PHASE 0/PHASE 1 SAFETY ASSUREDNESS PROCEDURES & GUIDANCE PLAN FOR RE-OPENING RESEARCH

Overview

This document is intended to provide guidance for University of Maryland College Park (UMD) Principal Investigators (PIs) in consideration of Phase 1 re-opening of research on campus, and to provide a framework for investigators to build their re-opening plan. Below are the Guiding Principles for the Re-opening of Research developed by the UMD COVID19 Research Advisory Task Force, and the Fundamental Requirements for Re-opening, which are derived from input from the Task Force, UMD, and external resources.

Note that the specific requirements pertaining to individual plans for re-opening are subject to evolving federal, state, and local regulations, as well as changes to UMD and the USM guidelines and that further communications providing additional information or details will be forthcoming.

University of Maryland Guiding Principles for the Re-Opening of Research

1. Follow Local, State, and Federal laws, regulations, and other Executive Orders, including but not limited orders to stay-at-home and implement social distancing.
2. Follow additional guidance and best practices issued by cognizant local, State, and federal public health authorities.
3. Prioritize physical and emotional health and safety of our campus community, our visitors, and our human research subjects.
4. Make every effort to accommodate those who are uncomfortable coming to campus.
5. Prioritize the support and cultivation of early-stage researchers: untenured faculty, postdoctoral fellows, and doctoral students. They are the drivers of the future research enterprise.
6. Recognize that undergraduates are students first, researchers second. Graduate students are students first, with research as an integral part of their education.
7. Implement a fair, transparent, and equitable process for granting access to research space.
8. Ensure that the restart of research is as rapid as the public health conditions permit.
9. Build in institutional and individual flexibility and resilience in the solutions we adopt in case severe restrictions must be invoked again.
10. Create a rich learning, mentoring, and discovery experience for researchers in a flexible environment. Cultivate a spirit of radical creativity in research. Decide now what the future of research will be.

Fundamental Requirements for Re-opening

- No research activities will be allowed during Phase 0, except for work granted an exception by Deans and VPR.
- Principal Investigators must develop plans for reopening research spaces in Phase 1. These plans must be consistent with State of Maryland and Prince George's County laws, executive orders (as well as other applicable laws and regulations) and University guidelines, and the plan must be approved by the applicable Department Chair and Dean.
- Plans should include specific details as set forth in this guide. The VPR will provide updates to these requirements, based upon evolving conditions, regulations, and guidelines.
- During Phase 0, assessment and preparation of the research space(s) may be performed by one researcher per space, as designated by the Principal Investigator and approved by the Dean and VPR.
- Researchers should sign the *Commitment to Public Health Practices* included with this guidance, implement all available mechanisms for ensuring health and safety, and participate in UMD supported health screenings, contact tracing, and other means of controlling the spread of COVID-19 within the UMD campus community.

SECTION A. IDENTIFICATION OF RESEARCH SPACES & PERSONNEL

1. PRINCIPAL INVESTIGATOR OF THE RESEARCH SPACE

John Abrahams, FABLAB Director.

Email: jabrah@umd.edu Contact Number: 1-301-405-6664, Office: Kim building 2304 Cell Number: 443-812-4679

2. LIST ALL RESEARCH SPACES

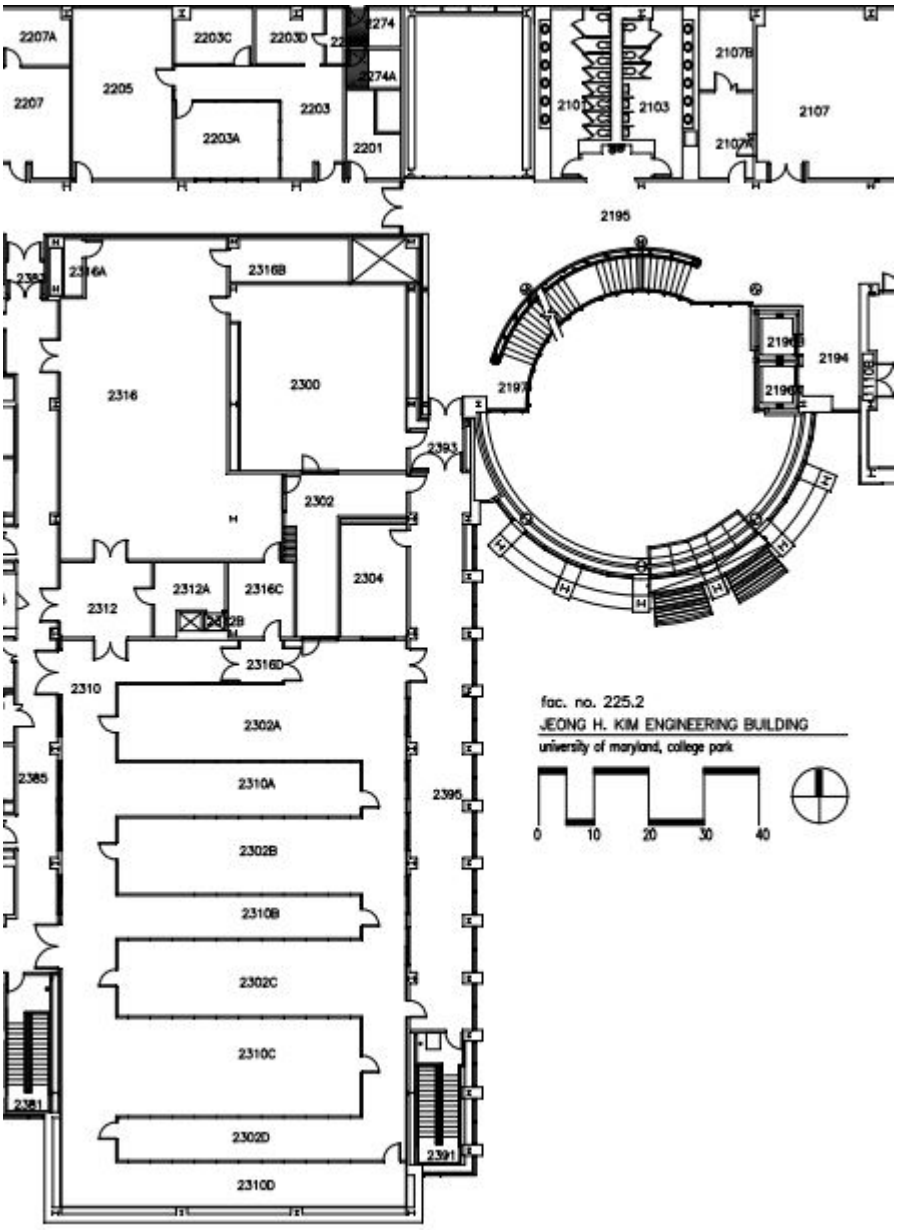
Key considerations:

- A **"research space"** is a specialized area or room containing equipment, materials, or physical parameters where a physical presence is necessary to conduct research. Offices are not considered labs; however, an office or room with specialized equipment and materials used in the conduct of research, is considered "research space" and is to be included in the plan. Telecommuting should continue as much as possible.

