Leibniz-Institut für Polymerforschung Dresden

Rules for Ensuring Good Scientific Practice at the Leibniz Institute of Polymer Research Dresden and Procedures for Dealing with Scientific Misconduct

Preamble

The highest principle of scientific work is honesty towards oneself and others. It is both an ethical norm and the foundation of the rules of scientific professionalism in each discipline. Quality should always take precedence over quantity.

The Leibniz Institute of Polymer Research Dresden (abbrev. IPF in German) is aware of its responsibility to safeguard and communicate the norms and rules of good scientific practice. Any well-founded suspicion of scientific misconduct at the IPF is pursued with the utmost attention and while preserving the rights of all parties involved.

The IPF commits to adhering to the rules for ensuring good scientific practice and procedures for dealing with scientific misconduct, in accordance with the current/currently valid Code of Conduct Guidelines for Safeguarding Good Research Practice of the German Research Foundation (abbrev. DFG in German) and the **guidelines and explanations** listed therein, as well as the Leibniz Code for Good Scientific Practice (Nov. 2021).

The commitment to comply with rules of good scientific practice is a funding criterion of the DFG, the European Union, the Federal Ministries of Education and Research and of Economic Affairs and Climate Action (abbrev. BMBF and BMWK in German), projects of the Industrial Collective Research program (abbrev. IGF in German), and other funding bodies.

1 General principles

The standards of good scientific practice, which are outlined in this guideline and based on the DFG Code of Conduct, are mandatory for all researchers at the IPF as well as for all other participants of the IPF scientific system who contribute to ensuring scientific integrity.

Guideline 1 – Commitment to general principles

Every scientist is responsible for ensuring that their own conduct aligns with the standards of good scientific practice.

All scientists involved in the research operations of the IPF are obligated, within the scope of their own responsibilities, to protect science and themselves from falsification, and to act against misuse and manipulation of scientific results.

Compliance with the rules of good scientific practice is expressly stipulated as a contractual obligation within the scientific operations of the IPF. They are also a prerequisite for third-party access to the IPF, provided that the resources and infrastructure of the IPF are used for scientific work. Existing employees are obligated to this by written declaration. In the case of new hires and free access permissions, explicit reference is made to these regulations.

Guideline 2 – Professional ethos

Scientists are responsible for embodying and upholding the fundamental values and norms of scientific work in their actions. The impartation of the fundamentals of good scientific practice begins at the earliest possible stage in academic teaching and scientific training. Scientists at all career levels regularly update their knowledge on the standards of good scientific practice and the current state of research.

Good scientific practice is characterized by doubt and self-criticism, openness to criticism and doubts from colleagues, critical engagement with the obtained knowledge and results, as well as their verification, for example through mutual review within a scientific work unit, but also by honesty towards the contributions of colleagues, employees, competitors, and predecessors.

Guideline 3 – Organizational responsibility of the IPF's Board of Directors

The IPF's Board of Directors establishes the framework for scientific work. They ensure that ethical and legal standards can be adhered to by scientists, and issues these rules of good scientific practice. They are responsible for the appointment of an ombudsperson, diversity and equal opportunity officers, and for ensuring the compatibility of family and career.

The framework includes clear and written procedures and principles for personnel selection and personnel development, as well as for the promotion of young scientists and equal opportunities.

Guideline 4 – Responsibilities of the heads of work units

The head of each scientific unit bears the responsibility for the unit as a whole. The collaboration within scientific units is structured in such a way that the group as a whole can fulfill its tasks, that the necessary cooperation and coordination take place, and that all members are aware of their roles, rights, and obligations. Being the head of the work unit requires expertise, presence, and oversight. Where these are no longer sufficiently present, leadership tasks must be delegated in a way that keeps the respective span of control manageable. These tasks include, in particular, ensuring adequate individual supervision of the scientific junior staff, which is embedded in the overall concept of the IPF, as well as promoting the careers of the scientific and science-supporting personnel. Abuse of power and exploitation of dependency relationships must be prevented through appropriate organizational measures both at the level of the individual scientific work unit and at the level of the management of the IPF.

Guideline 5 – Performance dimensions and evaluation criteria

For evaluating the performance of scientists, a multidimensional approach is necessary: In addition to scientific performance, other aspects can be taken into account. The evaluation of performance primarily follows qualitative standards, with quantitative indicators only being incorporated into the overall assessment in a differentiated and reflective manner. If voluntarily disclosed, individual characteristics in CVs are also considered in the judgment, in addition to the categories of the General Act on Equal Treatment.

