

BAM JUNIOR RESEARCH GROUPS

2020 CALL FOR PROPOSALS

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The Bundesanstalt für Materialforschung und -prüfung (BAM) is a materials research organization in Germany. Our mission is to ensure safety in technology and chemistry. We perform research and testing in materials science, materials engineering and chemistry to improve the safety of products and processes. At BAM we do research that matters. Our work covers a broad array of topics in the focus areas of energy, infrastructure, environment, materials and analytical sciences. We offer an excellent work environment, located in Berlin, with state of the art infrastructure and special laboratories.

1. FUNDING OBJECTIVE

In order to sustainably fulfil and secure its role as a national and international centre of excellence for safety in technology and chemistry, it is essential for the Bundesanstalt für Materialforschung und -prüfung (BAM) to attract outstanding junior researchers and offer them attractive long-term conditions.

With the 'BAM junior research groups'-programme, BAM offers in its focus areas junior researchers from all over the world with proven excellence the opportunity to set up their own independent junior research group at BAM and establish themselves in the community. These outstanding junior researchers are offered attractive conditions at BAM in the form of competitive funding and long-term career prospects, including permanent employment.

BAM junior research groups work on key safety-relevant issues within BAM's focus areas with the aim of broadening BAM's existing expertise through new competencies in a sustainable and complementary manner.

In addition, BAM junior research groups contribute to raise BAM's profile, strengthen interdisciplinarity and further expand its internationalisation and global networks.

2. TARGET GROUP AND APPLICATION REQUIREMENTS ('ELIGIBILITY CRITERIA')

The target group for BAM junior research groups are postdocs and junior researchers with proven excellence in their field who completed their doctorate in the last two to five years.

Researchers who meet the following criteria may apply:

- **Doctorate received in the last two to five years.** The key date is the deadline for submission of the short proposals (31/05/2020); the date of the doctoral examination is considered as the date on which the doctorate was received. For researchers providing childcare within the eligibility period, the eligibility period will be extended by one year per child. Childcare periods lasting more than one year will be taken into account provided appropriate documentation is given. The maximum extension of the eligibility period for reasons of childcare is limited to six years.
- **International research experience.** This is generally proven by a continuous research stay abroad of at least one year during or after receiving the doctorate.

Candidates already employed by BAM are eligible to apply, but must meet the two above-mentioned criteria.

Furthermore, the following qualifications are expected of candidates:

- Proven outstanding publication activity in the relevant field of research
- At least a very good doctorate is desirable
- Initial experience in acquiring and leading R&D projects and relevant scientific project management
- Experience in supervising junior research scientists

Accordingly, the candidates' **outstanding quality** is a crucial evaluation criterion (see 'Evaluation criteria'). In order to ensure fair opportunities for all of the scientific disciplines represented within BAM, the evaluation will be field-specific and take into consideration specific career and publication patterns.

3. THEMATIC FRAMEWORK OF THE CALL FOR PROPOSALS

A thematic framework is determined in advance of each call for proposals in order to ensure that the junior research groups are focused on topics and objectives that are of strategic relevance to BAM. The following topics have been selected for the 2020 call for proposals:

- **Safety of Batteries** (State of Safety (SoS) of batteries for electromobility applications; analysis of electrochemical processes at micro- and nano-scale)
- **Green Building Chemistry** (bio-based materials; green and low-carbon binders; rheology-modifying agents)
- **AI-driven Materials Discovery** (accelerating materials discovery with machine learning; relevant for new functional materials, energy materials, or Max-Phases and MXene)
- **Molecular Mechanisms of Flame Retardants** (multiscale (10^{-10} to 10^0): molecular interactions - fire behaviour of materials; interdisciplinary - chemistry, polymer analysis/technology, fire engineering; online analysis, imaging methods; modes of action during pyrolysis and in the flame)

Each proposal for a BAM junior research group must address key scientific and technical issues in one of these topics. Within the short proposal, candidates must clearly assign their project idea to one topic.

