COVID-19 Workspace Safety Plan – Lab Specific

This workspace safety plan will assist Principal Investigators who wish to continue or resume research activities in their lab. This plan will include a review of activities to be undertaken in the lab to ensure effective controls are in place to prevent the spread of COVID-19. Principal Investigators are responsible for ensuring this document reflects current government guidance and notices which can be found, along with information about UBC’s response to the pandemic at https://covid19.ubc.ca/.

This plan must be reviewed by your Local Safety Team, and signed by your Unit Head/Director. Once complete, the plan can be submitted with your online application to return to research.

Resources to Consult
The following guidance documents and resources were used in the development of this plan:

- Preventing Exposure
- Personal Protective Equipment
- Physical Distancing Guidelines
- Reporting COVID-19 Exposure
- Communications Resources
- UBC Research Resumption webpage
- WorksafeBC

Section #1: Lab information

Department
Faculty
Building(s)
Lab(s)/workspace(s)

<table>
<thead>
<tr>
<th>MTRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC</td>
</tr>
<tr>
<td>Frank Forward</td>
</tr>
<tr>
<td>205</td>
</tr>
</tbody>
</table>

Introduction to Your Lab

Only sample preparation and/or Raman measurements are performed in FF205.
Current group size: 3 students
General research area: semiconductor materials and 2D materials

I. The sample preparation includes:
Using tapes for black phosphorus (not toxic) exfoliation, and cutting wafer pieces and scribing them manually. The hazards of doing the sample preparation are very low. Sample preparation can be conducted alone at FF205.

II. The Raman measurement system has an enclosed laser and a separate enclosed heating stage. The risks of using the Raman system are very low. Raman measurements can be conducted alone at FF205. Users have received SRS laser safety training.

Section #2 - Risk Assessment
1. Lab/workspace Occupancy (under proposed COVID-19 operations)
List the number of people that will be present in your lab/workspace at the same time. List this by every room/lab/workspace you occupy.

Confirm that you have discussed each employee’s comfort level with returning to work and have addressed any concerns, or will require further assistance in doing so. Any worker (staff, students, faculty, post docs, research associates, technicians and other research personnel) who has concerns about returning to work on campus can request an exemption to his/her supervisor.

One at a time in FF205. It is a divided room lab with a door separating the front area (205) and the back area (205!). The lab is 3.9 by 11.4 meters in size. There will be no time when two or more than two people are present at the same time for lab work. The lab work includes sample preparation and Raman measurements, which can be done alone.

Yes, all three graduate students confirmed that they are comfortable with the guidelines above.

- 1/3 of the previous normal operation
- All the 3 students have a fairly big portion of research on modeling, simulations, layout design, which can be done remotely. They can rotate to come to the lab.

2. Hazard Identification
Describe what hazards exist in your lab/workspace; both research-related (chemicals, heavy machinery) and COVID-19-related (areas that require closer personal interaction, equipment/instruments that cannot maintain social distancing i.e. that require >1 person to operate)

FF205 has a Raman system with an enclosed laser, which can be operated safely. The sample preparation includes cleaving wafer pieces, and exfoliation of 2D materials with tapes. There are no chemicals stored at FF205. No close personal interactions are needed.

3. Employee (HQP, research staff, other) Input/Involvement
Detail how you have involved frontline workers (HQP and research staff) and Joint Occupational Health and Safety Committees (JOHSC) and/or Local Safety Teams (LST) in identifying risks and protocols as part of this plan.

Describe how you will publish your plan (online, hardcopy) and otherwise communicate workplace health measures to employees. Guidelines from SRS are available here: [https://srs.ubc.ca/covid-19/health-safety-covid-19/working-safely/](https://srs.ubc.ca/covid-19/health-safety-covid-19/working-safely/)

- This plan has been viewed by the chair of our LST. It will also be reviewed by the department head. It will be emailed to all the research personnel and be printed and posted inside the lab and on the lab door. The building safety plan and the lab safety plans, including this plan, will be available on UBC’s COVID-19 Safety Plan website. There will be a link to that source on the
mtrl.ubc.ca website. All building personnel will be informed by email of the link to these plans at that time.
- Lab personnel safety training by an online meeting

### Section #3 – Hazard Elimination or Physical Distancing

#### 4. Scheduling
For those required or wanting to resume work at UBC, detail how you are rescheduling employees (e.g. shifted start/end times) in order to limit contact intensity at any given time at UBC.

