Josef Dadok National NMR Centre

Operation Rules

Version 4.0, valid as of October 15, 2021.

General rules

Josef Dadok National NMR Centre, CF NMR in short, is a core facility of CEITEC MU that provides services and access to equipment in the field of magnetic resonance spectroscopy. The facility is open to users from both academia and industry. The centre is located in the basement of Building C04 of University Campus Bohunice.

Equipment available

The Centre is eqipped with 6 NMR spectrometers with proton resonance frequencies from 500 MHz to 950 MHz. Also available is a simple X-band EPR spectrometer. A complete list of equipment is available at the Centre's web page
https://nmr.ceitec.cz/equipment/

Use of the facility

The spectrometers at the Centre can be used in either user or service modes. In the user mode, the trained users can use the equipment independently. In the service mode, the measurement is performed by the CF staff. New users should first contact CF NMR staff (radovan.fiala@ceitec.muni.cz; nmr@ceitec.muni.cz) to discuss the feasibility of their projects (service mode) or arrange for training and certification (user mode).

The facility is accessible to the certified users at any time provided all safety regulations are observed. Outside the regular working hours, the last user to leave shall turn off the lights and lock the door to the lobby in front of the NMR labs (room No. 1S42) as well as the wet labs (rooms No. 1S44 and 1S47).

Bringing ferromagnetic objects close to the NMR magnets is strictly prohibited. This includes staples and metal paper clips.

Persons with pacemakers and metallic implants must not enter the high-field labs (rooms 1S38, 1S41, 1S102). The operator rooms (1S37, 1S104) as well as NMR 500 MHz laboratory (1S45) are safe.

The fridges in the wet lab 1S44 and the operator room 1S104 are available to store the samples temporarily. The samples should be marked so that the owner can be tracked down. The samples shall be removed after the measurements are completed. Anonymous samples and samples left behind will be destroyed.

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Certification

The Centre's equipment can be operated by certified users only. New users generally need to pass a course and exam to get certified. The main training course for the facility is Practical NMR Spectroscopy of Biomolecules. The course is listed in the IS as C7995 for MU students but non-students and persons from outside MU can enrol as well. Persons trained in NMR spectroscopy in other labs can get certified based on their previous experience. The decision is made by the CF head on individual bases.

Certified users from CEITEC can bring new members of their research groups to the Centre for instruction. However, this training is not a sufficient basis for certification and the person in training must be under supervision of the certified user at all times.

A newly certified user provides his/her contact information (working place, email, phone number) to the CF staff. The CF staff creates the user account on NMR spectrometers and other CF computers, arranges for the access to the booking system, and instruct the secretary to provide the user with the key to the CF labs.

Equipment reservation

The users book the instruments via the online reservation system.

Planning board | CEITEC Booking

For the service measurements, the booking is made by the CF staff.

Any special requirements on the configuration of the instrument should be noted in a comment to the booking.

The measurement can be performed only for the purpose of the project indicated in the booking. Measurements for third parties are strictly prohibited.

The CF staff can cancel or shift the user booking if a need of maintenance, service, or repair arises. In such a case, the user is entitled to replacement instrument time in the nearest available time slot.

There is no limit to the amount of instrument time a user can book. However, the users are obliged to use the instrument time as efficiently as possible. If a user needs to cancel a reservation on a short notice (less than 24 hours), he/she should notify other users by sending email to nmrspect@ncbr.muni.cz.

The booked time slot should not end after 4 pm to allow enough time to set up the next measurement, unless explicitly agreed upon with the next user. The CF staff can extend the bookings ending past 4 pm till 8 am of the next working day if there is no other user for the spectrometer.

User responsibilities

Before starting the work, users should check if the working space is clean, and instrument is in good condition. If not, the user should contact the CF staff and report the problem. At the end of the measurement, the user must take out the sample, set the temperature to 25°C, exit TopSpin program, log out, and remove all his/her belongings from the operator room. It there is no next user scheduled shortly, the spectrometer should be left behind with the standard sucrose sample in the magnet and the lock engaged.

The users must not change the hardware or software configuration of the instrument, nor restart the hardware or computer. The probes can be exchanged by a user only with an explicit consent of the CF staff.

The user should report any instrument malfunction to the CF staff immediately. The CF staff should be notified even if a problem appears only temporarily and goes away. The contact information is available in every operator room.

The users are obliged to work under their own logins to make it clear who is using the instrument. Sharing the accounts is against the University data policy and may result in cancelling the user certification.

The user must not interfere with other users' measurements or inspect or copy their data without an explicit consent of the data owner. If a user comes for a scheduled measurement and finds out someone else is using the instrument, he/she should notify the CF staff. If a measurement is not running but there is still a sample in the magnet and previous user is logged in, the new user can remove the sample, log him/her out and proceed with his/her own measurement.
Before sending multiple experiments in a queue for automatic execution, the user shall start each experiment separately and check for any signs of incorrect setup like error messages, sample heating etc.
The users running long-time measurements (more than 24 hours) shall monitor the progress of their experiments either by personal visits or through a web application
Palantir (muni.cz)
If a user needs support from the CF staff in setting up a measurement, the user should make the arrangement with a member of the CF staff before booking the time to make sure the support is available.

CF staff responsibilities

The CF staff maintains the equipment in good working condition, performs testing and calibrations. This includes upgrades of software and firmware, periodic testing of resolution and sensitivity on a standard sucrose sample, pulse lengths calibrations for the most common nuclei (^{13}C, ^{15}N), and the temperature calibrations.
In the case of malfunction, the CF staff notifies immediately the affected users, diagnoses the problem, and arranges for a repair by authorized service if necessary.
The CF informs the users about important changes in the availability of the instruments through the web page
NMR info (muni.cz)
and in urgent cases also by email to all users.
An authorized member of CF staff follows and approves the reservations and helps to resolve reservation conflicts.
The CF head plans upgrades of the CF equipment according to user needs and expected future development of the field.

Pricing

The users are charged for the measurement according to a pricelist. The pricelist calculation is based on a cost matrix and it is updated every year.
The academic users are encouraged to submit their projects to CIISB or other applicable source of financing to obtain financial support for their measurement. A list of currently available financing is given on the CF web page.

Visits to the Centre

Visits by groups of maximally 20 people are possible for the purpose of education, promotion, and public relations. The visits must be arranged beforehand to avoid conflicts with measurements, teaching, or instrument maintenance. Visitors must be accompanied by a member of CF staff or another authorized person. Photography and filming in the facility is allowed.

Acknowledgement

All users are required to acknowledge the Core Facility if any data obtained in the Core Facility has been used in the publication using the wording as follows:
„Josef Dadok National NMR Centre of CEITEC Masaryk University is gratefully acknowledged for the obtaining of the scientific data presented in this paper."