The IPF is subject to the evaluation criteria of the Leibniz Association when evaluating its scientists.

Guideline 6 – Ombudsperson

The IPF has an independent ombudsperson to whom scientists can turn with questions regarding good scientific practice.

The ombudsperson is called upon to settle or resolve disputes or disagreements related to good scientific practice. They advise, support, and mediate. The guiding principles of the ombudsperson's activity are confidentiality, neutrality, fairness, and transparency towards the parties involved. They should be supported by all parties in the execution of their duties.

For the ombudsperson, a representative should be provided in case of concerns about bias or unavailability. Informants are free to choose which ombudsperson of the IPF they wish to approach. The ombudsperson and their representative can, if there is no concern about bias, consult with each other and exchange information about the inquiries they have received.

The term of office for ombudspersons is limited to three years. Reappointment is possible. The ombudsperson and a representative are elected from the circle of scientific personnel, in accordance

with the election regulations for the ombudsman system of good scientific practice at the IPF in their respective valid version.

The Board of Directors ensures that the ombudsperson and their representative are known at the IPF.

2 Research process

Guideline 7 – Cross-phase quality assurance

Scientists perform each step in the research process *lege artis*. When scientific findings are made publicly accessible (in the narrower sense in the form of publications, but also in the broader sense through other communication channels), the applied mechanisms of quality assurance are always disclosed. This is particularly the case when new methods are developed.

It is essential to be constantly aware of implicit assumptions (e.g., axioms, simplifications in models, etc.) and limitations of research methods, and to scrutinize one's own conclusions accordingly. Personal interests must not lead to the misinterpretation of results through wishful thinking.

Quality assurance is an essential characteristic of scientific integrity. Alongside honesty towards oneself, legal requirements, and other ethical norms, it is the foundation of scientific professionalism. It is ensured through critical collaboration within scientific work units and through clear structures of responsibility.

To ensure quality, it is further essential to maintain an immutable documentation of all work steps and research data, to ensure the secure storage of all records and reproducibility, and to create access opportunities for authorized third parties.

Guideline 8 – Actors, responsibilities, and roles

The roles and responsibilities of the scientists involved in a research project, as well as those of the science-supporting personnel, must be clear at all times during a research project.

Furthermore, honesty in delineating the contributions of all participants and transparency in disclosing third-party funders must be ensured.

The cooperation within scientific work units, whether internal or external, must be designed in such a way that it takes place in a clearly delineated and specialized division of labor. The achieved results must be able to be communicated, critiqued, and integrated into a shared knowledge base, regardless of hierarchical structures.

Guideline 9 – Research design

Scientists consider and acknowledge the current state of research comprehensively when planning a project. The identification of relevant and suitable research questions requires careful research into [already] publicly accessible research contributions. The IPF ensures the necessary framework conditions for this.

Scientists examine and consider whether and, if so, to what extent gender and diversity are relevant for scientific work.

Guideline 10 – Legal and ethical framework conditions, usage rights

Scientists handle the constitutionally guaranteed freedom of research responsibly. They take into account rights and obligations, particularly those resulting from legal requirements, but also from contracts with third parties. If necessary, they obtain and present permissions and ethics approvals/ethical votes. In the context of research projects, a thorough assessment of the research consequences and an evaluation of the respective ethical aspects should be conducted. The legal

framework conditions of a research project also encompass documented agreements regarding the usage rights to research data and research results that emerge from it.

Guideline 11 – Methods and standards

To answer research questions, scientists apply scientifically sound and transparent methods. When developing and using new methods, they place particular emphasis on quality assurance and the establishment of standards.

Guideline 12 – Documentation

Scientists document all information that is pertinent to the creation of a research result in a transparent manner, as required and appropriate in the respective field, in order to enable the result to be reviewed and evaluated. In principle, they should also document individual results that do not support the research hypothesis. Selective reporting of results is not permissible in this context. If there are specific disciplinary recommendations for verification and evaluation, scientists carry out the documentation according to the respective guidelines. If the documentation does not meet these requirements, the limitations and the reasons for them should be clearly explained. Documentations and research results must not be manipulated; they must be protected as effectively as possible against manipulation.

Clear guidelines and rules must be established by the scientifically responsible individuals regarding the planning, collection, recording, documentation, archiving, specific access, and utilization, and efforts should be made to ensure compliance with these guidelines.