BUILDING	FLOOR/ROOM NUMBER OF LABORATORY/ROOM/STUDIO/SPACE	AREA SQUARE FOOTAGE TOTAL(1)	AREA SQUARE FOOTAGE (USEABLE SPACE) (APPROX)
Kim Engineering Building #225	2nd floor, 2300 Teaching Lab	990	900
Kim Engineering Building #225	2nd floor, 2300 Gowning Room	322	300
Kim Engineering Building #225	2nd floor, 2302A- FABLAB Front Corridor	1460	1400
Kim Engineering Building #225	2nd floor, 2302A- FABLAB Deposition Bay	528/264*	264
Kim Engineering Building #225	2nd floor, 2302B- FABLAB- Lithography Bay	528/440*	440
Kim Engineering Building #225	2nd floor, 2302C- Etch Bay	616/440*	440
Kim Engineering Building #225	2nd floor, 2302D- FABLAB High Temp Bay	560	500
Kim Engineering Building #225	2nd floor, 2312A Dicing Room	112	90
Kim Engineering Building, 225	2nd floor, 2316 Exploratory Lab	993	850

Kim Engineering Building, 225	2nd floor, 2316C Raith EBL Room Exploratory Lab	168	100
Kim Engineering Building, 225	1st floor, 1304 SUBFAB- Staff only	7500	5000

(1) Building floor plans with dimensions to calculate square footage can be found at facilities.umd.edu.



FABLAB

3. List Anticipated Core Facility Usage for Planning & Coordination (Office Space)

Building	Floor/Room Number of Core Facility/Shared Space	Square Footage in the Space(1)
Kim Engineering Building, 225	2nd floor- Room 2304- FABLAB office	200
Kim Engineering Building, 225	2nd floor- Room 2201- Directors Office	120

(1) Building floor plans with dimensions to calculate square footage can be found at facilities.umd.edu.

4. Personnel Approved To Perform Research Or Essential Services On-Campus in Phase 1

Key considerations:

- A "**researcher**" is a Principal Investigator, research faculty, post-doctoral trainee, graduate student, or staff member whose primary work takes place in a research space.
- Researchers will minimize their time on campus and those who can continue to work remotely will do so.
- Researchers- also called "users"- will have accounts registered with the Nanocenter database and have taken all necessary safety training. They will have also been taken on a site safety and orientation session by FABLAB Staff to ensure familiarity with protocol and personnel.
- Researchers can freely raise concerns about any health and safety matter to the Principal Investigator, Department Chair, Dean, Human Resources, UMD's Ethics, Integrity and Compliance Reporting system and/or the Department of Environmental Safety, Sustainability & Risk. [See Division of Research Whistleblower Protections.]

Name	Position/Appt Type	Email	Office Phone
John Abrahams	Director of FABLAB	jabrah@umd.edu	301-405-6664
Tom Loughran	FABLAB Staff	tcl@umd.edu	301-405-3642
Jon Hummel	FABLAB Staff	jhummel1@umd.edu	301-405-5017
Mark Lecates	FABLAB Staff	mlecates@umd.edu	301-405-5197

Section B. Principal Investigator Re-Opening Plan

1. General Social Distancing – Occupancy per Research Space

Key considerations:

- FABLAB Staff will monitor users by direct observation or remotely when possible to ensure distancing requirements are in effect.
- At least 6 feet apart in the research spaces are required.
- Phase 1 allows no more than not 1 person/room or 200ft^2. In smaller spaces occupancy will be limited to 1 person.
- Efforts must be taken to avoid passing to close or frequently by one another.
- Conduct all meetings virtually, to the best extent possible.
- During Phase 1, departments must designate a point of contact for vendors and visitors. The department is responsible for the person's access and may not access campus facilities without the prior approval of the Dean, or designee. Urgent repairs and actions required as a result of an emergency or incident response are permitted without prior approval for access.
- Be mindful of elevator use; limit occupancy based upon social distancing requirements.

- Follow all posted traffic patterns for the building hallways, stairwells, etc.
- Post signage on research space entry doors noting permitted occupancy based upon the determined available square footage.
- There will be some tape on the floors to indicate workspace positioning and/or traffic flow.
- If demarcating physical distance requirements with physical barriers, be sure it is safe to do so. IMPORTANT: Barriers must not block egress and other fire/lift safety equipment, sprinklers, electrical panels, etc. Contact ESSR Fire Marshal's Office for a review or approval.
- Use signage to mark areas and/or workstations for permissions of use or research space-specific rules (e.g., 1 person per workstation, scheduling plan, point of contact for shared spaces or equipment, cleaning and disinfection, PPE requirements, etc.).
- Access will be staggered in smaller spaces to limit personnel density.
- Describe these research-specific plans in the space below or attached to comply with social distancing (person/#sq ft, floorplans with possible circulation patterns in research space).

For FABLAB Complex (FABLAB, Teaching Lab, Exploratory Lab and other smaller rooms)

- Staff will control the hours of use for the researchers in the FABLAB at all times.
- Staff will make all reservations in the Scheduler after a formal request AT LEAST 24 HOURS IN ADVANCE for entry to the FABLAB.
- FABLAB Staff MUST review and approve in advance.
- Reservations will be made with efforts to maintain user numbers at any given time for safe Occupancy.
- FABLAB Staff will also maintain traffic flow so users are kept recommended distances from others.
- Carefully controlling the FABLAB occupancy is the key to distancing and will be the obligation of researchers and enforced by FABLAB Staff.
- FABLAB Staff will first warn researchers verbally when observing lack of social distancing or any other improper laboratory behavior.
- A second verbal warning will be documented in occupancy log.
- A third observation of distancing violation will result in researcher being removed from FABLAB and loss of user privileges.
- Re-admission to the FABLAB may be permitted pending the review of violations with the researcher, the researchers PI and all of the FABLAB Staff.
- While the FABLAB is a large facility, there are areas where caution must be taken to avoid crowding. Researchers will be reminded of distancing requirements by FABLAB Staff.
- In general only one person will be permitted to use any one piece of equipment, computer, wet bench including microscopes, analytical equipment or other processing or analytical tool in the FABLAB.
- In order to maximize social distancing, lunch or personal breaks in the must be staggered. Researchers will communicate within their groups to decide lunch times.

