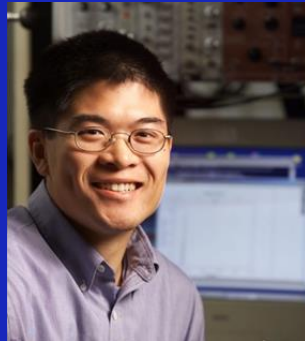


Clark Hall Materials Facility Safety Orientation

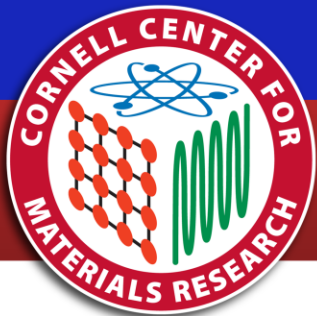
For rooms D21, D15, D10, & D22 Clark Hall



Dr. Jonathan Shu
jbs24@cornell.edu
607-255-9833



Steve Kriske
sjk27@cornell.edu
607-255-2367



CCMR

Cornell Center for Materials Research

Cornell University, Ithaca, NY

<http://www.ccmr.cornell.edu>



Emergency Contact Info

In case of emergency, dial 5-1111 from a campus phone. Mobile network signals are mostly inaccessible in the facility and immediate surrounding areas. Mobile phones are permitted except in marked areas sensitive to high-frequency signals. Three cordless telephones are available for emergency use only:

- Next to the Coral computers in the main entryway of D21
- Next to the XPS system in D21B
- Next to the sputter system in the back corner of D21

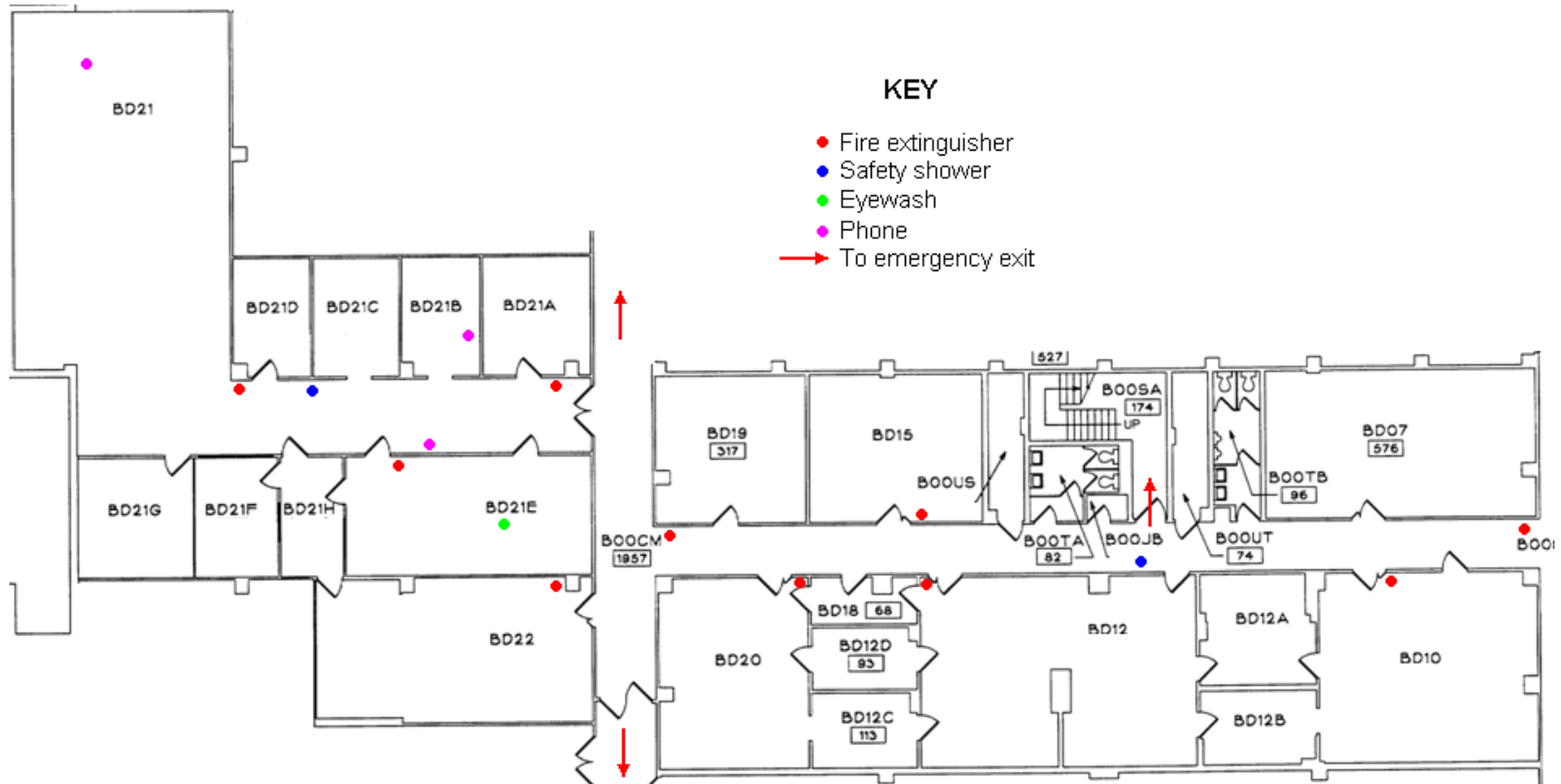
For non-emergency, urgent equipment issues, call the appropriate staff member using the number posted on the HASP signs on the doors.

