

Terms of Use for the High-Field NMR Spectrometers

The high-resolution NMR spectrometry facility is operated by the Institute of Chemistry (IfC) at CvO University of Oldenburg. Prof. Dr T. Müller and Dr L. Albers are responsible for the scientific and administrative management of the department. Day-to-day operations are managed by the technicians Ms A. Tschirne and Ms A. Sündermann. Solid-state NMR measurements are carried out by the research group led by Prof. Dr M. Wark.

The following equipment is available to members of the Institute of Chemistry for carrying out NMR spectroscopic investigations:

- JEOL 500 MHz (11.4 Tesla)
- Bruker Avance III RMN 1Bay 500 MHz (11.4 Tesla)
- Bruker Avance III 2Bay WB 500 MHz (11.4 Tesla) → Solid-state and high-resolution NMR
- Bruker Fourier 300 MHz (7.1 Tesla)

For more detailed information on the available NMR spectrometers and standard experiments, please visit the CvO University of Oldenburg website at <https://uol.de/en/chemistry/analytical-facilities/nmr>.

The IfC's laboratory regulations apply to use of the NMR facilities.

Access to the NMR spectrometers is restricted to

- NMR technicians
- selected staff members

All users of the NMR spectrometers have to register for the study group "Kernresonanz" on the STUD.IP platform at CvO University of Oldenburg.

Safety Informations

- Be aware of the very strong magnetic fields (7.1 / 11.7 Tesla)
- Please observe the safety symbols on the doors.
- Persons with prosthetics or electronic medical devices are not permitted to enter the rooms.
- No iron objects (e.g. tools) may be brought into the room, especially small magnetic items such as paper clips, etc.
- Mechanical wristwatches and magnetic cards (e.g. debit cards) may be damaged.

Instructions to ensure trouble-free operation:

- NMR spectrometers are particularly sensitive and expensive devices. It is essential to maintain a clean environment and work with the utmost care at all times.
- Autonomous measurements may only be performed by persons who have attended a training session with a NMR technician and signed the User Permission document.
- A current, fully and legibly completed NMR order form must be attached to each sample tube.
- The length of the NMR tube has to be at least 17 cm from the bottom of the tube to just below the lid or the Parafilm. This length has also to be maintained before an attachment of a screw cap, a ground joint or a Young Tube starts to begin.
It is not allowed to use shorter tubes as they can cause serious damage.
- The filling height of the sample solution has to be at least 4 cm and at most 6 cm. The spectrometers are shimmed to this filling level (Shimming = Homogenizing the magnetic field).
- The NMR tubes have to be tightly closed and clean (cleaned on the outside with isopropanol). This applies accordingly to the vessels the tubes are stored in. The cotton wool inside and the order forms have to be clean, too. Of course, the sample vessels have also to be free of damage.
- Use Parafilm or ground joint glass tubes for strong-smelling samples.
- Deuterated solvents (anhydrous) or D₂O capillaries should be used (D₂O capillaries not for the Fourier 300). The deuterium signal is used in the NMR spectrometer to counteract the drift of the magnetic field and to ensure the homogeneity of the magnetic field (so-called lock). Measurements without a lock lead to poorer results.
- Special measurements, such as low- or high-temperature measurements, measurements of unstable samples, or experiments requiring very long measurement time, are scheduled by appointment with the NMR technicians.
- See also the "Downloads" section of the website:
 - Length of the NMR tubes
 - Notes on sample submission

Malfunctions

- If there are any malfunctions during normal working hours please contact the NMR technicians immediately.
- If there are any malfunctions during nighttime- or weekend measurement hours, please report the issue by leaving a written note with your name and lock the device for the next users. (Place the “Störung” sign on the keyboard.) You are also welcome to send an email.

NMR-Data

- The data of an NMR measurement are copied to the “Kernresonanz” server at CvO University of Oldenburg approximately every 15 minutes and are available there for users to download. They are stored in folders named according to the device designation.
The data on this server are backed up by the IT Services department at CvO University of Oldenburg.
- Users have access to the MestreNova analysis software through a campus license provided by CvO University of Oldenburg. Further details can be found in the “Kernresonanz” study group in STUD.IP at CvO University of Oldenburg.
- In addition, the TopSpin processing software from Bruker, which is free for academic and government institutions, can be used. Registration with Bruker is required. The exact procedure is described on the website www.bruker.com under “NMR Software & Downloads.”
- The measurement data are processed using standard parameters, which generally yield good results. If this is not sufficient, the measurement data must be processed using parameters of your own choosing.

If you have any further questions, please feel free to contact us:

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