2. Social Distancing - Scheduling of Work Hours

Key considerations:

- FABLAB Staff work hours will be staggered to minimize exposure risks while maintaining coverage.
- FABLAB Staff will be present only when needed to observe, aid researchers or to prepare, maintain and repair equipment.
- Staff will work remotely at home when possible and may work after-regular hours.
- Allowance time will be made for FABLAB Staff to clean and disinfect all surfaces, including research equipment, per Section B.5.
- Time will be allowed for FABLAB Staff to clean and maintain standard supplies and garments.

Lab specific procedures

- Lab access times will be arranged through pre-approved plans submitted with AT LEAST 24 HOURS ADVANCED NOTICE to FABLAB Staff.
- Under no circumstances will one person work alone. Staff must be present (refer to Section B.7)
- The time in the lab should be minimized and the time working at home be maximized. If work can be performed at home, do not come into lab.
- If the time for an experiment to finish is greater than 3 hours, leave the facility and return to lab later.
- Equipment used may be immediately cleaned and disinfected. Please plan ahead in order to accommodate such time. (about 5 minutes)
- Take the last 10 minutes of the day to clean commonly used areas.

3. Personnel Tracking Process (Phase 1)

Occupancy tracking for researchers, vendors and visitors in the spaces will be important for contact tracing in Phase 1.

Key considerations:

- The PI must establish methods for recording and tracking occupancy. FABLAB will provide electronic log book from reservations and staff notes in the Nanocenter Scheduler.
- FABLAB staff will be responsible for user and usage records management.

Lab specific procedures

- FABLAB staff makes reservations and maintains appointment records using the Nanocenter Schedulers to aid in contact tracing and distancing.
- A physical sign in sheet will be placed in the lab 2302 Gowning Room. Users must sign in with the date, time in the lab and time out of the lab.
- Users will follow requirements for at least 24 hours advanced requests which allow FABLAB staff to make reservations for equipment and processing appointments.

4. Personal Hygiene Behaviors to Reduce Viral Spread

Key considerations:

- The FABLAB Staff is responsible for ensuring that all researchers coming to the FABLAB have access to and have reviewed information on the signs and symptoms of COVID-19 and the actions to take if they are feeling ill at home or on campus.
- Researchers will not come to campus if feeling unwell for any reason.
- Researchers will wear cloth masks when social distancing may not be possible (e.g., in hallways, stairwells, bathrooms), and in other locations where people are likely to come into contact with each other (common use spaces).
- Researchers will cover their mouths and noses when sneezing or coughing and use best practices for hygiene, including coughing or sneezing into a tissue and immediately throw it away; use arm or sleeve to cover face if no tissue available; wash hands afterward with soap and water for at least 20 seconds.
- Researchers will use best efforts to avoid touching their eyes, nose and mouth.
- Researchers will wash their hands for 20 seconds using soap and water frequently throughout the day, wash their hands after contacting surfaces that may have been touched by other persons, and use hand sanitizer when a handwashing sink is not available.
- Consider posting Center for Disease Control Guidelines in the research space for "How to Protect Yourself and Others"; "How to Stop the Spread of Germs" or other University guidelines as provided.

Lab Specific Procedures

- Each lab space will have "Symptoms of COVID-19" and "Stop the Spread of Germs" posters from CDC posted near the entrance of the lab.
- Please wash hands before and after using the FABLAB.
- If needed, hand sanitizers are by the bathrooms and at FABLAB entrance.
- A sanitation station will be positioned at the entrance to the Gowning Room for cleaning and surfaces that may be contaminated before being brought into the FABLAB.
- Researchers must assure FABLAB Staff of any symptoms of illness including fever, aches and pains, loss of taste or smell or any feeling of being sick.
- No researchers with symptoms will be allowed in the FABLAB.
- Masks covering nose and mouth, gloves, glasses or goggles must donned upon entry to the Gowning Room and be worn the entire time while working in the lab.
- Researchers may bring their own PPE which must be sanitized upon entry to the FABLAB.
- If you are in private office space, there is no need to wear gloves, but you should still wear masks and always clean around the area. If you would still like to wear gloves, change to new gloves.
- When eating lunch in the office, only one person is allowed. Researchers will need to coordinate with each other to stagger their time in the office.

5. Surface Cleaning & Disinfection – Work Space and Equipment

Key considerations:

- The FABLAB Staff must provide details of the research space, equipment and surface cleaning and disinfection plan. Include the schedule/intervals (*ideally before and after use*) and the disinfection materials to be used.
- Before leaving the spaces, all researchers are responsible for cleaning and disinfecting all high contact surfaces that they may have touched, including door and drawer handles, light switches, faucets, phones, and equipment.
- Before leaving the lab spaces, clean and disinfect the space with an EPA-registered household disinfectant suggested for use against SARS-CoV-2 [list can be found at: https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2]. Follow all manufacturer's instructions for use, including concentration and contact time.
- A 70% ethanol or Isopropyl solution will be used to sterilize surfaces.
- Consider cleaning and disinfecting electronics with alcohol-based wipes or, to reduce the risk of damage to sensitive components, a spray for electronics.
- Common use/shared PPE (face shields, safety glasses, laser safety glasses) that can be cleaned will be disinfected after use.
- Common use equipment will be cleaned and disinfected after use.
- Always wear disposable gloves under special/shared gloves (e.g. cryogen gloves, autoclave gloves).
- Researchers should wash hands before and after the use of shared equipment and shared PPE.
- Researchers will not share cleanroom garments.

Lab Specific Procedures

- For cleaning and disinfecting the lab space and equipment used, 70% IPA or Ethanol v/v will used.
- When disinfecting, use new gloves and wear mask.
- FABLAB is, by design, a clean facility. High rate of filtered air to sub-micron levels will minimize general aerosol contamination.
- Gloves, eye protection and face covers are mandatory standard PPE and are to be worn at ALL times within the facility.
- The greatest risk of contamination are the external hallway and offices, Gowning Room.
- Once properly gowned, areas of contamination may still be processing areas where someone may sneeze or breathe onto equipment surfaces.
- Cleanroom garments will be hung in plastic bags with separation from other gowns.
- After use, Cleanroom garments will be sterilized in heat either in oven or heated clothes dryer by FABLAB Staff.
- At the end of the day or after equipment use, IPA solution and cleanroom wipes will be used to disinfect:
    - Door handles
    - Light switches
    - Desk and keyboards.
    - Microscopes.
    - PPE such as safety glasses, goggles, face shields.
    - Equipment surfaces that may be contaminated by contact.
    - Displays and Glovebox windows may be covered with disposable food wrap.