In the event you have any further questions regarding the proper procedures, safety regulations, or other concerns, please contact one of the Facility Staff. You may also find the following contacts may be able to assist you:

John Sinnott, CCMR Group Safety Representative – jps39@cornell.edu, 624 Clark Hall
Keane Leitch, PSC Safety Manager – kjl44@cornell.edu, 121 Baker Lab
Todd Pfeiffer, PSC Facilities Director – tap66@cornell.edu, 105 Weill Hall

Emergency Exits And Other Emergency Facilities

In the event of a building evacuation alarm or other emergency, immediately proceed to the nearest exit as outlined by the red arrows on the map below. From D21, exit into Baker Lab. From the D corridor, go up the stairs and out the back of Clark. The map also shows the locations of safety showers, eyewashes, and phones in and around the facility.





Area-Specific Hazards

In addition to general safety training and equipment-specific safety training outlined on the previous page, all users working in the following areas should be aware of hazards which could potentially impact users not specifically using these systems:

Chemical Area & flammables cabinet (D21E): Fire safety training required in this area due to flammables cabinet. Users in D21E not using the fume hood should assume that hazardous chemicals are present in the hood and observe appropriate safety practices. The fume hood in D21E is available to all users who have been cleared with the facility staff and notified staff of what chemicals will be used. A hazardous waste container for organic solvents is set up for general use. Obey posted signage. Use and disposal of other chemicals must follow the necessary protocols. All containers must be labeled with the contents and the user's name. After use, the fume hood should be left down at an appropriate level indicated by the green arrows.

High Magnetic Fields (D10, D22): The PPMS and MPMS (SQUID) in D22 each have powerful electromagnets. In accordance with EH&S regulations, each is marked with tape on the floor indicating the edge of a 5 Gauss (5 Oersted) field when the magnet is being operated at full power. Users with pacemakers or magnetic surgical implants should stay outside of this line unless the field is known to be off.

Cryogenic Hazards (D10): Cryogenic liquids are used regularly for cooling the probe stations. Due to the hazards associated with their use, all users in D10 should be aware when they are in use and observe appropriate safety practices. Wear safety glasses whenever cryogenics are in use in the room, and do not touch any surface of a dewar, transfer line, or probe under cooling without cryo gloves. If you notice a liquid or gas leak (or anything unusual) and the cryogen user is not present, notify them and/or the facility staff immediately.

Class 3b Laser (D15): The Asylum MFP-3D AFM is equipped with a Coherent 532 nm 80 mW Class 3b laser. The AFM enclosure is interlocked such that the laser beam should never leave the enclosure, but other users in D15 should be aware when it is in use as indicated by the lighted sign in the hallway.



Safety Training Requirements

In accordance with CCMR, Cornell, and Physical Sciences Complex (PSC) regulations, all facility users must complete this facility orientation and show proof of necessary safety trainings in order to use facility equipment and gain card access to the facility. Cornell Environmental Health & Safety (EH&S) courses are available online through CULearn as outlined in this document; all relevant EH&S course names and codes are also given.

