

Chemistry Instrument Center

COVID19 Phase 3 Operations

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CIC MR Facility - COVID19 Phase 3 Operations

This document describes Phase 3 operations of the MR Facility in the Chemistry Department at UW-Madison. Email NMR staff (nmrstaff@chem.wisc.edu) if you have questions about procedures as stated below, experience problems on the instruments, or believe data turn-around is slowing your research progress.

If you are at high-risk for COVID-19 or feel uncomfortable accessing the MR facility please contact us at nmrstaff@chem.wisc.edu to discuss options.

Goals:

- Maintain or improve core functionalities essential for research.
- Maintain a research environment that is as safe as possible, one that mitigates risks for everyone involved with the MR Facility.
- Keep data quality very high.
- Keep data-turnaround sufficient to not reduce research efficiency. The goal is ≤ 30 min for automated data acquisitions, but that may not be possible during Phase 2 efforts. Note on your data request if turn-around is particularly important (e.g., due to sample degradation) and we'll discuss with you how best to deal with this.

Operating Procedures:

- If you feel ill, have recently traveled, or have other circumstances suggesting self-quarantine, you are strongly advised to stay at home for 14 days.
- Follow CDC and Wisconsin guidelines for travel to/from the facility.
- Limit your number of physical interactions, as established by your group's research plan. Do not come to NMR staff for direct interactions. Always email, and if a one-on-one interaction is required, we will schedule a meeting. These will be rare, provided only when absolutely necessary.
- Maximize Distance
 - Occupancy is set at 150 sq ft of space per person at a minimum. Only one person is allowed at any one time per instrument.
 - 15 min must be provided between individual sessions.
 - Stay at least 6 ft apart while wearing a facemask.
 - Traffic flow in and about the facility will be regulated ([see facility map](#)).
- Wear Personal Protective Equipment (PPE)
 - Wear facemasks on the way to and away from the facility and while in the facility.
 - Bring only what you need into the NMR facility with you.
 - Always clean samples prior to bringing them to the facility.
 - Do not wear lab coats from your lab.
 - Do not bring gloves with you; gloves where needed will be provided in the laboratories.
- Practice excellent hygiene:

- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 (locations are shown on the [facility map](#)), as well as in 2nd floor restrooms in Daniels and Shain.
- Minimize Time in the Facility
 - Even with PPE, the more time individuals spend in a shared space, the greater the chance of transmission.
 - Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- Disinfect common areas often
 - Facility staff will disinfect commonly touched surfaces at least once per day.
 - Spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.