Discuss your **working alone procedures** and how they will be adapted for this safety plan. Also describe how you will track those entering/leaving work i.e. sign in/sign out process

- **It is imperative that all returning personnel understand that they may be in the building ONLY on days when they have been scheduled to be there as determined by the supervisor. There is absolutely no admittance to the building outside of the scheduled times.**

1. scheduling, sign in and sign out will be done by a shared Google document for all the lab members.
2. The sign-in/sing-out sheets will also be posted on the lab door.
3. One student can only have 4-hour time slot at a time unless approved by the supervisor.
4. All returning personnel may be in the building ONLY on days when they have been scheduled to be there as determined by the supervisor. There is absolutely no admittance to the building outside of the scheduled times.

This lab is not shared with other researchers.

The planned research activities are not considered to be hazardous enough to preclude people working alone.

#### 5. Occupancy limits, floor space, and traffic flows
APSC recognizes that labs are dynamic environments and it may be challenging to adhere to physical distancing guidelines. Nonetheless, controls must be in place to keep personnel spaced at least 2m apart at all times. Clear communication of this to employees, monitoring of implementation, in addition to physical controls (signage) are needed.

**As such: Using floor plans and/or photographs of your lab/workspace:**

1) Identify and list the rooms and **maximum occupancy** for each workspace/area;
2) Illustrate a 2 metre radius circle around stationary workspaces/benches/instruments and common areas or equivalent approach to social distancing; and
3) Illustrate one-way directional traffic flows

- Only one person will be allowed in FF205 at a time. FF205 has a width about 3.9 meters and the length about 11.4 meters. The room floorplan and photographs are provided in the Appendix.

### Section 4 – Engineering Controls
6. Cleaning and Hygiene
Detail the cleaning and hygiene regimen required to be completed by HQP, research staff and the PIs for common areas/surfaces (Custodial has limitations on cleaning frequency, etc.).

Outline specific cleaning processes and schedule for high-touch equipment, specialized/sensitive equipment or other unique circumstances to your lab/workspace. Detail how and what types of cleaning products and disposal options you will provide. If possible, include cleaning stations/infrastructure on your lab photos/plan.

- Surfaces are equipment are generally quite clean to begin with.
- Each person will be required to use disinfectant wipes to clean the door knobs, the lab benches, the operation space, the chair, computer keyboard and mouse to be used in the shared experiment area as the first thing to do upon entering the lab and at the end of the use.
- The hand sanitizer/disinfectant wipes will be obtained from the department stores. The wipes and used paper towels can be disposed in regular trash bins. Full trash cans will be emptied at the end of the day.

7. Equipment Removal/Sanitation
Detail your appropriate removal of unnecessary tools/equipment/access to areas and/or adequate sanitation for items that must be shared that may elevate risk of transmission, both research-related (i.e. instruments, tools) and general (i.e. coffee makers in break rooms)

Our lab has large open areas. There is no need to remove the lab tools/equipment. All equipment, tools and materials are essential to the research.

8. Safety Infrastructure Requests (Partitions, Plexiglass installation)
Describe any needs for safety infrastructure i.e. physical barriers, plexiglass installation required for your lab/workspace and if possible include them on your photos/room plan.

- As only one person is allowed at a time, there is no need for the partitions. Researchers need to be able to move about the lab. Partitions and barriers would unduly impede movement.

Section 5 – Administrative Controls

9. Communication & Training Strategy for Employees
Describe how you (the PI) have or will communicate the risk of exposure to COVID-19 in the workplace to your HQP/research staff/other employees and the safety controls in place to reduce such risk.