Guideline 13 – Provision of public access to research results

In principle, scientists incorporate all results into the scientific discourse. However, in individual cases, there may be reasons not to make results publicly accessible (in the narrower sense in the form of publications, but also in the broader sense through other communication channels); this decision should not depend on third parties. Scientists decide on their own responsibility – taking into account the customs of the relevant disciplinary field – whether, how, and where they make their results publicly accessible. If a decision is made to make results publicly accessible, scientists describe this decision fully and comprehensibly. This also includes, as far as possible and reasonable, making available the research data, materials, and information underlying the results, the methods applied, and the software used, and fully disclosing the workflows. Self-programmed software is made publicly accessible along with the source code. Scientists fully and accurately document their own and others' preliminary work.

Guideline 14 – Authorship

An author is someone who has made a genuine, traceable contribution to the content of a scientific text, data, or software publication. All authors agree to the final version of the work to be published. They share joint responsibility for the publication, unless explicitly stated otherwise. Authors strive to ensure that their research contributions are appropriately credited by publishers or infrastructure providers in such a way that they can be correctly cited by users.

The contribution must be made to the scientific content of the publication. Whether a contribution is genuine and comprehensible needs to be assessed in each individual case and depends on the respective disciplinary field. A traceable, genuine contribution is particularly present when a scientist has significantly contributed to:

- the development and conception of the research project, or
- the elaboration, collection, procurement, provision of data, including their analysis, the software, or
- the evaluation or interpretation of data, sources, and the conclusions drawn from them, or

- the writing of the manuscript.

In the publication of scientific works, the contribution of each author should be acknowledged as far as possible and must be authorized by them. To assess the contributions of co-authors based on their placement in the author line, discipline-specific conventions must be adhered to. The author line thus serves the purpose of correct external perception and the fair recognition of the claims acquired by co-authors through their contributions. This also applies to corresponding authorship.

Honorary authorships are excluded. Sole data collection, funding of the research, provision of equipment, formal leadership functions, or editorial reading of the manuscript do not justify authorship. Support from individuals who have no claim to authorship should be acknowledged in the acknowledgment section.

Guideline 15 – Publication organ

Authors carefully select the publication organ, taking into consideration its quality and visibility in the respective field of discourse. Scientists who assume the role of editors thoroughly examine for which publication organs they undertake this responsibility. The scientific quality of a contribution is not dependent on the publication organ in which it is made publicly accessible.

Guideline 16 – Confidentiality and neutrality in reviews and consultations

Honest behavior is the foundation of the legitimacy of any evaluation process. Scientists who assess submitted manuscripts, funding applications, or the qualifications of individuals are obligated to strict confidentiality in this regard. They disclose all facts that may raise concerns about bias. The obligation to maintain confidentiality and to disclose facts that may raise concerns about bias also applies to members of scientific advisory and decision-making bodies.

Guideline 17 – Archiving

Scientists ensure that publicly accessible research data or research findings, as well as the central materials underlying them and, if applicable, the research software used, are adequately secured and preserved for an appropriate period of time, in accordance with the standards of the respective disciplinary field. If there are justifiable reasons for not preserving certain data, scientists provide an explanation. The IPF ensures that the necessary infrastructure is available to enable archiving.

The IPF regulates details regarding Guidelines 13–17 in its Publication Guideline.

3 Non-compliance with good scientific practice, procedures

Guideline 18 – Informants and individuals affected by allegations

The ombudsperson of the IPF and, if necessary, investigation commissions that examine allegations of scientific misconduct, advocate appropriately for the protection of both the informants and the individuals affected by the allegations. The investigation into allegations of scientific misconduct is explicitly conducted with respect for confidentiality and the fundamental principle of the presumption of innocence. Informants must make their reports in good faith. Deliberately false or maliciously raised allegations can themselves constitute scientific misconduct. As a result of the report, neither the informant nor the individual affected by the allegations should suffer disadvantages for their own scientific or professional advancement.

Guideline 19 – Procedures in cases of suspected scientific misconduct

The IPF establishes the procedures described under section 5 for handling allegations of scientific misconduct. It follows the procedural guidelines for good scientific practice of the DFG. Wherever this procedural regulation allows for discretionary decisions, the recommendations of the DFG should be observed.

4 Instances of scientific misconduct

(1) Scientific misconduct is present when false statements are made intentionally or through gross negligence in a scientifically relevant context, when the intellectual property of others is violated, or when their research activities are otherwise impaired.