The following laboratory safety courses, offered online or in the classroom by Cornell University EH&S, are **required for all users** to access the facility. EH&S course codes follow in parentheses for your reference.

- EH&S training Laboratory Safety (#2555- Laboratory)**
- EH&S Chemical Waste Disposal (#2716-chemwaste)**

The following are instrument-specific or area-specific required trainings.

Equipment/Area	Required Course
Fume Hood (including Laurell Spin Coater) in D21E	Fire Safety Training (#5330-firesafety)
Quantum Design PPMS or MPMS/SQUID in D22	Magnetic Field Safety (#5035-magnetic)
Coherent Laser (with Asylum AFM) in D15	Laser Safety (#2397-lasersafety)
D10 access. Awareness of Cryogen Dewars	Training in Handling Cryogenics (#3055-cryogenicsfty)
Lakeshore & GMW Probe Stations in D10 (if using magnetic fields)	Magnetic Field Safety (#5035-magnetic)
Authorized user that can change gas cylinders	Compressed gas safety (#2335-compressed)

See <http://www.ccmr.cornell.edu/facilities/safetyinfo/> for information on how to obtain training or verify your CULearn records.



Waste Disposal

All waste in the facility will fall into one the following categories and should be disposed of accordingly:

- **Hazardous Waste** – All hazardous waste must be stored in a closed container and labeled as such, preferably with a pre-printed EH&S label. Hazardous waste must be collected and disposed of according to EH&S regulations as outlined in Chemical Waste Disposal training. Any user generating hazardous waste must complete this training.
- **Lab Glass** – Microscope slides, old or broken glass labware, silicon wafers, glass pipettes, and other glass used for scientific purposes which are not contaminated with hazardous materials should be disposed of in the appropriate containers in D21 (outside the office) and D21E.
- **Sharps** – Used blades and other sharp objects (see exceptions below) go in the yellow container mounted on the door of D21D.
 - **Syringes/needles/pipette tips** – These all have special storage/disposal guidelines. Consult with facility staff if you plan to use any of these in the facility.
- **Recyclables** – Paper (excluding used paper towels), cardboard (boxes should be broken down), clean and empty drink containers, and other recyclables should be left in the small blue recycling bins in the individual rooms or the large blue box in D21.
- **Trash** – Anything not fitting the above categories should go in the small trash bins in the individual rooms or the large trash can in D21.

All samples in the facility should be properly labeled and should be removed from the facility after use/analysis. Any unlabeled sample left in the facility may be disposed of by the facility staff at any time.

PRESS HARD WITH BALL POINT PEN
FILL AND ATTACH BOTH COPIES TO CONTAINER
REQUEST WASTE PICK UP ON LINE AT
WWW.EHS.CORNELL.EDU

NYDOO0810986 B 103710
CORNELL UNIV. ENVIRONMENTAL HEALTH & SAFETY
201 FARM ROAD THUSA NY 14850

BLDG & RM ST 01a 420 DATE 10-2-10
NAME Sarah Johnson TEL 4-1667

CHECK TYPE	CHEMICAL NAME/Volume or Weight
<input type="checkbox"/> Poison	
<input checked="" type="checkbox"/> Flamm. Solvent	Acetone 20%
<input type="checkbox"/> Refrigerant Solvent	Dichloromethane 20%
<input type="checkbox"/> Oxidizer	
<input checked="" type="checkbox"/> Flamm. Solid	Tetrahydrofuran 10%
<input type="checkbox"/> Corrosive-Acid	Hexane 20%
<input type="checkbox"/> Corrosive-Alkali	Water 20%
<input type="checkbox"/> Corrosive-Solid	Toluene 5%
<input type="checkbox"/> Irritant	Ethyl acetate 5%

Hazardous Waste - Federal Law Prohibits Improper Disposal
If found contact the nearest police or Public Safety authority in the U.S. EPA.

NYDOO0810986 B 103710

Hazardous Waste - Federal Law Prohibits Improper Disposal
If found contact the nearest police or Public Safety authority in the U.S. EPA.