6. Illness Action and Reporting

Key considerations:

- The FABLAB Staff must provide a plan for action from campus directions in the event that a researcher becomes ill or feels unwell while on campus.
- If unwell for any reason, the researcher should safely shut down lab work and leave campus immediately; report the reason for leaving to the FABLAB Staff or supervisor via a phone call - not in person; and contact their healthcare provider for consultation.
- Individuals should report positive COVID-19 test results to the University Health Center and to FABLAB Staff and their PI or supervisor.

Lab Specific Plan

- If a researcher is feeling unwell, do not come into the lab.
- If a researcher is already in the lab and feel ill, try to safely shut down their lab work. If needed, ask one of the group members to shut it down for them. Before such action, wear PPE. Disinfect the area with 70% Isopropyl alcohol solution, depending on the equipment/location.
- Call 911 if in doubt. It is better to be safe.
- Notify John Abrahams as soon as possible with a phone call so other UMD administration, safety and other users can be notified.

7. Personal Safety - Measures For Working Alone and/or When Limited Personnel are on Campus

Key considerations:

- The PI must ensure that researchers have access to information regarding safety measures.
- Researchers are signed up for UMD Alerts https://alert.umd.edu.
- Researchers have the UMD Emergency Number (301-405-3333) programmed into their cell phones.
- Researchers will stay alert and attuned to people and circumstances, keep lab doors closed, limit electronic devices that block hearing or split attention making it difficult to remain vigilant, and follow the "See Something, Say Something" program to report all incidents to UMPD.
- To keep the building secure, researchers will not prop open exterior doors; when working alone in the research space, researchers must close and secure all doors.
- Consider using the UMD Guardian App when working alone.
- Researchers are familiar with the location of the exterior emergency blue light phones (https://prepare.umd.edu/blue-light-phones-0) for use in any emergency situation.
- Consider requesting a UMPD escort if researchers feel unsafe when walking across campus at night (http://www.umpd.umd.edu/services/escorts.cfm).
- When work involves the use of hazardous materials or animals, Principal Investigators must approve the research to be conducted alone, based upon a risk assessment.

Lab Specific Plan

- Researchers will be in the FABLAB while FABLAB Staff are in the lab or observing from FABLAB office.
- Check with Staff every 30 minutes when intermittently working.
- Notify group members where they are working to keep them updated.
- The usage of the hazardous materials listed in the lab specific SOPs are approved by the FABLAB Staff for those researchers who finished all of the lab specific safety training.
- If researchers absolutely need to come in on the weekend and use hazardous material, preplan with one of the FABLAB Staff to come in with you.

8. TRAINING & COMMUNICATION

Key considerations:

- The PI must establish a training and communication strategy regarding the elements of their plan.
- Individuals approved to work on campus must have completed COVID-19 Awareness Training, to include signs and symptoms of COVID-19 and the actions to take if they are feeling ill at home or on campus.
- The Principal Investigator has shared each of the following with group members:
  - The requirements for space occupancy, social distancing, and other COVID-19 safety measures.
  - The Procedures for personal hygiene and self-monitoring.
  - The procedures for the proper use of PPE.
  - The procedures to wear face masks.
  - The procedures to clean and disinfect all surfaces and equipment, including those in the labs/spaces where shared equipment use is planned.
  - The procedures for ensuring personal safety, and reporting illness or potential exposure.

Lab Specific Plan

- Researchers will not be allowed access to the FABLAB without completing COVID-19 Awareness Training.
- Initial safety and orientation as well as specific equipment use and processing training may be accomplished through the use of video and remote meetings whenever possible.
- Researchers will be granted access to FABLAB by FABLAB Staff ONLY through communication with FABLAB Staff AT LEAST 24 hours before planned access.
- All researchers will be trained and use proper PPE including gloves, eye coverings, face shields, aprons and other previously DES and FABLAB required safety training and orientation when working in the FABLAB .
- Researchers will be under observation by FABLAB Staff during their time in the lab.
- Researchers using the FABLAB will be removed if violating PPE or distancing requirements.

SECTION C. PLAN APPROVALS

TITLE	NAME & SIGNATURE	DATE
Principal Investigator	Sang Bok Lee, NanoCenter Director 	06/04/2020
FABLAB Director	John Abrahams, FABLAB Director	06/04/2020
Department Chair		
Dean		

COVID-19 Return to Work
Commitment to Public Health Practices

To minimize the risk to public health while performing research at the University of Maryland (UMD), students, staff, and faculty are expected to adhere to public health practices to minimize the spread of COVID19.

By signing this form, you are agreeing to adhere to the behaviors and expectations below.

Statement of Commitment:

As a member of the UMD campus community, I commit to promoting health and safety for myself and my colleagues through my awareness, actions, and attitudes, as follows:

- *I will adhere to local, state, and federal public health and safety measures, and will consistently and conscientiously implement UMD policies, procedures, requirements, and recommendations.*
- *I will limit my exposure to COVID-19 by maintaining social distancing guidelines professionally and personally.*
- *I will wear the appropriate personal protective equipment and practice proper handwashing and other personal hygiene techniques frequently.*
- *I agree to closely monitor my health and will not enter a UMD building or participate in face-to-face research activities if I develop or display symptoms of COVID-19 including but not limited to fever, tiredness, and dry cough.*
- *I will monitor my temperature daily.*
- *I will clean and disinfect work surfaces each time I begin and end my work.*
- *I will follow other UMD guidelines for ethical research to protect the public health as necessary.*
- *I will comply with the policies and procedures established by my laboratory or research group and will comply with policies and procedures in other facilities used for my research.*
- *I understand that failure to follow these expected behaviors would be detrimental to public health efforts and could impact my ability to perform research or other tasks at UMD.*

Name (print or type): ____SANGBOK LEE_____

Department/Unit: _____Maryland NanoCenter_____

_____ _____ ___06/04/2020_____
Signature: Date:

Please return completed agreement to: the Faculty PI/ Research Group Leader/Lab Director
Please note: All Forms must be shared with Department Chairs and/or Dean's Offices

The Research Group Leader/Principal Investigator/Laboratory Director sharing this agreement understands it is their responsibility, to the best of their ability, to effectively communicate and promote these public health behaviors.