Detail how you will ensure that all employees successfully complete the Preventing COVID-19 Infection in the Workplace online training and orientation to your specific safety plan

- Research personnel will be required to read the building safety plan and the lab safety plan. A PowerPoint presentation overviewing the building safety plan will be available for research staff to view. There will be an orientation of the lab safety plan provided by the supervisor, and the employees will be trained in an online training session.
- Expectations for all employees returning to the workplace will be communicated and any concerns that research staff may have can be directly discussed with the PI before or after
returning to scheduled lab times. Research staff have been informed that return to work is voluntary. No one is obliged to return if they feel it is unsafe.

- A note will be posted on the door to clearly indicate that employees with symptoms MUST stay home. Every person coming into the lab will be required to do a check-in/self-assessment for their health (available on mtrl.ubc.ca > Safety). See the self-assessment form in the Appendix.
- The new staff will need to take the Preventing COVID-19 Infection in the Workplace online training and orientation before they can schedule a lab time. Certificates of completion will be collected by the supervisor.
- All processes will be documented. A Return to Research Activity Commitment form will be used to document training. This is available on mtrl.ubc.ca > Safety. A copy of the form is shown in the Appendix.

## 10. Signage
Detail the type of signage you will utilize and how it will be placed (e.g. floor decals denoting one-way walkways and doors, ‘cleanliness state’ of equipment/instruments, hand-washing guidance). See WorksafeBC for signage guidelines and templates.

- The cleaning procedures will be posted next to the work areas and equipment.

## 11. Emergency Procedures & Reporting
PIs must ensure that all employees entering the lab should be aware of the Building Emergency Response Plan (BERP) and have access to it. If applicable, detail your strategy to amend your lab’s emergency response plan procedures during COVID-19.


An amended BERP is posted on mtrl.ubc.ca > Safety, i.e. [http://mtrl.sites.olt.ubc.ca/files/2020/05/May-29-2020-Building-Emergency-Response-Plan-MTRL.pdf](http://mtrl.sites.olt.ubc.ca/files/2020/05/May-29-2020-Building-Emergency-Response-Plan-MTRL.pdf). Personnel will be apprised of changes to the revised BERP during safety training as outlined in Section 9. The number of people anticipated back in the Frank Forward building during Phase 1 return will be roughly 30. The great majority will be graduate students and some research staff, such as postdoctoral fellows. The building emergency director, deputy building emergency director and floor wardens will, for the most part not be on site. Rotations of researchers into the building will mean that it is highly unlikely that a suitable number of people will be in the building consistently, 5 days per week, to be able to enlist alternate floor wardens. Returning researchers will be instructed, as per the modified BERP: "In the event of a fire alarm sounding all occupants are instructed to immediately turn off heat sources, close room doors and evacuate the building when a fire alarm sounds. Use the stairs only. Social distancing is not required inside the building during an evacuation; the key is to evacuate as quickly as safely possible. Once outside the building go to the assembly area (north courtyard). At this point, maintain a separation of 2 m between others. Stay there until permission is given by attending emergency personnel to re-enter the building."

## 12. Monitoring
Describe how you will monitor your workplace (supervisor, departmental safety representative, other) and update your plans as needed; detail how employees can raise safety concerns (e.g. via the JOHSC or Supervisor).

- Each lab member will be responsible for implementing and then monitoring compliance with the plan. The PI will do weekly checks in the lab and at the group meeting.
- The person in the lab will be responsible to do a daily safety check. A form for that is available on mtrl.ubc.ca. See for example: http://mtrl.sites.olt.ubc.ca/files/2020/06/Daily-lab-safety-inspection.docx. The completed forms will be posted in the lab.
- A representative of the LST will be doing weekly checks to ensure that safety plan requirements are being followed.

Section #6 – Personal Protective Equipment (PPE)

13. Personal Protective Equipment

UBC has a central process for purchasing PPE. Describe what PPE you will require for your lab.