(2) The following is particularly considered as misconduct:

a. False statements

i. Fabrication/Invention of data
ii. Falsification of data, for example by selecting and excluding undesired results without disclosure, or manipulation of a representation or illustration
iii. Incorrect statements in a letter of application or a funding proposal (including false claims about the publication list and publications in print or submitted)
iv. Deliberate pretense of implementing or utilizing measures and procedures for quality assurance (such as peer review)
v. Multiple publication of data or texts without appropriate disclosure

b. Elimination of research data, insofar as this violates legal provisions or other recognized principles of scientific work, as well as the unlawful non-elimination of (especially personal) data

c. Violation of intellectual property rights in relation to a legally protected work created by another person or essential scientific findings, hypotheses, teachings, or research approaches originating from others

i. Unauthorized use of passages without proper attribution of authorship (plagiarism)
ii. Exploitation of research approaches and ideas, especially as a reviewer (idea theft)
iii. Appropriation or unjustified assumption of scientific authorship or co-authorship, as well as the denial of such [authorship]
iv. Falsification of content
v. Unauthorized publication and unauthorized disclosure to third parties, as long as the work, knowledge, hypothesis, teaching, or research approach has not yet been published
vi. Assumption of the (co-)authorship of another person without their consent

d. Impairment of the research activities of others by/through:

i. Sabotage of research activities (including damaging, destroying, or manipulating experimental setups, devices, documents, hardware, software, chemicals, or other materials needed by another person for conducting an experiment, as well as delayed cooperation)
ii. Grossly erroneous, deliberately false, or misleading expert evaluation of the research activities of others and the creation of favorable reviews or the delay of reviews

e. Shared responsibility in scientific misconduct may arise, among other things, from:

i. Active participation in or toleration of the misconduct of others
ii. Knowledge of falsifications by others
iii. Co-authorship of publications involving falsification
iv. Neglect of scientific leadership responsibility and supervisory duty by heads of research groups or institutes, as well as scientific supervision in a manner conducive to violations of good scientific practice

5 Procedure for conflict resolution and examination of allegations of scientific misconduct

Preliminary examination and mediation by the ombudsperson

(1) The ombudsperson becomes active when requested by a member of the IPF's scientific staff. The ombudsperson is not an investigative body, meaning they do not actively check compliance with the rules of good scientific practice at the IPF on their own initiative. However, they can become active in justified cases when they are informed by third parties about a suspicion of scientific misconduct, provided that the suspicion is related to the activity at the IPF.

(2) If specific allegations of scientific misconduct are brought to the attention of the IPF or to an employee of the IPF by third parties, the response to such allegations must be coordinated in advance with the ombudsperson. It should be noted that in relation to dealing with indications of scientific misconduct, publications made available online are to be considered as already published.
The consideration of anonymous reports is to be weighed by the ombudsperson. In principle, an effective/ investigation requires the disclosure of the identity of the informant.

(3) The name of an informant is to be treated confidentially. Without their consent, the name of the informant will not be disclosed to the person concerned at this stage of the procedure.

(4) Disclosure of the informant's name to the accused person may be necessary in individual cases if they would otherwise be unable to defend themselves properly. However, this should only be done if it does not disadvantage the informant in their own scientific and professional advancement.

(5) If it is not a case of scientific misconduct that has already occurred (e.g., publication of falsified data), but rather consultations to prevent misconduct or mediation between individuals (e.g., supervisor and supervisee), the discussions can be terminated at any time by any party involved without providing reasons. In the case of mediation, the implementation and execution of the developed solutions are the responsibility of the parties involved in the conflict. The ombudsperson does not have the authority to take measures to enforce or monitor the agreements reached.

(6) In the event of suspicion of scientific misconduct, the ombudsperson conducts a preliminary examination. For the execution of this preliminary examination, at least the accused individuals and the informants should be heard. Individuals who are invited by the ombudsperson to a discussion for the purpose of this preliminary examination are obliged to comply with this request promptly (typically within a maximum of two weeks after the request).

(7) The facts on which the expressed suspicion is based must be determined. The precise determination of the events should be carried out promptly. The investigations are initiated and conducted by the ombudsperson. They are to be conducted with strict adherence to confidentiality and the protection of all parties involved.

(8) The ombudsperson may hear further individuals and commission external expert opinions. All statements and consultations with the ombudsperson are to be kept confidential. Access to records/files is not permitted during a preliminary examination, not even to the IPF's Board of Directors (unless all involved parties consent to it).

(9) The affected parties and informants should be given the opportunity to comment at every stage of the preliminary examination.

(10) The investigation of allegations of scientific misconduct is explicitly conducted with respect to confidentiality and the fundamental principle of presumption of innocence.

(11) As a result of the preliminary examination, the ombudsperson decides on the termination of the procedure or, if the suspicion is confirmed, on the necessity to inform the Board of Directors. In case of concrete suspicions of scientific misconduct following the preliminary examination by the ombudsperson, the Board of Directors must be informed, and the ombudsperson is required to prepare a report with a recommendation for action for the Board of Directors. The Board of Directors then initiates further measures (see section 6).