In addition, all BAM junior research groups must meet the following criteria:

- Significant contribution to the long-term strengthening of BAM's mission as a centre of excellence for safety in technology and chemistry
- Clear contribution to developing at least one of BAM's five focus areas: materials, analytical sciences, energy, infrastructure and environment. A contribution to a second focus area is desirable.
- The research idea must fall into the scope of innovative application-oriented fundamental research

4. COMPOSITION OF THE JUNIOR RESEARCH GROUP

BAM junior research groups consist of a tenured position for the group leader and temporary funding for the junior research group for five years.

The tenured group leader position is endowed in line with the collective agreement for the German public sector (TVöD) E14/A 14 German Civil Service Remuneration Act (BBesO). If personal requirements are met, employees covered by collective agreements (TVöD) may be eligible to become tenured civil servants at a later date.

Each junior research group receives **funding** – in addition to the group leader position – for five years usually amounting to € 1.1 million. This covers:

- 2-3 PhD students and/or postdoc positions
- Equipment (investment resources)
- Consumables
- Travel expenses

The allocation of the project funds to the cost categories and the composition of the research group (PhD students, postdocs; duration of individual positions) are project-specific and flexible. These must be roughly outlined in the full proposal. Candidates who are invited to submit a full proposal receive support from the respective BAM department and BAM's Research Services to draft a financial plan.

Long-term cooperation with universities and/or industrial companies within the context of the project is desirable if this will add value to the project and/or enhance the group leader's career development (especially with regard to obtaining the Habilitation qualification within the German research system). The cooperation modalities must be described in the full proposal and confirmed by corresponding letters of support from all planned cooperation partners.

Additional collaborations with universities and non-university research institutions are also desirable. The full proposal must detail the specific aspects where a collaboration is planned and the nature of the collaboration that will contribute to the expansion of the junior research group's knowledge, the development of new related fields or the application of new methods.

5. ROLE OF THE JUNIOR RESEARCH GROUP LEADER

The role of the junior research group leader includes, among other things, the following tasks:

- Establishing and heading the junior research group
- Management and motivation of a qualified team of employees
- Conceptualizing and conducting application-oriented, innovative fundamental research in line with the approved project description
- Providing impetus for and own acquisition of third-party funding for research projects

In addition, BAM junior research group leaders are expected to actively contribute and network both within BAM and within the national and international community:

- Active contribution to the further development of BAM's focus areas
- Positioning of BAM as a federal research institution through active participation in national and international scientific networks, advisory boards and standardization bodies
- Expansion of existing and initiation of new cooperation with national and international partner institutions

6. ANCHORING OF THE JUNIOR RESEARCH GROUP IN A BAM DIVISION/DEPARTMENT

Each junior research group is organisationally anchored within one of BAM's organisational units. This is usually a division, but a junior research group may also be directly assigned to a head of department in special cases. The host organisational unit commits to, among other things, support the junior research group by providing the following:

1. Organisational support (hiring of the group leader and all other staff; handling of project funds)
2. Appropriate office/lab facilities including equipment
3. Access to any infrastructure and support staff required (especially TAs, secretaries)
4. If relevant any other project-specific aspects, such as specific IT infrastructure

In order to ensure the **group's independence**, the host organisational unit commits to ensure that the group leader has responsibility for staff and budgets.

The organisational unit also commits to integrate the group leader into the organisational unit even after the project has ended.

These **assurances** of the host organisational unit must be confirmed in the full proposal by means of a corresponding letter from the heads of division and department.

Given the expected interdisciplinary nature of the projects, it is expected that **other BAM organisational units will also be involved in the project** in addition to the host organisational unit (access to infrastructure, method or task-specific cooperation, etc.). These organisational units must be indicated in the full proposal and their contribution must be confirmed in a letter of support.

In the short proposal, the candidates must indicate their preferred host department. If they wish, they may also indicate their preferred host division. Candidates invited to submit a full proposal select the appropriate host organisational unit together with the host department when preparing the full proposal.

BAM's departments and divisions are presented [here](#).

7. APPLICATION AND EVALUATION PROCESS

7.1 GENERAL PROCEDURE, SELECTION COMMITTEE AND TIMETABLE

BAM junior research groups are selected in a **two-stage application process**. In the first application stage, candidates submit short proposals that are reviewed internally by the relevant BAM departments. Candidates nominated after this internal pre-selection process are invited to submit a full proposal in the second application stage.