UNIVERSITY OF MARYLAND

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Name (print or type): John H. Abrahams III

Department/Unit: NanoCenter FABLAB

Signature: _____ Date: 6/4/2020

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Name (print or type): Thomas C. Loughran

Department/Unit: Nano Center FAB LAB

Thomas C. Loughran
Signature:

06/04/2020
Date:

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Name (print or type): JONATHAN A. HUMMEL

Department/Unit: IREAP

Signature: Jonathan A. Hummel

Date: 6/4/20

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- *I understand that failure to follow these expected behaviors would be detrimental to public health efforts and could impact my ability to perform research or other tasks at UMD.*

Name (print or type): Mark Lecates

Department/Unit: Fablab

Signature: [signature] Date: 6/4/20

The Research Group Leader/Principal Investigator/Laboratory Director sharing this agreement understands it is their responsibility, to the best of their ability, to effectively communicate and promote these public health behaviors.

PHASE 0/PHASE 1 SAFETY ASSUREDNESS PROCEDURES & GUIDANCE PLAN FOR RE-OPENING RESEARCH

Overview

This document is intended to provide guidance for University of Maryland College Park (UMD) Principal Investigators (PIs) in consideration of Phase 1 re-opening of research on campus, and to provide a framework for investigators to build their re-opening plan. Below are the Guiding Principles for the Re-opening of Research developed by the UMD COVID19 Research Advisory Task Force, and the Fundamental Requirements for Re-opening, which are derived from input from the Task Force, UMD, and external resources.

Note that the specific requirements pertaining to individual plans for re-opening are subject to evolving federal, state, and local regulations, as well as changes to UMD and the USM guidelines and that further communications providing additional information or details will be forthcoming.

University of Maryland Guiding Principles for the Re-Opening of Research

1. Follow Local, State, and Federal laws, regulations, and other Executive Orders, including but not limited orders to stay-at-home and implement social distancing.
2. Follow additional guidance and best practices issued by cognizant local, State, and federal public health authorities.
3. Prioritize physical and emotional health and safety of our campus community, our visitors, and our human research subjects.
4. Make every effort to accommodate those who are uncomfortable coming to campus.
5. Prioritize the support and cultivation of early-stage researchers: untenured faculty, postdoctoral fellows, and doctoral students. They are the drivers of the future research enterprise.
6. Recognize that undergraduates are student's first, researchers second. Graduate students are students first, with research as an integral part of their education.
7. Implement a fair, transparent, and equitable process for granting access to research space.
8. Ensure that the restart of research is as rapid as the public health conditions permit.
9. Build in institutional and individual flexibility and resilience in the solutions we adopt in case severe restrictions must be invoked again.
10. Create a rich learning, mentoring, and discovery experience for researchers in a flexible environment. Cultivate a spirit of radical creativity in research. Decide now what the future of research will be.

Fundamental Requirements for Re-opening

- No research activities will be allowed during Phase 0, except for work granted an exception by Deans and VPR.
- Principal Investigators must develop plans for reopening research spaces in Phase 1. These plans must be consistent with State of Maryland and Prince George's County laws, executive orders (as well as other applicable laws and regulations) and University guidelines, and the plan must be approved by the applicable Department Chair and Dean.
- Plans should include specific details as set forth in this guide. The VPR will provide updates to these requirements, based upon evolving conditions, regulations, and guidelines.
- During Phase 0, assessment and preparation of the research space(s) may be performed by one researcher per space, as designated by the Principal Investigator and approved by the Dean and VPR.
- Researchers should sign the *Commitment to Public Health Practices* included with this guidance, implement all available mechanisms for ensuring health and safety, and participate in UMD supported health screenings, contact tracing, and other means of controlling the spread of COVID-19 within the UMD campus community.

AIM Lab, Maryland NanoCenter Protocols for Re-opening Research

From Phase 0 to Phase 1

This document is intended to provide guidance for AIM Lab, Maryland NanoCenter in consideration of Phase 1 re-opening of research on campus.

This protocol is developed under the Guiding Principles for the Re-opening of Research developed by the UMD COVID19 Research Advisory Task Force, and the Fundamental Requirements for Re-opening, and to provide a framework for investigators to build their re-opening plan. It follows Local, State, and Federal laws, regulations, and other Executive Orders.

SECTION A. IDENTIFICATION OF RESEARCH SPACES & PERSONNEL

1. PRINCIPAL INVESTIGATOR OF THE RESEARCH SPACE

WEN-AN CHIOU, AIM LAB DIRECTOR

Contact information: E-mail: wachiou@umd.edu
Phone No.: (301)-405-0541 (Office); (301)-789-4443 (Cell)
Office: Room 1234, Kim Building

2. LIST ALL RESEARCH SPACES

Key considerations:

A **"research space"** is a specialized area or room containing equipment, materials, or physical parameters where a physical presence is necessary to conduct research. Offices are not considered labs; however, an office or room with specialized equipment and materials used in the conduct of research, is considered "research space" and is to be included in the plan. Telecommuting should continue as much as possible.

BUILDING	FLOOR/ROOM NUMBER OF LABORATORY/ROOM/STUDIO/SPACE	AREA (FT^2) TOTAL[(1)]	AREA (FT^2) WITHOUT EQUIP (APPROX.)
Kim Engineering Building #225	1st floor, 1237, Sample Preparation	303	100
Kim Engineering Building #225	1st floor, 1237A, Staff (Dr. S-C Liou) office	86	30
Kim Engineering Building #225	1st floor, 1237B, JEOL JEM 2100 LaB6 TEM	230	100

Kim Engineering Building #225	1st floor, 1237C, Hitachi SU-70	235	150
Kim Engineering Building #225	1st floor, 1237D, JEOL JEM 2100 FEG TEM/STEM	317	100
Kim Engineering Building #225	1st floor, 1237E, Tescan FIB/SEM	330	100
Kim Engineering Building #225	1st floor, 1231, Staff (Dr. JC Rao) office	72	25
Energy Research Facility Build#223	1st floor, 0208, JXA 8900R Microprobe	520	200
Kim Engineering Building #225	1st floor, 1234, AIM Lab Director office	135	50

3. PERSONNEL APPROVED TO PERFORM RESEARCH OR ESSENTIAL SERVICES ON-CAMPUS IN PHASE 1
Key considerations:

- A "**researcher**" is a Principal Investigator, research faculty, post-doctoral trainee, graduate student, or staff member whose primary work takes place in a research space.
- Researchers will minimize their time on campus and those who can continue to work remotely will do so.
- Researchers- also called "users"- will have accounts registered with the NanoCenter database and have taken all necessary safety training. They will have also been taken on a site safety and orientation session by AIM Lab Staff to ensure familiarity with protocol and personnel.
- Researchers can freely raise concerns about any health and safety matter to the Principal Investigator, Department Chair, Dean, Human Resources, UMD's Ethics, Integrity and Compliance Reporting system and/or the Department of Environmental Safety, Sustainability & Risk. [See Division of Research Whistleblower Protections.]