Other Facility Guidelines

Equipment Usage - Users are prohibited from using equipment for which they have not been trained. In general, equipment training will be done by facility staff; exceptions require explicit permission from the staff. Visitors or users' colleagues may OBSERVE use of equipment without completing access/training requirements as long as they follow all necessary safety measures, but may not USE equipment until all requirements are properly completed. Use of equipment which has been enabled under someone else's Coral account is strictly prohibited in all CCMR facilities. Each tool will have Standard Operating Procedures (SOP) posted at the tool describing:

- a. All EH&S safety training required for use
- b. All Personal Protective Equipment (PPE) required
- c. Equipment-specific training required before use
- d. General use procedures and emergency notes

Attire & Personal Protective Equipment (PPE) – All users are expected to wear closed-toed shoes. Users should wear long pants and sleeves (lab coats are available in D21H) if handling chemicals or cryogenics. Long hair should be tied back to avoid any moving parts. Safety glasses are required for all users in chemical areas and should be worn in all areas when appropriate. Nitrile gloves should be available in all areas; if stock of gloves is low or has run out, please notify facility staff.

Food & Drinks – Food should not be stored or consumed anywhere in the facility other than in D21F/H (office area). Drinks MUST be kept in closed containers and kept away from chemical areas and the immediate vicinity of equipment.

Other Notes –

- Keep all areas as neat and clean as possible.
- Cell phones, laptops, etc. may be used as long as use does not distract from appropriate facility use.
- Headphones may be used if one ear is left open and cords do not interfere with equipment use or create hazards.
- The wireless networks are “CMAC” and “D15-MATCL” and the current passwords are posted on the whiteboards in D15/D21. You may also be able to access Red Rover (“eduroam”, “RedRover”, or “RedRover-Secure”) in the facility and surrounding areas.



Acknowledging the Facility

Please remember to properly acknowledge use of the CCMR Facilities in your presentations, publications, and conference proceedings



Researchers who make use of these facilities must acknowledge the award number

NSF DMR-1120296

www.ccmr.cornell.edu/about/acknowledge.html

For more information, visit:
www.ccmr.cornell.edu/facilities



CCMR Shared Facility Access Form (more information at <http://www.ccmr.cornell.edu/facilities/safetyinfo/>)

Submit one form to *each* facility that you are requesting access to.

- 1) Print out this page. Illegible or incomplete forms may be discarded.
- 2) Read the online facility orientation completely and sign below.
- 3) Circle the room(s), **in gray below**, to which you are requesting access.

Facility	Room	Required Trainings	Facility	Room	Required Trainings
Duffield Hall	150	AHWCR	Clark Hall	F03 (Keck)	AHW
	231 (Prep)	AHWC		All D21, D22	AHWM*F*
Bard Hall	B47 (PLD)	AHWL		D15 (AFM)	AHWL*
	B47, B47A	AHW	D10	AHWCM*	
	B55	AHWG	ST Olin	165	AHWCD
	B56	AHWC	Snee Hall	1158	AHWCR
	SB30	AHWL		1102	AHWR
	SB56 (Mira)	AHWCR*		1149 (μ probe)	AHW

* required for certain instruments, refer to orientation form.

Trainings key (in bold are required for all facilities):

- A Laboratory safety training (#2555-laboratory)**
- H GHS-Globally Harmonized System (#5711-GHS)**
- W Chemical waste disposal (#2716-chemwaste)**
- L Laser safety (#2397-lasersafety)
- C Training in handling cryogenics (#3055-cryogenics)
- M Magnetic field safety training (#5035-magnetic)
- R Radiation producing equipment safety (#5033 EHS-RPE)
- G Compressed gas safety (#2335-compressed)
- F Fire safety training (#5330-firesafety)
- D How to Read an MSDS (#3755-MSDS)

- 4) Verify in CULearn (URL above) that all the required trainings show as **completed on or after April 1, 2009**.
- 5) Print a copy of your CU Learn All Learning and attach to this form.
- 6) Fill in user information, sign and bring completed forms to the appropriate facility manager.

User Name _____ Cornell University ID card # _____

NetID/E-mail _____ Status _____ Department _____ Advisor _____

By signing below, I am attesting that I have read the facility orientation form and completed the necessary EH&S safety trainings.

User Signature _____ Date ____/____/____

Office use: Door _____ e-mail list _____ entered by _____