Facility: Magnetic Resonance Center

Location: Merkert Center, 2609 Beacon Street, Room 105, Chestnut Hill, MA 02467

Contact Information:

- Director: Dr. Thusitha Jayasundera (thusitha.jayasundera@bc.edu) 617-552-6984
- Assistant Director: Dr. Jing Jin (jing.jin@bc.edu) 617-552-4766

Facility Overview:

The Magnetic Resonance Center houses five NMR (VNMRS 400/500/600, MR 400 and INOVA 500) and one EPR (BRUKER EMX-Plus) spectrometers. Two workstations and printers allow the users to process data in the facility. All data is remotely accessible and stored in back-up servers.

Ramp-Up Plan

Part 1: Physical Space Considerations

All six instruments and workstations share the open space in room 105 of the Merkert Chemistry Center, with one door to access the space. To adhere to physical distancing requirements and minimize traffic, rearrangements have to be made to maximize the initial limited utilization of these instruments:

1. The MRC will be open from 8:30 am – 6:00 pm, Monday – Friday with no evening access on weekdays during this initial return to research.
2. The two data analysis workstations, printers, and lab telephone will be off temporarily.
3. Once reopened for phase one, the number of operators (user and staff) present in the facility at one time will be limited to a maximum of 5 to maintain the required physical distancing guidelines. The new reservation rules for this purpose are outlined in Part 3.
4. If any issues concerning the instruments arise during the day, users should remove their samples, leave the NMR lab, and immediately email the Directors describing the problem. The system will be offline until the problem is fixed, and announced to the user base via email.
5. Sample drop-offs at NMR lab: a spot for samples to be dropped off will be set up outside the NMR lab. Following an initial remote consultation, samples for EPR or NMR acquisitions to be performed by core staff may be dropped off and picked up at a time agreed upon by both parties. All drop-off samples have to be marked by the username, group, and sample information, consistent with the initial consultation. Nothing else should be left in the lab, such as used PPE or personal items.

Part 2: Instrument Considerations

The spectrometers will be calibrated and ready for use before the MRC opens for service. If a system is out of order, users will be notified via email as well as sign on the spectrometer which is offline. Operating desks and the user-activated areas will be cleaned and disinfected between each reservation block. Cryogen fills will also be strategically performed during the cleaning periods to minimize additional downtime. Washable keyboards and mice (at least additional water proof covers) will be set up for each operating desk before re-opening. **Face masks are required** for anyone entering the facility.

Part 3: Initial Operations

EPR Reservations

The EPR will continue to be operated by core staff. To encourage social distancing, all communications, including consultations, scheduling for sample drop-off and pick-up, and discussion of results, will be done electronically. Users may initiate requests by sending emails to the core staff, and schedule a time to drop off samples. Sample tubes may be dropped off in a marked flask on the small table by the facility entrance. No time-sensitive experiments will be performed during the initial re-opening phase. EPR experiments should be arranged well in advance, at least one day. Each sample tube should be marked, and sample information should be emailed to core staff. The user will be notified when the sample is ready to be picked up. Data access and simulations will be performed remotely. Requests for guidance with data analysis and may be emailed to core staff.

NMR Reservations

Reservations will be made online by the Directors or users (as outlined below). New user training will not be authorized until further notice. New NMR reservation rules are as follows:

1. Due to high demand, and to ensure equitable distribution of time among high frequency users, reservations on the VNMRS 500 and 600 systems will be made by the facility Director. Please see table below for the current schedule. Any changes of time slots may be accommodated if both faculty members agree upon the switch.
2. One designated user from each group will use the reserved spectrometer time each day. Once each PI and group members decide on the users for the week, the list should be emailed to the facility Director by 9 am on Friday. The list should include weekend access requests (see 7 below).
3. The MR 400 (Hoveda system) will be exclusively used by a member of the Hoveyda lab each day; therefore, this system will be disinfected once, at the end of the day.
4. The INOVA 500 (old 500) and departmental 400 systems will be open for booking by users in parallel 2-hour blocks, **up to one day in advance** via the familiar NMR booking website: http://book-nmr.bc.edu/Web/schedule.php. One group should not occupy two spectrometers simultaneously, and no more than two consecutive time blocks will be allowed per user each day. The Hoveyda group will not use these two instruments.
5. The 2-hour reservation blocks will be as follows: 8:30 am – 10:30 am, 11:00 am – 1:00 pm, 1:30 pm – 3:30 pm and 4:00 pm – 6:00 pm. During the half hour blocks between reservations, facility staff will clean surfaces and perform other required duties. No users will be permitted in the facility during these times, although longer experiments that were set up at the tail end of the previous time block may continue to run while clean up procedures are being handled. No user can access the lab after 6:00 pm until further notice.
6. **Overnight experiments**: on a first-come, first-served basis, the Director will set up any overnight experiments that users may request via email during the week, **for later that same day**. Samples need to be dropped off post consultation in a timely manner for these experiments to be set up.
7. **Weekend access**: Similar to overnight experiments, the Director will reserve time for one user per group on **ONE** spectrometer for weekend use. Any group may book this time, and requests should be submitted by Friday. Priority will be given to groups that missed out on weekend access the previous week. The surfaces will be cleaned early on Monday morning.
8. User groups who are not part of the rotation (due to the overall low use of the facility) may either claim the 2-hour block set aside for "Minor Users," or drop-off their samples for core staff to collect their data (after an online consultation).
9. Due to social distancing guidelines, the INOVA 500 may be blocked for short time periods when an experiment is being set up on the EPR. Facility staff will make every effort to minimize this short downtime, and promote the most efficient utilization of the EPR and INOVA 500. The user who had booked time on the INOVA 500 will be notified as soon as the EPR experiment setup is complete, so they may continue with NMR acquisitions.
10. While every effort would be made to accommodate all users, the Directors' decisions on any disputes are final.

Week 1

8:30 - 10:30		11:00 - 1:00		1:30 - 3:30		4:00 - 6:00	
New 500	600	New 500	600	New 500	600	New 500	600
Morken	Gao	Byers	Wasa	Niu	Liu	Zhang	Minor users
Minor users	Morken	Wasa	Byers	Liu	Niu	Gao	Zhang
Morken	Gao	Byers	Wasa	Niu	Liu	Zhang	Minor users
Minor users	Morken	Wasa	Byers	Liu	Niu	Gao	Zhang
Morken	Gao	Byers	Wasa	Niu	Liu	Zhang	Minor users

Week 2

8:30 - 10:30		11:00 - 1:00		1:30 - 3:30		4:00 - 6:00	
New 500	600	New 500	600	New 500	600	New 500	600
Minor users	Morken	Wasa	Byers	Liu	Niu	Gao	Zhang
Morken	Gao	Byers	Wasa	Niu	Liu	Zhang	Minor users
Minor users	Morken	Wasa	Byers	Liu	Niu	Gao	Zhang
Morken	Gao	Byers	Wasa	Niu	Liu	Zhang	Minor users
Minor users	Morken	Wasa	Byers	Liu	Niu	Gao	Zhang