

This document is a translation and thus a non-official version. For the official and binding version please refer to the original “*Nutzungsordnung für die MAPEX Core Facility for Materials Analytics*”.

General user rules and guidelines - MAPEX Core Facility for Materials Analytics

Preamble

The MAPEX Core Facility for Materials Analytics (MAPEX-CF) is a shared materials analysis and characterization facility of the MAPEX Center for Materials and Processes of the University of Bremen. The rules and guidelines hereby specified comply with the requirements number 55.04 (as of December 2020) and with the “Basic Requirements for Research Infrastructures” (as of March 2011) set by the *Deutsche Forschungsgemeinschaft* (DFG). They are binding for all users of the MAPEX-CF and are supplemented by specific rules for individual instruments whenever required.

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§1 Tasks and scope

(1) The MAPEX-CF is a shared materials analysis and characterization facility that offers research services and the use of equipment for both university-internal and external users. It comprises five investigation areas: 3D Materials Analytics, Electron Microscopy, Surface Analytics, Spectroscopy, and X-ray Diffraction. The scientific focus of the MAPEX-CF is the investigation of structures, topographical features and, physical, and chemical properties of the surface and the bulk of materials during their synthesis, manufacturing, and use. The MAPEX-CF is embedded institutionally within the MAPEX Center for Materials and Processes and was established by the University of Bremen under the DFG project number 434618658.

§2 Equipment

(1) A detailed list and description of the available instruments at the MAPEX-CF can be found in the MAPEX Instrument Database (<https://www.uni-bremen.de/mapex-cf/instrumentation/instrument-database>).

(2) The instruments available at the MAPEX-CF are operated and maintained under the responsibility of the individual working groups.

(3) Incorporation of further instruments into the MAPEX-CF is possible upon negotiation between the responsible working groups and the MAPEX-CF Executive Board (§ 3(3)).

§3 Technical and scientifically responsible personnel

(1) The five investigation areas comprised by the MAPEX-CF are managed and organized by their respective area responsible named in Appendix A.

(2) A list of the MAPEX-CF Application Scientists in each investigation area can be found on the MAPEX-CF website (<https://www.uni-bremen.de/mapex-cf/access/organization>) and in Appendix A.

(3) The management of the MAPEX-CF is under the responsibility of its Instrument Manager, its Science Manager, and the Executive Board, headed by the Scientific Coordinator. The Executive Board is composed of the area responsible from the MAPEX-CF investigation areas and the management team. The respective names and contact details can be found on the MAPEX-CF website (<https://www.uni-bremen.de/mapex-cf/access/organization>) and in Appendix A.

§4 Types of operation and usage categories

(1) The instruments of MAPEX-CF are primarily used for scientific purposes by members of public or non-profit research institutions. Use for research and development or commercial purposes by members of private companies is possible for certain instruments, as specified by the instrument-specific annexes.

The users of the MAPEX-CF facilities are divided into four categories:

Table 1. Definition of user categories.

Category	Description
T	Teaching personnel and students in the framework of study programs of the University of Bremen.
A	Members of the groups directly running the instruments for method development, testing, and preliminary project work.
B	Members of the University of Bremen.
C	Members of external institutions using MAPEX-CF in the context of publicly-funded research projects.
D	Members of private institutions using MAPEX-CF for commercial purposes.

Further subdivision of the categories above and the related usage shares for each particular instrument may be defined in the relative instrument-specific annex.

(2) The MAPEX-CF equipment is used according to two operation modes:

1. **Service Operation:** All experiments are performed by the MAPEX-CF Application Scientists or their teams.
2. **Application Operation:** Users perform the experiments with minor support from the MAPEX-CF Application Scientists or their teams. In this case, the users must be properly trained beforehand by the staff of the respective areas. This training must be documented and may be charged.

The operation in the sense of this paragraph can include the preparation and mounting of samples as well as the evaluation and analysis of the collected data

by the MAPEX-CF staff. This must be agreed between the users and the Application Scientists prior to the measurements.

§5 Booking and allocation of measurement time

(1) Requests of measurement times are usually made via the Analysis Request Form, available at the MAPEX-CF website. The requests are sent to the Instrument Manager, who will forward them to the responsible Application Scientist. The Application Scientist will assess the feasibility of the experiments and determine if preliminary investigations are necessary. If the measurements are performed within a scientific cooperation between the user and the Application Scientist, the terms of the cooperation agreement should be specified in the Analysis Request Form.

(2) In the case of frequent users, in particular belonging to categories A, B, and T, the request of measurement time can be made directly to the Application Scientists responsible for the particular instruments.

