system (ISAAC) or the NWO website (at the bottom of the relevant funding scheme web page). Save the form as a PDF and upload it to ISAAC.

Your preproposal will be assessed for one or more of the four mathematics clusters; for this reason, you must select one or more of the mathematics clusters that best correspond to your research proposal. State in your application which of the mathematics clusters (at least one) applies or apply, assigning a percentage to each cluster (between 20% and 100%). You should also state which is the main cluster. Preproposals in which more than one mathematics cluster has been selected will be assessed by multiple assessment committees.

You should also mention in your application the cluster research roadmap theme or themes and the focus areas of mathematics, described in the sector plan, with which your application best fits.

NWO requests every applicant to supply between three and five foreign referees, who may be consulted. The list of referees may not include the names of people with whom the applicant expects to be working in the future, is currently doing so, or has done so in the past three years. The referees must not be working in the Netherlands. Applicants may also give the names of no more than five people who may not act as referees. This is not mandatory. You can submit the non-referees and referee suggestions in ISAAC together with your proposal. NWO assumes for each submitted proposal that the applicant has informed their institute and that the university or the institute accepts the grant conditions of this programme. Applicants must upload the letter of guarantee for matching signed by the dean at the same time as the preproposal.

3.5 Conditions on granting

The NWO Grant Rules 2017 and the Agreement on the Payment of Costs for Scientific Research apply to all applications.

Open Access
All scientific publications resulting from research that is funded by grants derived from this call for proposals are to be immediately (at the time of publication) freely accessible worldwide (Open Access). There are several ways for researchers to publish Open Access. A detailed explanation regarding Open Access can be found on www.nwo.nl/openscience-en.

Data management
Responsible data management is part of good research. NWO wants research data that emerge from publicly funded research to become freely and sustainably available, as much as possible, for reuse by other researchers. Furthermore NWO wants to raise awareness among researchers about the importance of responsible data management. Proposals should therefore satisfy the data management protocol of NWO. This protocol consists of two steps:

1. Data management section
Chapter 3: Guidelines for applicants / Mathematics Clusters

The data management section is part of the research proposal. Researchers should answer four questions about data management within their intended research project. Therefore before the research starts the researcher will be asked to think about how the data collected must be ordered and categorised so that it can be made freely available. Measures will often need to be taken during the production and analysis of the data to make their later storage and dissemination possible. Researchers can state which research data they consider to be relevant for storage and reuse.

2. Data management plan

After a proposal has been awarded funding the researcher should elaborate the data management section into a data management plan. The data management plan is a concrete elaboration of the data management section. In the plan the researcher describes whether use will be made of existing data or a new data collection and how the data collection will be made FAIR: Findable, Accessible, Interoperable, Reusable. The plan should be submitted to NWO via ISAAC within a maximum of 4 months after the proposal has been awarded funding. NWO will approve the plan as quickly as possible. Approval of the data management plan by NWO is a condition for disbursement of the funding. The plan can be adjusted during the research.

Further information about the data management protocol of NWO can be found at https://www.nwo.nl/en/policies/open+science/data+management.

Nagoya Protocol

The Nagoya Protocol became effective on 12 October 2014 and ensures an honest and reasonable distribution of benefits emerging from the use of genetic resources (Access and Benefit Sharing; ABS). Researchers who make use of genetic sources from the Netherlands or abroad for their research should familiarise themselves with the Nagoya Protocol (www.absfocalpoint.nl). NWO assumes that researchers will take all necessary actions with respect to the Nagoya Protocol.

3.6 Submitting an application

An application can only be submitted to NWO via the online application system ISAAC. Applications not submitted via ISAAC will not be taken into consideration.

A principal applicant must submit his/her application via his/her own ISAAC account. If the principal applicant does not have an ISAAC account yet, then this should be created at least one day before the application is submitted to ensure that any registration problems can be resolved on time. If the principal applicant already has an NWO-account, then he/she does not need to create a new account to submit an application.

For technical questions please contact the ISAAC helpdesk, see Section 5.1.2.
4 Assessment procedure

4.1 Procedure

Admissibility

The first step in the assessment procedure is to test whether the proposal is eligible for consideration. The Science office will assess whether applications are complete and suitable on behalf of the Executive Board of the NWO Domain Science. Only applications that meet the conditions described in Chapter 3 are admissible and will be considered. The assessment takes place in two stages.

Stage 1: Compulsory preproposals

This procedure involves compulsory preproposals – that is, proposals set out in limited detail. Four assessment committees will be set up for the four mathematics clusters who will assess the preproposals. Preproposals will be assessed by the assessment committee appropriate to the mathematics cluster selected by the applicants (Section 3.4). The assessment committee assesses the preproposals based on the substantive assessment criteria for preproposals (see Section 4.2), prioritizing them on their likelihood of success, and without using external advisers, and places them before the Executive Board.

Pre-proposals in which more than one mathematics cluster has been selected will be assessed by multiple assessment committees.

The Executive Board of the NWO Domain Science decides which preproposals may be worked out in more detail. The starting point is that the total budget requested for the full proposals should be about twice the available budget. The candidates considered to have the greatest chance of success will receive an invitation to submit a full proposal before the deadline. Preproposals that receive positive recommendations from more than one assessment committee may submit one full proposal only. Full proposals will only compete for a grant in the main cluster stated in the preproposals (see below, under ‘Full proposals’).