A selection committee set up specifically for this program decides on the full proposals based on external reviews and the candidates' presentations delivered in person to the committee. The members of the selection committee are appointed by the President of BAM.

The following **timetable** has been established for the **2020 call for proposals**:

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| Deadline for submission of short proposals | 31 May 2020 |
| Decision on inviting full proposals | Early July 2020 |
| Deadline for submission of full proposals | 15 September 2020 |
| Selection meeting including project presentations | Late November 2020 |
| Communication of final decisions | Early December 2020 |
| Start of the junior research group | No later than 12 months after funding approval has been granted |

7.2 OVERVIEW OF THE APPLICATION PROCESS

First application stage (short proposal):

1. Candidates apply by the deadline for short proposals by providing a CV, list of publications, letter of motivation and a brief outline of the planned research project. The preferred host department must be indicated in the application portal (alternative departments may be specified); optionally, a specific organisational unit may also be indicated.
2. Short proposals received via the [application portal](#) by the deadline are formally reviewed by BAM's PST./MP. section and forwarded to the respective departments. If the host department indicated by the candidate is not suitable, the proposal is reallocated to a different department in consultation with the departments concerned and following notification of the candidate.
3. The individual BAM departments nominate one candidate for submission of a full proposal following internal evaluation of the submitted proposals.

4. The selection committee reviews the internal departmental pre-selection and invites the candidates nominated by the departments as well as other candidates, if applicable, to submit a full proposal.

Second application stage (full proposal):

1. Candidates invited to submit a full proposal prepare the full proposal together with the host division/department. BAM's Research Services section (Z.9) assists in the drafting of the financial plan. Partner universities and/or industrial companies should be involved in the preparation of the proposal at an early stage.
2. Four weeks before the deadline for submissions, each candidate must nominate six potential reviewers. The reviewers named must be independent and should not have any conflicts of interest.
3. All full proposals received by the deadline are checked for completeness by the PST./MP. section and are sent for review to external experts and members of the selection committee.
4. All candidates present their projects to the selection committee. The presentations are given in person at BAM; presentation via video conference is also possible in exceptional cases.
5. Based on the reviews and the personal presentations, the selection committee draws up a ranking list.
6. The ranking list proposed by the selection committee is confirmed by the President of BAM and the candidates are informed of the outcome.
7. No later than twelve months after approval, the selected group leaders of the junior research groups must take up their position at BAM and start the project. Otherwise, the funding is forfeited.

7.3 DOCUMENTS TO BE SUBMITTED

In the **first application stage**, the following documents must be submitted in English: CV (incl. certificates), list of publications, letter of motivation (max. 1 page) and short project outline (max. 3 pages). Templates for the letter of motivation and project outline can be downloaded [here](#).

In the **second application stage**, the following documents are required in English:

1. Detailed project description (max. 20 pages)
2. CV, letter of motivation and letters of recommendation
3. Accompanying letter from the host organisational unit, including the necessary commitments
4. Letters of support from other BAM organisational units as well as any university and/or industrial cooperation partners

Candidates invited to submit a full proposal are provided templates for preparing these documents, including a detailed structuring of the project description.

7.4 EVALUATION CRITERIA

In the **first application stage**, the individual BAM departments are responsible for evaluation and selection based on the principle of merit. The evaluation criteria are the scientific excellence of the candidates, the scientific and technical originality of the proposed research project and its suitability for BAM.

In the **second application stage**, all submitted full proposals are evaluated by the selected external expert reviewers and members of the selection committee based on the following **evaluation criteria**:

1. Discipline-specific evaluation of the candidate compared to outstanding junior researchers in the same field (30%)
2. Evaluation of the scientific-technical project with respect to relevance, excellence, level of originality/innovation and methodological quality (30%)
3. Evaluation of the contribution to the theme of the call for proposals, BAM's objectives and structural effectiveness (30%)
4. Evaluation of the work plan and financial plan (10%)

Each proposal is evaluated by the reviewers on a scale of 0–5 for each of the four criteria, with written justification of the points awarded in each criterion.

Based on the reviews and the candidates' presentation to the selection committee, the selection committee decides on the final ranking of the proposals as per the four stated criteria.