(3) The Application Scientists may grant the right for trained users to book measurement times by themselves when in application operation mode.

(4) Instruments are usually booked by the hour or day.

(5) Measurement requests will usually be processed in the order in which they are received by the MAPEX-CF. The allocation of utilization time of the MAPEX-CF equipment will be granted by the respective Application Scientists, prioritized according to the instrument-specific time-shares as specified by the instrument-specific annexes.

(6) If an instrument is not utilized at full capacity within a certain user category, the Application Scientists will have the right to decide to temporarily grant other users the utilization of the instrument beyond their timeshares.

(7) An extension of the booking period can only be made by the responsible Application Scientist, provided that the extra time required is not occupied by a third party. The measurement time extension has to be documented.

(8) Users can be contacted by the MAPEX-CF staff in case of need for postponement and rearrangement of measurement times.

(9) If a user cannot comply with the starting time of a booked instrument measurement, the responsible Application Scientist must be informed. Short-term cancellations can be done via phone. Cancellations up to 24 hours beforehand will not be charged. Later cancellations are exempted from charge only if a replacement user can be found. Otherwise, the users will be charged the full amount plus any

sales tax, if applicable. Exceptions apply upon agreement between the concerned users and the area responsible.

§6 Data management

A data management plan according to the DFG guidelines will be developed in due course. For the time being, the following rules apply.

(1) In service operation mode, after completion of a measurement, the respective raw (or curated) data will be forwarded to the user, who is responsible for their long-term archival following the “Safeguarding Good Scientific Practice” (2013) recommendations by the DFG. The original data will be stored locally by the Application Scientist who performed the measurements for at least one month.

(2) In application operation mode, the users are fully responsible for the transfer of the acquired data to their own servers and the long-term data archiving.

§7 Costs

(1) The usage costs are calculated according to the reserved measurement time, the use of special consumables, and, if applicable, the time spent by the Application Scientists for any further service (such as non-standard sample preparation, mounting, data analysis, etc.), as specified in the instrument-specific annexes.

(2) Usage costs differ between the different user categories (§ 4(1)) and groups therein, as specified in the instrument-specific annexes and summarized in the MAPEX-CF price list available online at <https://www.uni-bremen.de/mapex-cf>.

(3) The usage of MAPEX-CF instruments within categories T and A is free of charge.

(4) Overhead costs are included in the prices for all services provided by MAPEX-CF to institutions external to the University of Bremen (categories C, D). Services billed via the internal rebooking system of the University of Bremen (category B) are not subject to overhead.

(5) In case of commercial use (category D), the users will receive an invoice accounting for the full costs plus sales tax, if applicable. If the sales tax payment obligation arises after the original invoice date, the university is entitled to issue a corrected invoice and to retrospectively request the payment of the sales tax. In this respect, the user waives the objection of the limitation period.

§8 User obligations

(1) Only users who have undergone a valid operation and safety training may operate the equipment available at the MAPEX-CF. Details for each instrument and laboratory are specified in the instrument-specific annexes.

(2) Users must ensure that their work does not hinder the workflow of the MAPEX-CF or other users. Workplaces must be left in a tidy condition, thus avoiding hindrance of future laboratory work.

(3) Equipment must be operated with care and diligence, following the instructions of the responsible Application Scientists. Users must inform the responsible Application Scientists and the MAPEX-CF Instrument Manager immediately if equipment defects or safety issues are discovered.

(4) Installation of own software on the MAPEX-CF computers and copying of software from the MAPEX-CF computers are prohibited. Exceptions need to be agreed upon with the responsible Application Scientists.

(5) Users are prohibited from interfering with the hardware installation or device configuration without the consent of the respective Application Scientists. If users intend to bring and install their equipment in the MAPEX-CF laboratories, written approval of the Application Scientist is necessary.

(6) During all measurements performed with the MAPEX-CF equipment, the usage time and any anomalies must be documented by the users in the operating log available at the unit.

(7) Besides the general rules stated in this document, users must follow the instrument-specific and laboratory-specific rules. Additionally, the users must follow the instructions of the Application Scientists and their teams. This includes, but is not limited to, laboratory access, sample handling, and instrument configuration.

(8) When results obtained in the MAPEX-CF are published, the MAPEX-CF must be explicitly acknowledged [mentioning '*University of Bremen, MAPEX Core Facility for Materials Analytics, DFG project number 434618658*' as the instrument's affiliation]. Users shall inform the MAPEX-CF Instrument Manager about any publications or patents based on results obtained at the MAPEX-CF. This includes, but is not limited to, scientific publications, annual reports, posters, and newspaper announcements. In case of significant scientific contribution of MAPEX-CF staff to a publication (e.g. data analysis and interpretation), the involved researchers must be listed as co-authors.