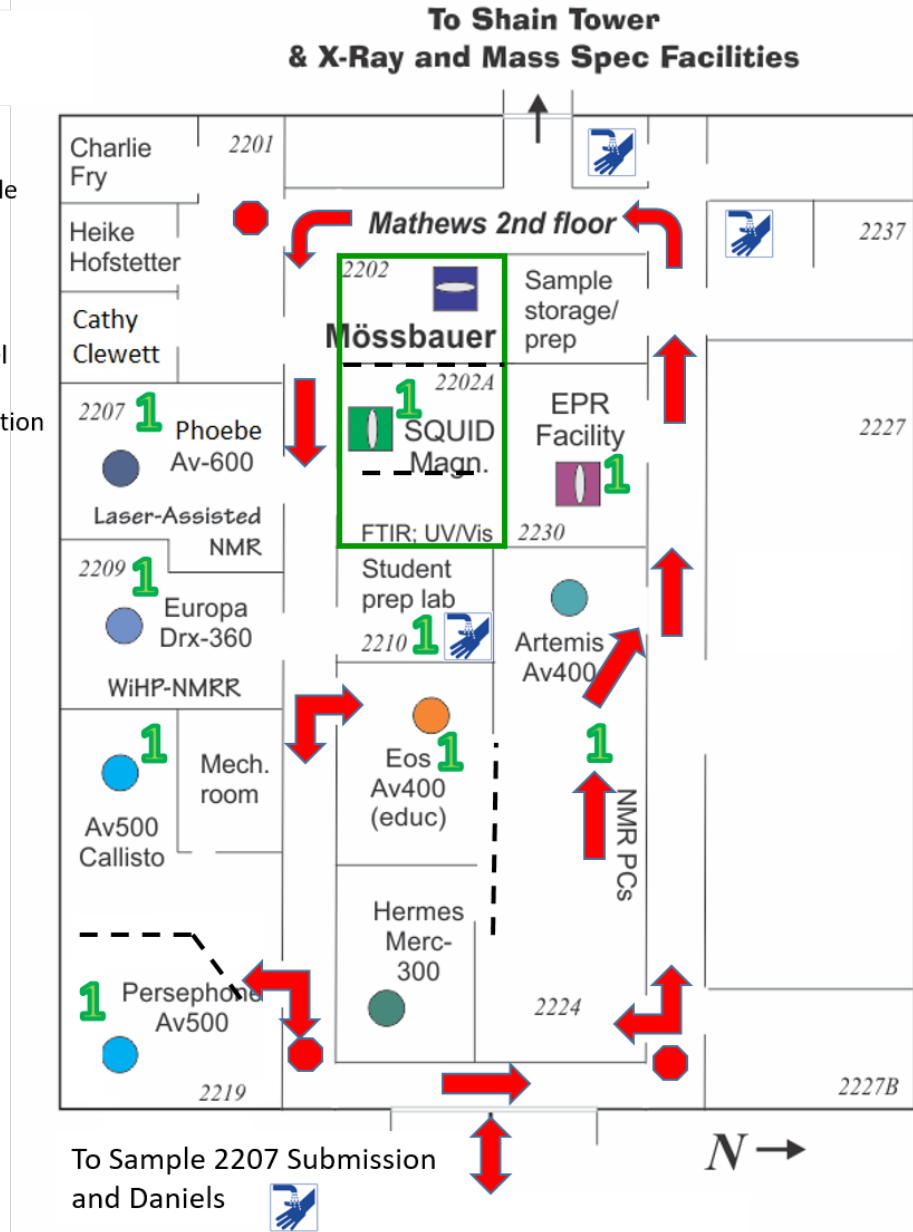
Instrument access (details for each instrument are provided below):

- **Artemis(400) and Callisto(500) are available only by service requests, and used only by NMR staff.** See sample drop-off and other instructions below.
- All other instruments must be reserved on the facility calendars prior to coming to the NMR facility.
- ***Non-chem users must not enter the Chemistry building*** other than to drop off/pick up samples for artemis and callisto in the Shain entry only, unless you have direct approval from the NMR staff and Chem Dept to do so.
- Provide 15 min wait time between scheduled appointments.
- Sign up for the time you need - you will be charged for the time you have signed up (even if you do not use it).
- **No walk-up use of any instrument is allowed.**
- Only one person is allowed at any instrument and in any room at one time.
- Follow postings in each lab carefully.
- All experiments must be completed by 9:45pm M-R, and 4:45 pm Fri, Sat, Sun.
- Overnight users must remove their samples from the laboratory by 8am the following morning.

MR Facility Map

Phase 3

- 1** Number of people allowed in area
-  Location to wait
-  Direction of travel
-  Handwashing station
- - Stanchion



- Traffic flow: The facility will be “one way” for walking the hallways on 2nd floor Mathews. Walk counterclockwise through hallways, easing the ability to maintain social distancing.
- All laboratory spaces have been rearranged and clearly marked to ensure workspaces of at least 150 sq ft/person. Entry and exit paths have been marked. Stay 6 ft distance of all other personnel as a minimum.
- Paper sign-in sheets will be placed at the entry to each laboratory. Users must sign-in to provide data for contact tracing.

- All researchers are required to vacate research and service areas before 10pm M-R, and 5 pm Fri,Sat,Sun. **All Facility experiments and sample pick up must be completed by 9:45pm, or 4:45 pm, respectively.**
- Sample drop off for Artemis and Callisto must be completed as no-contact. See instructions below. Samples will be run by facility staff.
- **All other instruments will be used only on a calendared basis.** *Persephone (500, ssNMR), Europa (360), Eos (400), Phoebe (600), SQUID, Mossbauer, ESR.* A 15 min break must be maintained after each use to allow for a complete exchange of room air. Follow postings in the labs carefully. Contact NMR staff prior to scheduling -- Solid State NMR or SQUID contact Cathy Clewett (608-262-8196, clewett@wisc.edu), EPR contact Heike Hofstetter (hofstetter@chem.wisc.edu), all other instruments contact nmrstaff@chem.wisc.edu.
- In Phase 3 non-department users can sign up to use instruments, but only after they have been given explicit access to the Chemistry Building. Users should write a concise description of what instrument(s) they need access to, what the project is and how the data they will obtain will impact that project. The description should be 1/3 to 1/2 page in length. They must wait until they get an email back providing access along with Marauder Map information and guidelines for working in the building. At this point they can then use the spectrometers in accordance to the guidelines stated below.