<table>
<thead>
<tr>
<th>#</th>
<th>Type of PPE</th>
<th>Activity and PPE Use Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Nitride gloves</td>
<td>Sample preparation and equipment operation</td>
</tr>
<tr>
<td>2</td>
<td>Hand sanitizer</td>
<td>Hand cleaning</td>
</tr>
<tr>
<td>2</td>
<td>Disinfectant wipes</td>
<td>Equipment, work space, furniture cleaning</td>
</tr>
</tbody>
</table>

- Used disinfectant wipes will be disposed in regular trash bins.

Acknowledgement

I confirm that this Safety Plan has been shared with all workers (HQP, research personnel, etc.) who will be accessing this space both through email and will be made available as a shared document. Workers can either provide a signature or email confirmation that they have received, read and understood the contents of the plan.

Date       June 10, 2019
Name (Manager or Supervisor) Guangrui Xia
Title      Associate Professor

Department/School Head/Director Approval
Appendix
Frank Forward lab 205 space layout
Front room 1 -- middle

Front room 2 – right side
Front room 3 – left side: Raman system and the controlling PC
Back room – right side:

Back room – left side:
Back room – middle
Employee/student daily login form

Please complete this form daily upon coming to work. Forward the form to Bé Wassink (wassink@mail.ubc.ca) at the start of the day

Your name:  _________________________________________________________

Date:  ______________________ /2020

Time ________________  AM / PM

1. Do you have any of the following symptoms today?
   A fever?   Yes ___  No ___
   A new or worsening cough?   Yes ___  No ___
   New or worsening shortness of breath?   Yes ___  No ___
   New or worsening sneezing?   Yes ___  No ___
   A sore throat?   Yes ___  No ___
   Chills?   Yes ___  No ___
   A runny nose?   Yes ___  No ___
   New muscle aches?   Yes ___  No ___
   A headache?   Yes ___  No ___

2. Have you been outside of Canada within the last 14 days?   Yes ___  No ___

3. Have you been in contact with anyone who has COVID-19   Yes ___  No ___

If you answered yes to any of the above you need to stay home; do not come to work.
# Return to Research Activity - Commitment Form

Building requirements for conduct related specifically to COVID-19 safety have been developed for the Frank Forward building in general and labs in particular. The building guidelines have been co-developed by the LST co-chairs from Materials Engineering and Mining Engineering. All students, staff and faculty who are permitted to resume research activities in the Forward building are required to complete the following requirements. Send completed form to your supervisor or his/her designate.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Check when complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review the FF building safety plan</td>
<td></td>
</tr>
<tr>
<td>Review the lab safety plan</td>
<td></td>
</tr>
<tr>
<td>Complete the SRS online COVID-19 safety course</td>
<td></td>
</tr>
<tr>
<td>Send SRS course certificate to PI/lab manager</td>
<td></td>
</tr>
<tr>
<td>Lab and building safety training overview (e.g. an online training session)</td>
<td></td>
</tr>
</tbody>
</table>

Your name: ___________________________ Date: ___________________________

Faculty/Dept. ___________________________ Your main room no. ___________________________

Your role (staff, grad student, etc.): ___________________________

Supervisor: ___________________________ Signature: ___________________________

By your signature you agree that you intend to meet the requirements/principles for:

- Completing the daily self-assessment form
- Doing the daily building check-in and check-out (QR code access)
- Practices for protecting against getting COVID-19 (stay home if ill; avoid touching your face; wash hands frequently; physical distancing > 2 m)
- No building access unless authorized by the schedule set up by the supervisor
- Knowing the guidelines for entry/exit to/from the building and getting around it
- Accessing washrooms and photocopy room
- Accessing stores, machine shop, electronics shop and EM lab
- Access to and use of polishing lab [room 210]
- Eating guidelines
- Cleaning and disinfecting commonly touched surfaces and shared equipment/tools
- Knowing who to contact for safety and interpersonal concerns/problems
- Abide by your lab’s working alone policy
- Building evacuation procedures in case of emergency
- What to do if someone shows signs of respiratory illness
- Consequences of not following requirements and rules