



## CUNY ASRC Photonics Spectroscopy Facility User Policies

The Photonics Spectroscopy Facility (PSF) of CUNY Advanced Science Research Center is a multi-user facility and it is imperative that all users are responsible when conducting experiments in the facility. Individuals who intend to work in the facility must follow the following policies. All users must read this document carefully and sign it to certify that they are aware of, understand, and adhere to its content. The rules and policies are adopted to ensure everyone's safety and productivity in the facility. I inherited a spectroscopy lab. Time to trick it out with a sweet sound system.

### GENERAL

1. The Photonics Spectroscopy Facility is open to all CUNY faculties, staff members, and students and to members of the non-profit research institutes at academic user rates. The facility is open to industrial partners at elevated rates.
2. Normal operation hours of facility: Monday – Friday from 9:00 am – 5:00 pm, except CUNY staff holidays. Experienced users may use the facility on off-hour upon approval by facility staff. Please note that all off-hour users will receive minimum technical support and must follow off-hour policy stated below.
3. All workspaces must be returned to a neat and clean status prior to a user leaving that workspace.
4. If a user cannot resolve an issue relating to the laboratory in a professional, courteous and respectful manner that issue should be brought to the attention of the facility staff member for proper and expeditious resolution.
5. If you do not know how to do something, ask a facility staff member before proceeding.  
**DO NOT GUESS.**
6. Users and their supervisors must be responsible for the costs of repair the damage when it occurs as the result of improper use of the instruments. If in doubt about the condition of instruments please ask facility staff member.
7. Only trained and authorized users are allowed to use the instruments in the facility without staff support.

### LABORATORY SAFETY

All users must read and understand the information in this document with regard to laboratory safety and emergency procedures prior to the first laboratory session. Your personal laboratory safety depends mostly on your actions. Effort has been made to address situations that may pose a hazard in the lab, but the information and instructions provided cannot be considered all-inclusive. With good judgment, the chances of an accident can be minimized.

### ***Emergency Response***

1. It is your responsibility to read safety and fire alarm posters and follow the instructions during an emergency
2. Know the location of the fire extinguisher, eye wash, and safety shower in your lab and know how to use them.
3. Notify your instructor immediately after any injury, fire or explosion, or spill.
4. Know the building evacuation procedures.

### ***Common Sense***

Good common sense is needed for safety in a laboratory. It is expected that each user will work in a responsible manner and exercise good judgment and common sense. If at any time you are not sure how to handle a particular situation, ask PSF staff for advice. **Do not touch anything with which you are not completely familiar.** It is always better to ask questions than to risk harm to yourself or damage to the equipment.

### ***General Safety***

All established safety procedures must be followed.

1. No user or project is more important than the safety of other users or the facility staff. Ignorance of the rules, working under pressure, lack of common sense, language difficulties, carelessness, and haste are not adequate excuses for unsafe behavior. If you are tired or do not have time to perform your work correctly and safely, please leave and return later. Anyone found to be in violation of any safety rule or otherwise compromising his or her personal safety or the safety of the others will be denied access to the facility.
2. Some of the instruments of Photonics Spectroscopy Facility contain high voltage. Please report to facility staff when any loose cables, wires, and electrodes are spotted. **DO NOT** try to fix them.
3. Each user must wear proper Personal Protective Equipment (PPE) when dealing with lasers or chemicals. Safety glass, long sleeve cloth, long pants, and closed toe footwear are mandatory for all users who need to deal chemicals in the facility.
4. Users should point out rule violations or unsafe behavior immediately to the offenders, as well as later to the facility staff member. Inappropriate reactions by individuals to such corrections should also be reported to facility staff member. The access of everyone to the facility depends on maintaining a safe working environment.
5. No food or drink in the lab.
6. Do not use any equipment unless you are trained and approved as a user by your supervisor.
7. Equipment Failure - If a piece of equipment fails while being used, report it immediately to your lab assistant or tutor. Never try to fix the problem yourself because you could harm yourself and others.

### ***Electrical Safety***

1. Obtain permission before operating any high voltage equipment.
2. Maintain an unobstructed access to all electrical panels.
3. Wiring or other electrical modifications must be first referred to the PSF Staff.
4. Avoid using extension cords whenever possible. If you must use one, obtain a heavy-duty one that is electrically grounded, with its own fuse, and install it safely. Extension cords should not go under doors, across aisles, be hung from the ceiling, or plugged into other extension cords.
5. Never, ever modify, attach or otherwise change any high voltage equipment.
6. When you are adjusting any high voltage equipment or a laser which is powered with a high voltage supply, USE ONLY ONE HAND. Your other hand is best placed in a pocket or behind your back. This procedure eliminates the possibility of an accident where high voltage current flows up one arm, through your chest, and down the other arm.

### ***Chemical Safety***

1. Users must be approved by PSF Staff before using chemicals in the fume hood.
2. All chemicals must be used in the fume hood.
3. Only pre-approved chemicals may be used in the PSF. Please see PSF Staff for a list of approved chemicals. See PSF Staff for bringing new chemicals into the facility.
4. Treat every chemical as if it were hazardous.
5. Make sure all chemicals are clearly and currently labeled with the substance name, concentration, date, and name of the individual responsible.
6. Never return chemicals to reagent bottles. (Try for the correct amount and share any excess.)
7. Comply with fire regulations concerning storage quantities, types of approved containers and cabinets, proper labeling, etc. If uncertain about regulations, contact the PSF Staff.
8. Use volatile and flammable compounds only in a fume hood. Procedures that produce aerosols should be performed in a hood to prevent inhalation of hazardous material.
9. Never allow a solvent to come in contact with your skin. Always use gloves.
10. Never "smell" a solvent!! Read the label on the solvent bottle to identify its contents.
11. Dispose of waste and broken glassware in proper containers.
12. Contact PSF Staff immediately in the event of a spill.