(12) If, during the course of such a preliminary examination, it becomes apparent that a conclusive resolution of the allegations is not possible at the level of the IPF, or if the procedure is hindered by exceptional circumstances, the ombudsperson should, in consultation with the Board of Directors, present the case to the Leibniz Ombuds Committee. This does not affect the option of approaching the German Research Ombudsman committee.

(13) If the ombudsperson decides to terminate the procedure, the parties involved can lodge an objection. The procedure will then be directly forwarded to the Central Ombuds Committee of the Leibniz Association.

6 Conclusion of the procedure

(1) If there are concrete suspicions of scientific misconduct following the preliminary examination by the ombudsperson, the Board of Directors assumes responsibility for the further procedure. The Board of Directors follows the recommended course of action outlined in the ombudsperson's report, unless there are specific reasons in individual cases that argue against it. The deviating decision must be justified by the Board of Directors.

(2) If the scientific board member is implicated in a concrete suspicion of misconduct, the chairperson of the Scientific Advisory Board must be informed. The chairperson may then involve the chairperson of the IPF's Board of Trustees, if necessary.

(3) The facts upon which the expressed suspicion is based must be determined. The exact establishment of the events should take place without delay. To ascertain the facts, the Board of Directors or the chairperson of the Scientific Advisory Board, respectively, appoints an investigation commission appropriate to the state of affairs. The composition of the commission is based on the Process Guideline for Good Scientific Practice of the DFG. This means that the commission is primarily composed of scientific members, who may be assisted by administrative staff. The IPF internal personnel involved in the investigation are to be released from their respective duties for the relevant tasks, and it is ensured that they can act independently. The investigations are to be conducted with careful consideration of confidentiality and the protection of all parties involved. If the investigation of the misconduct requires additional internal experts, they can be appointed by the investigation commission and are then also to be released from their duties for the task.

(4) The person suspected of misconduct should generally be given the opportunity to comment, citing the incriminating facts and evidence, typically no later than one week after the suspicion becomes known. The deadline for this should generally not exceed one week. The name of the informant will not be disclosed to the person concerned without their consent at this stage of the procedure. The investigation commission may hear further individuals and commission external expert opinions.

(5) The investigation by the investigation commission is concluded with a report that is made available to the Board of Directors or the chairperson of the Scientific Advisory Board, respectively, and whose content is binding for the Board of Directors' decision. The report contains a recommended course of action for the Board of Directors, which the Board of Directors or the chairperson of the Scientific Advisory Board, respectively, follows, unless there are specific reasons to the contrary in individual cases. The deviating decision must be justified by the Board of Directors or the chairperson of the Scientific Advisory Board, respectively.

(6) If special circumstances prevent the conclusion of the procedure within the IPF, the Leibniz Ombuds Committee will be involved.

(7) Otherwise, based on the commission's report, the Board of Directors makes the decision on the necessary measures due to proven scientific misconduct, or on the termination of the procedure. The decision must be documented in writing in a memorandum.

(8) If the identified scientific misconduct affects the scientific work at the IPF in general or internal processes, this will be communicated to the staff in anonymized form after the conclusion of the procedure (internal or Leibniz Association procedure), and changes and adjustments to internal processes will be pointed out.

(9) The following measures can be taken against the person involved in proven scientific misconduct, distinguishing between negligence, gross negligence, or intent:

   a. written reprimand

   b. request to retract incriminated publications or – in less severe cases – to correct false data by publishing an erratum

   c. depending on the severity of the case: disciplinary, employment, civil, or criminal consequences

(10) If the IPF's Board of Directors determines, based on the facts, that the scientific misconduct could necessitate the revocation/withdrawal of academic degrees, it forwards the matter to the awarding university.

(11) The status and results of the investigation are documented in a written report. This report, along with the decisions made by the Board of Directors, concludes the procedure within the IPF.

(12) The essential reasons that led to the termination of the procedure or the decision on measures to be implemented must be communicated to the person concerned and any [potential] informants.

(13) After the investigation has been concluded, the result will be communicated to third parties, if applicable, who have a justified interest in the decision (e.g., current employers, if the person concerned has left the institute).

7 Entry into force

These rules for ensuring good scientific practice at the IPF and procedures for dealing with scientific misconduct come into force upon their signing.

Dresden, 30.01.2023

sgd. Prof. Dr. Carsten Werner
Scientific Director

sgd. Dr. Agnes Schausberger
Administrative Director