Stage 2: Full proposals

As soon as a full proposal has been deemed admissible, NWO will present it to external referees for their advice. They are independent advisers who are experts in the specialist field of the proposal. For each proposal, NWO aims to consult three referees per proposal, but full proposals will be assessed by at least two referees. They assess the proposals on the assessment criteria for full proposals, as described in Section 4.2, but do not give a graded assessment. The referees’ reports are anonymized and sent to the applicants for a written response (rebuttal). This stage of the procedure involves working with one national or international assessment committee. It is the task of the assessment committee to reach its own carefully considered judgement based on the proposals, the referees’ reports, and the rebuttal received. The assessment committee considers the arguments put forward by the referees (and checks them against each other) and looks at whether the rebuttal constitute a proper reaction to the points of criticism raised in the referees’ reports. Unlike the referees, however, the assessment committee is able to see the quality of the other submitted proposals and rebuttals.

The assessment committee advises the Executive Board of the NWO Domain Science about the quality of the submitted proposals, placing them in order of priority. Based on this advice and the available financial resources for each cluster, the Executive Board of the NWO Domain Science will decide whether to approve or reject the proposals. For applications in which more than one cluster has been selected, the grant ceiling in the main cluster, named in the relevant preproposal, is the one that will be considered. Decisions taken by the Executive Board of the NWO Domain Science may also be influenced by policy-related aspects, such as diversity or suitability in relation to the Science strategy.

General
Code for Dealing with Personal Interests

The NWO Code of Conduct on Conflicts of Interest applies to all persons and NWO staff involved in the assessment and/or decision-making process. See also: https://www.nwo.nl/en/common/subsidies/funding-process-explained/code-for-dealing-with-personal-interests.

Integrity

NWO states in its rules on grants that all research financed by NWO must be performed in accordance with the nationally and internationally accepted standards of scientific conduct as set down in the Netherlands Code of Conduct for Research Integrity (2018). For further information about the NWO policy on research integrity, visit https://www.nwo.nl/en/policies/scientific-integrity-policy.

Encouraging female researchers

For an ex aequo priority of two proposals, the Executive Board of the NWO Domain Science will give preference to the proposal from a female main applicant.

Data management

The data management section in the application is not evaluated and therefore not included in the decision about whether to award funding. However, both the referees and the committee can issue advice with respect to the data management section. After a proposal has been awarded funding, the researcher should elaborate the data management section into a data management plan. Applicants can use the advice from the referees and the committee when writing the data management plan. A project awarded funding can only start after NWO has approved the consortium agreement.

Qualification

NWO will award a qualification to all full proposals and will make this known to the researcher with the decision about whether or not the application has been awarded funding.

Only applications that receive the qualification "excellent" or "very good" will be eligible for funding. For more information about the qualifications please see www.nwo.nl/en/funding/funding-process-explained/nwo-qualification-system.

indicative timetable

Preproposals
7 January 2020, 14:00 hours CE(S)T  Submission deadline compulsory preproposal
February 2020  First meeting assessment committees
April 2020  Decision Executive Board of the NWO Domain Science

Full proposals
26 May 2020, 14:00 hours CE(S)T  Submission deadline full proposal
June-August 2020  Referees are consulted
August-September 2020  Request for rebuttal
September 2020  Meeting assessment committee full proposals
October/November 2020  Decision Executive Board of the NWO Domain Science
4.2 Criteria

Compulsory preproposals

The assessment committee will assess admissible preproposals according to the following criteria:

Criterion 1: Scientific quality of the proposal (what/who)
This includes:
- the clarity of the proposal, the research question, and the objectives;
- the scientifically innovative and/or ground-breaking elements of the research proposal;
- appropriate expertise of the researchers involved and appropriate embedding of the research.

Criterion 2: Relevance of the proposal to the call: Mathematics clusters - PhD positions
This includes:
- relevance to the themes of the research roadmaps of one or more of the mathematics clusters;
- relevance to one or more of the seven focus areas of mathematics, as described in the mathematics sector plan.
Each of these criteria carries a weighting of 50% in the overall assessment of the preproposals. Preproposals should be assessed as ‘very good’ in respect of each of the criteria in order to be regarded as ‘likely’ (decision to submit a full proposal).

Full proposals

Admissible proposals are first assessed by the referees and then the independent assessment committee according to the following criteria:

Criterion 1: Scientific quality of the proposal (what/who)
This includes:
- the clarity of the proposal, the research question, and the objectives;
- the scientifically innovative and/or ground-breaking elements of the research proposal;
- scientific approach: (challenge in) the approach and the feasibility of this;
- effectiveness in terms of the methodology proposed;
- appropriate expertise of the researchers involved and appropriate embedding of the research.

Criterion 2: Scientific and/or societal impact (why)
This includes:
- the importance of the potential results from the research in the short and long term in the relevant field;
- knowledge utilization: possible use and relevance of the knowledge generated in other scientific fields and/or society (economic, technical, or socio-cultural, via outreach, for example).

In the assessment, the criteria will be weighted as follows:
Scientific quality of the proposal will account for 80% of the final score, and scientific and/or societal impact, 20%.

To be considered for funding, the final assessment of an application, based on the above criteria, should be ‘excellent’ or ‘very good’. For more information about the ratings, see: https://www.nwo.nl/en/funding/funding+process+explained/nwo+qualification+system
5 Contact details and other information

5.1 Contact

5.1.1 Specific questions

For specific questions about Mathematics Clusters and this call for proposals please contact:

dr. F. (Femke) Stephan, phone number: +31 (0)70 344 05 22, email: wiskundeclusters@nwo.nl

5.1.2 Technical questions about the ISAAC electronic application system

For technical questions about the use of ISAAC please contact the ISAAC helpdesk. Please read the manual first before consulting the helpdesk. The ISAAC helpdesk can be contacted from Monday to Friday between 10:00 and 17:00 hours CE(S)T on +31 (0)20 346 71 79. However, you can also submit your question by e-mail to isaac.helpdesk@nwo.nl. You will then receive an answer within two working days.

5.2 Other information

The Dutch version of the Call for Proposals supersedes the English translation. No rights can be derived from the English translation.