## **LASER SAFETY**

### ***Use of Laser Eye and Skin Protection***

Laser protective eyewear must be worn whenever you are within the Nominal Hazard Zone (NHZ). The NHZ is defined as that area within which the laser beam power exceeds maximum permissible exposure levels. During maintenance or alignment operations, the NHZ extends to the entire lab or to the partitioned laser use area. Once the laser beam path is well defined and contained to a specific area, the NHZ may be reduced in size to the area where the experiment is taking place. Note that Class 4 lasers can produce hazardous diffuse reflections, and that the NHZ for laser experiments must be extended to account for diffuse reflection hazards from your experiment.

- Eyewear must be of the correct optical density and offer protection at the wavelength(s) of the laser(s) being used.
- Eyewear will only protect your eyes for short time periods, depending on the laser power. Therefore, do not look directly into any laser beam, even with laser eye protection on.
- Periodically inspect and replace damaged or defective eyewear.
- Exposure to direct or diffuse reflections from ultraviolet lasers (particularly excimers) can result in short and long term skin hazards. Cover your exposed skin areas when working near these lasers (use long sleeve shirts or lab coats, cloth gloves, etc. as necessary).
- Exceptions:
  - Lower optical density eyewear may be used when a laser beam must be seen. This eyewear is chosen to eliminate the diffuse reflection hazard.
  - If a diffuse reflection must be observed, do this after the beam path is well defined and away from the area that the diffuse reflection will be viewed from. During viewing, your eyes may not come within the diffuse reflection hazard distance.

### ***Laser Alignment Practices***

- Never look directly into a laser beam. Do not bring your eyes near the axis of any beam to perform an alignment (or any other operation).
- Wear laser skin and eye protection.
- Use a low power laser for alignments. If this is not possible, adjust your laser to minimum power levels and/or use a filter to bring down the power to safe levels.
- Use viewers or viewing cards to sight where an invisible beam is. To sight where a visible beam is, use lower optical density laser protective eyewear (see below) or sight beams with a non-specular, dark colored viewing card.

### ***Laser Beam Termination***

- Terminate laser beams at the end of their useful path with immovable, non-specular, fire retardant beam stops or targets.
- Do not allow open beams to cross aisle ways.
- Choose target materials that partially absorb the laser beam.

- Unused secondary beams emerging from alternate laser apertures will be terminated.
- Terminate all unused beams.
- Every time that a beam hits an optical element in your beam path, a portion of the beam will be reflected. This is of particular concern with an invisible beam and when a prism or angled optical element is used. Block all reflections and prevent them from leaving the experimental area. Even a 1% reflection from a high power YAG laser beam can cause instantaneous eye damage.

### ***Other General Laser Safety Items***

- Only trained, authorized personnel may operate lasers. Authorization is received from the PSF Staff.
- NEVER put yourself into any position where your eyes approach the axis of a laser beam (even with eye protection on).
- Keep beam paths below or above standing or sitting eye level. Do not direct them towards other people.
- Do not damage laser protective housings, or defeat the interlocks on these housings.
- Eliminate all reflective material from the vicinity of the beam paths.
- Never use viewing instruments to look directly into a laser beam or its specular reflection. If this is necessary, install an appropriate filter into the optical element assembly.
- Keep ambient light levels as high as operations will permit.
- Do not work alone when performing high power laser operations.
- Visitors should not be permitted to observe a laser experiment without first receiving a laser safety briefing and being issued laser eye protection. They will be escorted by knowledgeable personnel at all times.

### **After Hours Policy**

PSF staff strives to maintain and improve laboratory and user safety and efficiency. After hours work inside the PSF is an additional privilege that requires users to maintain a safe and productive environment.

*Normal Operation Hours* = 8:00am to 6:00pm weekdays, except CUNY staff holidays

*After-Hours Operation* = 6:00pm to 8:00am workdays, and all weekend and CUNY staff holiday hours. An up to date list of all CUNY staff holidays can be found at <http://www.cuny.edu/academics/calendars.html>

During After-Hours, a Buddy system rule is in effect at all times inside the PSF. The User must ensure there is a willing and qualified second person according to the following guidelines:

1. A Buddy must be a registered PSF user and must be located in the PSF at the time of duty.

2. The Buddy is allowed to leave the PSF, but cannot leave the ASRC and must check on the user every 30 minutes either electronically (phone/text) or in person.

**Exception to Rule 2:** If the user is working in any chemical hood, the Buddy must be present in the PSF for the duration of the work.

Failure to abide by the After-Hours Policy will result in loss of ASRC PSF access. Additionally, users are encouraged to exit the PSF for a break at least one time every 3 hours while working. This guideline will help with lab safety and improve your productivity.

## **ACKNOWLEDGEMENTS**

If any data obtained at the Photonics Spectroscopy Facility of CUNY Advanced Science Research Center are used in your manuscripts, meeting presentations, and proposals please acknowledge the Photonics Spectroscopy Facility using the following format. If more than one facilities have been used to obtain your data please acknowledge all.

**"The author(s) would like to acknowledge the Photonics Spectroscopy Facility of CUNY Advanced Science Research Center for instrument use, scientific and technical assistance."**