NAME	POSITION/APPT TYPE	EMAIL	OFFICE PHONE
Wen-An Chiou	Director of AIM Lab	wachiou@umd.edu	301-405-0541
Sz-Chain Liou	AIM Lab Staff	scliou@umd.edu	301-405-0551
Jiancun Rao	AIM Lab Staff	jcrao@umd.edu	301-405-0561
Philip Piccoli	AIM Lab Staff	piccoli@umd.edu	301-502-5654

SECTION B. PRINCIPAL INVESTIGATOR RE-OPENING PLAN

1. GENERAL SOCIAL DISTANCING – OCCUPANCY PER RESEARCH SPACE

Key considerations:

- Limit the square footage per researcher permitted by the University based upon each space: Phase 1 not to exceed 1 person/room or 200ft^2; Phase 2 not to exceed 1 person/room or 150ft^2
- At least 6 feet apart in the research spaces are required.
- Efforts must be taken to avoid passing to close or frequently by one another.
- Post signage on research space entry doors noting permitted occupancy based upon the determined available square footage.
- Use signage to mark areas and/or workstations for permissions of use or research space-specific rules (e.g., 1 person per workstation, scheduling plan, point of contact for shared spaces or equipment, cleaning and disinfection, PPE requirements, etc.).
- Access will be staggered in smaller spaces to limit personnel density.
- Describe these research-specific plans in the space below or attached to comply with social distancing (person/#sq. ft., floorplans with possible circulation patterns in research space).
- Carefully controlling the AIM Lab occupancy is the key to distancing and will be the obligation of researchers and enforced by AIM Lab Staff.

AIM Lab Specific Procedures

(1) AIM Lab staff will control the working space and hours of use for the researchers in the AIM Lab at all times. Basically each microscope room only allows one user to operate the microscope in phase 1 except microprobe room which allows two persons. But users must pay attention to personal distance (6 ft.)

(2) On-line reservation (scheduler) is suspended. Users will not be able to make his/her reservation on-line. Users may see the scheduler on-line (live), but any reservation for any instrument must go through AIM Lab staff.

(3) AIM Lab will make all reservations in the Scheduler after a formal request. Please plan your research and submit your request as early as possible, at least 24 hours in advance (before proposed use).

(4) Please send your request to Lab Director and the staff who normally responsible for that particular instrument. In your request, please indicate which instrument, what time, duration of time and whether you need a staff help.

(5) The Lab Director and staff will review your request, and respond to you as soon as possible. The instrument time scheduled for you may not be the same time as you wish to have due to restricted access. Please plan your research and submit your request as early as possible, at least 24 hours in advance (before proposed use).

(6) Reservations will be made with efforts to maintain user numbers at any given time for safe Occupancy.
(7) No off-hours usage will be provided.
(8) No individual training session will be offered during this period.
(9) AIM Lab Staff will monitor users by direct observation or remotely when possible to ensure distancing requirements are in effect.
(10) Appropriate health and safety measures must be in effect including hand sanitizing and social distance. A disinfecting alcohol bottle near the Lab entrance is provided for your convenience. Please sanitize your hand when you come in and leave the Lab.
(11) Equipment used may be immediately cleaned and disinfected
(12) Please contact Lab Director and Staff for any urgent or special needs.

Note the following:

(1) The area/size/space of AIM Lab is relatively small; caution must be taken to avoid crowding. Researchers will be reminded of distancing requirements by AIM Lab Staff.
(2) In general only one person will be permitted to use any one piece of instrument (electron microscope), computer, working bench including optical microscopes, sample preparation equipment or analytical equipment or other processing or analytical tool in the AIM Lab.
(3) AIM Lab Staff will first warn researchers verbally when observing lack of social distancing or any other improper laboratory behavior.
(4) A second verbal warning will be documented in occupancy log.
(5) A third observation of distancing violation will result in researcher being removed from AIM Lab and loss of user privileges.
(6) Re-admission to the AIM Lab may be permitted pending the review of violations with the researcher, the researchers PI and all of the AIM Lab Staff.

2. SOCIAL DISTANCING - SCHEDULING OF WORK HOURS

Key considerations:

- AIM Lab Staff work hours will be staggered to minimize exposure risks while maintaining coverage.
- AIM Lab Staff will be present only when needed to observe, aid researchers or to prepare, maintain and repair equipment.
- Staff will work remotely at home when possible and may work after-regular hours.
- Allowance time will be made for AIM Lab Staff to clean and disinfect all surfaces, including research equipment.
- Time will be allowed for AIM Lab Staff to clean and maintain standard supplies and garments.

AIM Lab specific procedures

(1) Lab access times will be arranged through pre-approved plans submitted with *at least 24 hours advanced notice* to AIM Lab staff. On-line reservation (scheduler) will be suspended. Users will not be able to make his/her reservation on-line. Users may see the scheduler on-line (live), but any reservation for any instrument must go through AIM Lab staff.
(2) AIM Lab will make all reservations in the Scheduler after a formal request. User should plan his/her research and submit his/her request as early as possible, at least 24 hours in advance (before proposed use).
(3) Please send the request to the Lab Director and the staff who is normally responsible for that particular instrument. In the request, please indicate which instrument, what time, duration of time and whether a staff help is needed or not.
(4) The Lab Director and staff will review the request, and respond to the requester as soon as possible. The instrument time scheduled for the requester may not be the same time as he/she wishes to have due to restricted access. Please plan research ahead of time and submit the request as early as possible, at least 24 hours in advance (before proposed use).
(5) Reservations will be made with efforts to maintain user numbers at any given time for safe occupancy.
(6) No off-hours usage will be provided.
(7) Under no circumstances will one person work alone. At least one Staff must be in the AIM Lab.
(8) The time in the lab should be minimized and the time working at home be maximized. If work can be performed at home, do not come into lab.
(9) If the time for an experiment requires greater than 3 hours, the user must physically leave the facility and return to lab later, i.e., the maximum working is 3 hours for a session, but can be continued after 10 ~ 15 minutes break.
(10) Equipment used may be immediately cleaned and disinfected. Please plan ahead in order to accommodate such time. (about 5 minutes)
(11) AIM Lab staff take the last 10 minutes of the day to clean commonly used areas.