Training: All instrument and software training is provided on case-by-case basis until further notice. Contact nmrstaff@chem.wisc.edu for more information.

Artemis (Avance-400a) and Callisto (Avance-500c)

For phase 3, NMR staff will set-up and run all experiments on these spectrometers.

No walkup is allowed for these two instruments. Do not approach them for any reason.

Email NMR staff (nmrstaff@chem.wisc.edu) if you have questions or comments. Failure to improperly submit samples using the provided spreadsheet, not labeling the samples properly (using numbers 1,2,...,n only), unclear sample containment labeling, etc., will result in your samples not being submitted. Please help us by following the instructions below carefully.

Chemistry department users (non-Chem users see below):

- Sample drop off for Artemis and Callisto must be completed as no-contact. Samples will be run by facility staff.
 - Before your first time using the Facility, contact NMR staff (nmrstaff@chem.wisc.edu) with your username so it can be added to the Excel submission spreadsheet. Continue *only* after we have confirmed your request.
 - Download (click the [link](#) in this sentence) and fill out the sample submission [Excel spreadsheet](#) following the [instructions given here](#).
 - Submit the Excel sheet to nmrstaff@chem.wisc.edu.
 - Include a brief physical description of the sample.
 - Number your samples from 1,2,3,...,n where n = # samples. Make sure these numbers match the number label in the spreadsheet. We will not accept any other manner of labeling your samples.
 - Write the number on the caps or the white area on the side of the tube. Label each tube with a number only!
 - Do not attach paper labels to the NMR tubes. Do not use parafilm.
 - Prepare your samples in your laboratory in the proper NMR tubes and caps.
 - Thoroughly clean the exterior of the tubes in your laboratory.
 - Replace older automation caps (if used > 10 times, they need to be replaced).
 - Take your samples to rm 2307 using secondary containment.
 - Leave your sample on the "sample drop off table". Make sure your container can stand on its own and is **clearly** labeled with
 - your name
 - phone number
 - email
 - NMR username (so we can cross-reference to your Excel submission).
 - PI name
 - Sign in on the sign-in sheet for contact tracing; bring your own pen.
 - Automation submissions on artemis and callisto happen at 9am, 11pm, 1:30pm, and 4:00pm every day of the week. There are additional submissions at 5:30pm, 7:30pm and 9:15pm on M-R evenings. Note that submissions will not occur exactly at the times listed; we pick up samples then, but it takes time to get them

into the robots and then do the spreadsheet imports that get them running properly.

- The 9:15pm (4:15pm on Fri,Sat,Sun) time is a hard deadline; if both sample(s) and spreadsheet have not arrive by this time, the samples/experiments will wait until the next day.
- Samples must be picked up in 2311 from the “pick up” table within 3 working days. Otherwise a standard facility sample disposal fee will be charged. We will drop them off by 10am the morning after they have run.

Non-departmental users:

- Contact NMR staff at nmrstaff@chem.wisc.edu to discuss gaining access to the building. Do not come to the Chemistry building until you have permission to do so from the NMR staff (see below).
- Sample drop off for Artemis and Callisto must be completed as no-contact.
 - Before your first time using the Facility, contact NMR staff (nmrstaff@chem.wisc.edu) with your username so it can be added to the Excel submission spreadsheet. Continue *only* after we have confirmed your request.
 - Download (click the [link](#) in this sentence) and fill out the sample submission [Excel spreadsheet](#) following the [instructions given here](#).
 - Email your Excel sheet to nmrstaff@chem.wisc.edu.
 - You must include a physical description of the sample.
 - Number your samples from 1,2,3,...,n where n = # samples. Make sure these numbers match the number label in the spreadsheet. We will not accept any other manner of labeling your samples.
 - Write the number on the caps or the white area on the side of the tube. Label each tube with a number only!
 - Do not attach paper labels to the NMR tubes. Do not use parafilm.
 - Prepare your samples in your laboratory in the proper NMR tubes and caps.
 - Thoroughly clean the exterior of the tubes in your laboratory.
 - **Wait for an email to be sent back from NMR staff before coming to Chemistry.** We will check that your Excel spreadsheet is filled out correctly, and only then will give you permission to enter the building.
 - Take your samples to standard drop-off location, rm 2307, and pickup rm 2311.
 - Leave your sample on the “sample drop off table”. Make sure your container can stand on its own and is **clearly** labeled with
 - your name
 - phone number
 - email
 - NMR username (so we can cross-reference to your Excel submission).
 - PI name
 - Sign in on the sign-in sheet for contact tracing; bring your own pen.
- CIC staff will collect samples 15 min before sample submission times (see above). These times may be adjusted depending on feedback from users.

Eos (Avance-400e):

- Instrument must be reserved on the facility calendars prior to coming to the NMR facility.
- A 15 min wait time must be provided between scheduled appointments.
- **No walk-up access is allowed.**
- Only one person is allowed at the instrument at one time.
- All experiments must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.
- Wear facemasks on the way to and away from the facility and while in the facility.
- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 (locations on [facility map](#)) as well as in 2nd floor restrooms in Daniels and Shain.
- Bring only what is needed into the NMR facility.
- Do not use gloves on Eos.
- User enters and exits via the south door to rm 2224 ([see facility map](#)). Stanchions are placed (dashed lines on the map) to enforce that the user on Eos stays only in that part of the 2224 room.
- Samples must be brought in and taken away by the user during their session. When running overnight experiments, samples must be picked up the next morning by 8am. *No samples can be left on Eos after the scheduled time.* Failure to follow this rule will result in sample disposal fees being assessed, and possible removal of access for the user.
- Users will spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.
- Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- All researchers are required to vacate research and service areas before 5 PM when the custodial crew begins their work. **All experiments (or experiment set up if running overnight) and sample pick up must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.**

Phoebe (Avance-600) [may not be available for individual use until repairs are completed on callisto; email nmrstaff if you need to use the 600]:

- Instrument must be reserved on the facility calendars prior to coming to the NMR facility.
- A 15 min wait time must be provided between scheduled appointments.
- **No walk-up access is allowed.**
- Only one person is allowed at the instrument at one time.
- All experiments must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun..
- Wear facemasks on the way to and away from the facility and while in the facility.
- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 (locations on map on pg 3) as well as in 2nd floor restrooms in Daniels and Shain.
- Bring only what is needed into the NMR facility.
- Do not use gloves on Phoebe.
- Samples must be brought in and taken away by the user during their session. When running overnight experiments, samples must be picked up the next morning by 8am latest. *No samples can be left on Phoebe after the scheduled time.* Failure to follow this rule will result in significant fees being assessed, and possible removal of access for the user.
- Users will spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.
- Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- All researchers are required to vacate research and service areas before 5 PM when the custodial crew begins their work. **All experiments (or experiment set up if running overnight) and sample pick up must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.**

Persephone (Avance-500 - Liquids and Solid-State NMR):

- Contact Cathy Clewett (clewett@wisc.edu, 608-262-8196) for needs involving solid-state NMR.
- Instrument must be reserved on the facility calendars prior to coming to the NMR facility.
- **No walk-up access is allowed.**
- Only one person is allowed at the instrument at one time.
- All experiments must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.
- There must be a 15 min wait time between scheduled appointments.
- Wear facemasks on the way to and away from the facility and while in the facility.
- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 as well as in restrooms in Daniels and Shain.
- Bring only what is needed into the NMR facility.
- Do not bring gloves; gloves where needed will be provided in the laboratories.
- Stanchions are utilized to guide traffic to the spectrometer ([see facility map](#)).
- Samples must be brought in and taken away by the user during their session. When running overnight experiments, samples must be picked up the next morning by 8am latest. *No samples can be left on Persephone after the scheduled time.* Failure to follow this rule will result in significant fees being assessed, and possible removal of access for the user.
- Users will spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.
- Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- All researchers are required to vacate research and service areas before 5 PM when the custodial crew begins their work. **All experiments (or experiment set up if running overnight) and sample pick up must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.**