(9) The resources mentioned in § 2 are primarily available for scientific purposes, considering the Bremen Higher Education Act (in particular § 4(1) and § 7b "Civil Clause") and following the "Guidelines for Safeguarding Good Research Practice" set by the DFG (<https://doi.org/10.5281/zenodo.3923601>). In addition, general and institution-specific legal and safety regulations (e.g. general laboratory regulations of the University of Bremen, x-ray safety regulations) must be observed.

§9 MAPEX-CF rights and obligations

(1) The MAPEX-CF is obliged to save the user's measured data for at least one month and grant the respective users access to it. Upon agreement between the concerned users and the MAPEX-CF, the data archiving period can be shortened or lengthened.

(2) The MAPEX-CF is obliged to designate an Application Scientist as a contact person for user assistance during measurements.

(3) The Application Scientists and their teams are authorized to check and terminate the running measurements in case of malfunction, misuse of equipment, or any other exceptional circumstances. If necessary, they are also authorized to access the user's measured data.

(4) In case of maintenance work or defective equipment, usage of instruments can be restricted by the Application Scientists.

(5) If no other arrangements have been made with the applications scientists, the MAPEX-CF is entitled to dispose of the user's samples stored in the laboratories, but not sooner than one year after the related measurements have been completed. If costs are associated to sample storage or disposal, these will be charged to the user plus any applicable sales tax.

(6) Any data collected by the MAPEX-CF in service operation mode or accessible on the MAPEX-CF computers must be treated confidentially.

(7) Equipment use may be denied if:

- The samples represent a danger to the MAPEX-CF staff or the equipment.
- Capacity overload within the particular user category (§ 4(1)) is achieved.
- The requested use will unreasonably interfere with other authorized measurements.
- The resources are unsuitable for the requested use.
- The authorization to use the equipment has been withdrawn (§ 10(7)).

§10 Liability

(1) The MAPEX-CF does not ensure that instruments will run without potential errors or interruptions and that the specific user requirements will be satisfied by the instrumentation.

(2) It is the users' responsibility to interpret the measured data. However, upon previous agreement, the MAPEX-CF can support the users in such matters (§ 4(2)).

(3) The users are liable if damage occurs to an instrument as a result of gross negligence or intent during operation. Gross negligence also includes operation by

untrained personnel or other violation of duties or any official requirements of the particular instruments used.

(4) MAPEX-CF is not liable for the loss or damage of samples.

(5) MAPEX-CF is not liable for software errors, completeness, and quality of the measured data. MAPEX-CF is only liable for intent and gross negligence.

(6) By applying for measurement at the MAPEX-CF, the user agrees to follow the regulations specified in this document as well as the regulations of the particular instrument or laboratory.

(7) In case of repeated and/or serious violations of these regulations, users may be temporarily or permanently excluded from using the MAPEX-CF.

Appendix A

MAPEX-CF management

Instrument Manager: Dr. Guilherme Dalla Lana Semione

Science Manager: Dr. Hanna Lührs

Scientific Coordinator: Prof. Lucio Colombi Ciacchi

Area responsible of the MAPEX-CF

Table 2. Area responsible of the five MAPEX-CF investigation areas.

Area responsible	Investigation area
Prof. Wolfgang Bach	3D Materials Analytics
Prof. Andreas Rosenauer	Electron Microscopy
Prof. Andreas Lüttge	Surface Analytics
Prof. Jens Falta	Spectroscopy
Prof. Thorsten M. Gesing	X-ray Diffraction

Table 3. Application Scientists of the five MAPEX-CF investigation areas.

Application Scientist	Investigation area
Dr. Wolf-Achim Kahl	3D Materials Analytics
Dr. Marco Schowalter	Electron Microscopy
Dr. Thorsten Mehrrens	
Marcos Toro	Surface Analytics
Imke Lübeck	
Dr. Jon-Olaf Krisponeit	Spectroscopy
Dr. M. Mangir Murshed	
Dr. Lars Robben	X-ray Diffraction

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Appendix B

List of available instrument-specific annexes classified by investigation area as of February 17, 2022. More information can be found in the MAPEX-CF [website](#).

3D Materials Analytics

- ProCon X-ray Computed Microtomography System CT-ALPHA ([DE/EN](#))
- Zeiss Xradia 520 Versa X-ray Microscope ([DE/EN](#))