3. PERSONNEL TRACKING PROCESS (PHASE 1)

Occupancy tracking for researchers, vendors and visitors in the spaces will be important for contact tracing in Phase 1.

Key considerations:

- The PI must establish methods for recording and tracking occupancy. AIM Lab will keep electronic log book from reservations and staff notes in the NanoCenter Scheduler.

- Post signage on research space entry doors noting permitted occupancy based upon the determined available square footage.
- AIM Lab staff will be responsible for user and usage records management.

AIM Lab specific procedures:

(1) AIM Lab staff makes reservations and maintains appointment records using the NanoCenter Schedulers to aid in contact tracing and distancing.
(2) A physical sign in/out sheet will be placed on entrance door inside the lab 1237 sample preparation room. Users must sign in/out with the date, time, instrument used, person contacted and contact information.
(3) AIM Lab staff will make concise records for monitoring users activities in the lab.
(4) Users will follow requirements for at least 24 hours advanced requests which allow AIM Lab staff to make reservations for equipment and processing appointments.

4. PERSONAL HYGIENE BEHAVIORS TO REDUCE VIRAL SPREAD

Key considerations:

- The AIM Lab Staff is responsible for ensuring that all researchers coming to the AIM Lab have access to and have reviewed information on the signs and symptoms of COVID-19 and the actions to take if they are feeling ill at home or on campus.
- Researchers will not come to campus if feeling unwell for any reason.
- Researchers will wear cloth masks when social distancing may not be possible (e.g., in hallways, stairwells, bathrooms), and in other locations where people are likely to come into contact with each other (common use spaces).
- Researchers will cover their mouths and noses when sneezing or coughing and use best practices for hygiene, including coughing or sneezing into a tissue and immediately throws it away; use arm or sleeve to cover face if no tissue available; wash hands afterward with soap and water for at least 20 seconds.
- Researchers will use best efforts to avoid touching their eyes, nose and mouth.
- Researchers will wash their hands for 20 seconds using soap and water frequently throughout the day; wash their hands after contacting surfaces that may have been touched by other persons, and use hand sanitizer when a handwashing sink is not available.
- Consider posting Center for Disease Control Guidelines in the research space for "How to Protect Yourself and Others"; "How to Stop the Spread of Germs" or other University guidelines as provided.

AIM Lab Specific Procedures:

(1) Each lab space will have "Symptoms of COVID-19" and "Stop the Spread of Germs" posters from CDC posted near the entrance of the lab.

(2) Please wash hands before and after using the AIM Lab If needed; hand sanitizers are in the kitchen (room 1248) and by the bathrooms (near rotunda, Kim building).
(3) A sanitation station will be positioned at the Lab entrance.
(4) Researchers will wear cloth masks covering nose and mouth; gloves must be worn the entire time while working in the lab.
(5) Users' body temperature will be checked and recorded when entering the Lab.
(6) Researchers must assure AIM Lab Staff of any symptoms of illness including fever, aches and pains, loss of taste or smell or any feeling of being sick.
(7) No researchers with symptoms will be allowed in the AIM Lab.
(8) If you are in private office space, there is no need to wear gloves, but you should still wear masks and always clean around the area. If you would still like to wear gloves, change to new gloves.
(9) When eating lunch in the office, only one person is allowed. Researchers will need to coordinate with each other to stagger their time in the office.
(10) Equipment used may be immediately cleaned and disinfected. Please plan ahead in order to accommodate such time. (about 5 minutes)
(11) AIM Lab staff take the last 10 minutes of the day to clean/sanitize commonly used areas before close the Lab.

5. SURFACE CLEANING & DISINFECTION – WORK SPACE AND EQUIPMENT

Key considerations:

- The AIM Lab Staff must provide details of the research space, equipment and surface cleaning and disinfection plan. Include the schedule/intervals (*ideally before and after use*) and the disinfection materials to be used.
- Before leaving the spaces, all researchers are responsible for cleaning and disinfecting all high contact surfaces that they may have touched, including door and drawer handles, light switches, faucets, phones, and equipment.
- Before leaving the lab spaces, clean and disinfect the space with an EPA-registered household disinfectant suggested for use against SARS-CoV-2 [list can be found at: https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2]. Follow all manufacturers' instructions for use, including concentration and contact time.
- A 70% ethanol or Isopropyl solution will be used to sterilize surfaces.
- Consider cleaning and disinfecting electronics with alcohol-based wipes or, to reduce the risk of damage to sensitive components, a spray for electronics.
- Common use/shared PPE (face shields, safety glasses, laser safety glasses) that can be cleaned will be disinfected after use.
- Common use equipment will be cleaned and disinfected after use.
- Always wear disposable gloves under special/shared gloves (e.g. cryogen gloves, autoclave gloves).
- Researchers should wash hands before and after the use of shared equipment and shared PPE.
- Researchers will not share cleanroom garments.

AIM Lab Specific Procedures

(1) The AIM Lab space, instrument and equipment shall be cleaned and disinfected using 70% IPA or Ethanol (v/v).
(2) When disinfecting, use new gloves and wear mask.
(3) A face mask, gloves, and eye protection/face covers are mandatory to be worn at ALL times within the facility.
(4) Follow regular routine procedures for using AIM Lab facilities including make records in the log in/out book.
(5) At the end of the day or after equipment use, IPA solution and cleanroom wipes will be used to disinfect:
    a. Door handles
    b. Light switches
    c. Desk and keyboards.
    d. Microscopes.
    e. PPE such as safety glasses, goggles, face shields.

6. ILLNESS ACTION AND REPORTING

Key considerations:

- The AIM Lab Staff must provide a plan for action from campus directions in the event that a researcher becomes ill or feels unwell while on campus.
- If unwell for any reason, the researcher should safely shut down lab work and leave campus immediately; report the reason for leaving to the AIM Lab Staff or supervisor via a phone call - not in person; and contact their healthcare provider for consultation.
- Individuals should report positive COVID-19 test results to the University Health Center and to AIM Lab Staff and their PI or supervisor.