Europa (Avance-360):

- Instrument must be reserved on the facility calendars prior to coming to the NMR facility.
- There must be a 15 min wait time between scheduled appointments.
- **No walk-up access is allowed.**
- Only one person is allowed at the instrument at one time.
- All experiments must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.
- Wear facemasks on the way to and away from the facility and while in the facility.
- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 as well as in restrooms in Daniels and Shain.
- Bring only what is needed into the NMR facility.
- Do not bring gloves; gloves where needed will be provided in the laboratories.
- Samples must be brought in and taken away by the user during their session. When running overnight experiments, samples must be picked up the next morning by 8am latest. *No samples can be left on Europa after the scheduled time.* Failure to follow this rule will result in significant fees being assessed, and possible removal of access for the user.
- Users will spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.
- Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- All researchers are required to vacate research and service areas before 5 PM when the custodial crew begins their work. **All experiments (or experiment set up if running overnight) and sample pick up must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.**

EPR:

- Instrument must be reserved on the facility calendars prior to coming to the NMR facility.
- There must be a 15 min wait time between scheduled appointments.
- **No walk-up is possible.**
- Only one person is allowed at the instrument at one time.
- All experiments must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.
- Wear facemasks on the way to and away from the facility and while in the facility.
- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 as well as in restrooms in Daniels and Shain.
- Bring only what is needed into the NMR facility.
- Do not bring gloves; gloves where needed will be provided in the laboratories.
- Samples must be brought in and taken away by the user during their session. When running overnight experiments, samples must be picked up the next morning by 8am latest. *No samples can be left on the EPR after the scheduled time.* Failure to follow this rule will result in significant fees being assessed, and possible removal of access for the user.
- Users will spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.
- Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- All researchers are required to vacate research and service areas before 5 PM when the custodial crew begins their work. **All experiments and sample pick up must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.**

SQUID magnetometer, Mössbauer, Small Instrument Lab:

The SQUID magnetometer (west side) and Mössbauer spectrometer share a room with the small instrument lab (east side).

- The room can only be used by one user at any given time.
- All use in the room will be by calendar appointment only.
 - First reserve the total time you need to run all experiments on the instrument through the FACES calendaring system.
 - After reserving the instrument make a room reservation on the MR facility room page (<https://mrf-rooms.chem.wisc.edu>). Reserve the room for the time needed to set up the run -- usually the first half hour of reserved instrument time.
 - After reserving the instrument make a second room reservation on the MR facility room page (<https://mrf-rooms.chem.wisc.edu>) for the time needed to remove the sample.
 - There must be a 15 min wait time between appointments by different people.
- **No walk-up access to any instrument (including small instruments) is allowed.**
- Only one person is allowed in the entire room at one time.
- All experiments must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.
- There will be a half-hour (30 min) wait time between scheduled appointments.
- Wear facemasks on the way to and away from the facility and while in the facility.
- Wash hands with soap and water for >20s prior to entry to the NMR facility, and after exiting. Hand washing stations are available in 2210, 2237, and 2207 as well as in restrooms in Daniels and Shain.
- Bring only what is needed into the NMR facility.
- Do not bring gloves; gloves where needed will be provided in the laboratories.
- Samples must be brought in and taken away by the user during their session. When running overnight experiments, samples must be picked up the next morning by 8am latest. *No samples can be left on an instrument after the scheduled time.* Failure to follow this rule will result in significant fees being assessed, and possible removal of access for the user.
- Users will spray the provided 70% ethanol solutions on keyboards, mice and surfaces upon arrival at the instrument and prior to exiting. Wipe down surfaces.
- Interaction with facility staff should be conducted via email, phone or video conferencing. Do NOT simply approach staff for any reason other than emergencies. All direct contacts must only be done by prior scheduling.
- All researchers are required to vacate research and service areas before 5 PM when the custodial crew begins their work. **All experiments (or experiment set up if running overnight) and sample pick up must be completed by 9:45 M-R or 4:45 pm Fri,Sat,Sun.**