AIM Lab Specific Plan

(1) If a researcher is feeling unwell, do not come into the lab.
(2) If a researcher is already in the lab and feel ill, try to safely shut down their lab work. If needed, ask AIM Lab staff to shut it down for them. Before such action, wear gloves and disinfect the area with 70% Isopropyl alcohol solution, depending on the equipment/location.
(3) Call 911 if in doubt. It is better to be safe.
(4) Notify AIM Lab Staff as soon as possible with a phone call so other UMD administration, safety and other users can be notified.

7. PERSONAL SAFETY - MEASURES FOR WORKING ALONE AND/OR WHEN LIMITED PERSONNEL ARE ON CAMPUS

Key considerations:

- The PI must ensure that researchers have access to information regarding safety measures.
- Researchers are signed up for UMD Alerts https://alert.umd.edu.
- Researchers have the UMD Emergency Number (301-405-3333) programmed into their cell phones.
- Researchers will stay alert and attuned to people and circumstances, keep lab doors closed, limit electronic devices that block hearing or split attention making it difficult to remain vigilant, and follow the "See Something, Say Something" program to report all incidents to UMPD.
- To keep the building secure, researchers will not prop open exterior doors; when working alone in the research space, researchers must close and secure all doors.
- Consider using the UMD Guardian App when working alone.
- Researchers are familiar with the location of the exterior emergency blue light phones (https://prepare.umd.edu/blue-light-phones-0) for use in any emergency situation.
- Consider requesting a UMPD escort if researchers feel unsafe when walking across campus at night (http://www.umpd.umd.edu/services/escorts.cfm).
- When work involves the use of hazardous materials or animals, Principal Investigators must approve the research to be conducted alone, based upon a risk assessment.

AIM Lab Specific Plan

(1) Researchers will be in the AIM Lab while AIM Lab Staff are in the lab or observing from AIM Lab Staff offices.
(2) Report to AIM Lab Staff when user comes in and before departing from the Lab.
(3) Check with Staff every 30 minutes when intermittently working.
(4) The usage of sample preparation equipment and the hazardous materials listed in the lab specific SOPs are approved by the AIM Lab Staff for those researchers who finished all of the lab specific safety training.
(5) If researchers absolutely need to come in on the weekend and use hazardous material, preplan with one of the AIM Lab Staff to come in with you.

8. TRAINING & COMMUNICATION

Key considerations:

- The PI must establish a training and communication strategy regarding the elements of their plan.
- Individuals approved to work on campus must have completed COVID-19 Awareness Training, to include signs and symptoms of COVID-19 and the actions to take if they are feeling ill at home or on campus.
- The Principal Investigator has shared each of the following with group members:

- The requirements for space occupancy, social distancing, and other COVID-19 safety measures.
- The Procedures for personal hygiene and self-monitoring.
- The procedures for the proper use of PPE.
- The procedures to wear face masks.
- The procedures to clean and disinfect all surfaces and equipment, including those in the labs/spaces where shared equipment use is planned.
- The procedures for ensuring personal safety, and reporting illness or potential exposure.

AIM Lab Specific Plan

(1) Researchers will not be allowed access to the AIM Lab without completing COVID-19 Awareness Training.
(2) Initial safety and orientation as well as specific equipment use and processing training may be accomplished through the use of video and remote meetings whenever possible.
(3) Researchers will be granted access to AIM Lab by AIM Lab Staff ONLY through communication with AIM Lab Staff AT LEAST 24 hours before planned access.
(4) All researchers will be trained and use proper PPE including gloves, face mask, eye coverings, and face shields if applicable.
(5) Researchers will be under observation by AIM Lab Staff during their time in the lab.
(6) Researchers using the AIM Lab will be removed if violating PPE or distancing requirements.

SECTION C. PLAN APPROVALS

TITLE	NAME & SIGNATURE	DATE
Principal Investigator	Wen-An Chiou, AIMLab Director Sang Bok Lee, NanoCenter Director	06/04/2020
Department Chair		
Dean		

Commitment to Public Health Practices

To minimize the risk to public health while performing research at the University of Maryland (UMD), students, staff, and faculty are expected to adhere to public health practices to minimize the spread of COVID19.

By signing this form, you are agreeing to adhere to the behaviors and expectations below.

Statement of Commitment:

As a member of the UMD campus community, I commit to promoting health and safety for myself and my colleagues through my awareness, actions, and attitudes, as follows:

- *I will adhere to local, state, and federal public health and safety measures, and will consistently and conscientiously implement UMD policies, procedures, requirements, and recommendations.*
- *I will limit my exposure to COVID-19 by maintaining social distancing guidelines professionally and personally.*
- *I will wear the appropriate personal protective equipment and practice proper handwashing and other personal hygiene techniques frequently.*
- *I agree to closely monitor my health and will not enter a UMD building or participate in face-to-face research activities if I develop or display symptoms of COVID-19 including but not limited to fever, tiredness, and dry cough.*
- *I will monitor my temperature daily.*
- *I will clean and disinfect work surfaces each time I begin and end my work.*
- *I will follow other UMD guidelines for ethical research to protect the public health as necessary.*
- *I will comply with the policies and procedures established by my laboratory or research group and will comply with policies and procedures in other facilities used for my research.*
- *I understand that failure to follow these expected behaviors would be detrimental to public health efforts and could impact my ability to perform research or other tasks at UMD.*

Name (print or type): Wen-An Chiou  06/04/2020

Department/Unit: AIM Lab, Maryland NanoCenter

Please return completed agreement to: the Faculty PI/ Research Group Leader/Lab Director
Please note: All Forms must be shared with Department Chairs and/or Dean's Offices

The Research Group Leader/Principal Investigator/Laboratory Director sharing this agreement understands it is their responsibility, to the best of their ability, to effectively communicate and promote these public health behaviors

COVID-19 Return to Work

Commitment to Public Health Practices

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Name (print or type): Sz-Chian Liou

Department/Unit: AIM Lab. Nano Center, UMD. College Park

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- *I understand that failure to follow these expected behaviors would be detrimental to public health efforts and could impact my ability to perform research or other tasks at UMD.*

Name (print or type): Jiancun Rao JRao 6/4-2020

Department/Unit: AIM Lab, Maryland NanoCenter, UMD, College Park

Please return completed agreement to: the Faculty PI/ Research Group Leader/Lab Director
Please note: All Forms must be shared with Department Chairs and/or Dean's Offices

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