Lab Equipment Handling – PHYS 4580, PHYS 6/7280

Many of the components you will be working with in this lab are rather durable when subject to normal wear. However, there are things that require a more subtle touch and a gentle hand. This is a brief discussion about how to treat several fragile elements in the PV lab.

Optical lenses and Slits

While these lenses might not be extremely precise, they still need the respect allotted to optics components. Handle them gently, taking care to avoid touching the surface of the lens itself in favor of the holder or the mount. Try to avoid dropping them, or resting them on the lens. In some cases the optical lens will come with a protective bag or case. If one of these is available try to place the lens in it when the lens is not actively being used. Again none of the optical lenses are particularly fragile, but treat them as such to avoid damage. These guidelines can be applied to other optical components as well.

Optical Chopper

The optical chopper is probably the most fragile of the physical components of the lab. It CAN be moved manually, but this is unadvised except when absolutely required. If you have to move it manually, try and do so gently. A light touch on the edge of the chopper is enough to spin it, and it is suggested that you avoid sticking anything between chopper blades, though this will not necessarily harm the chopper. The most important thing to avoid is bending the blades or putting pressure on the motor or blade mount. If you have to move the chopper do so by holding the mount, NOT the blade.

PV Films

The films used in the labs are fairly robust. It would be hard to damage them without significant effort, but you should avoid touching the surface of the film. This is suggested both to keep the film clear of any oils from hands or fingers and to keep any possible personal contamination to a minimum. Handling of the films should be done by grabbing the edges. Take care of any attached wires unless they are taped down because you do not want to detach the soldering contact. When the films are not being used they should be replaced in the holder they were taken from.

Fastening

When adjusting components on the optical table the mount needs to be attached to the board with a bolt. Make sure the mount is secure, but try to keep from tightening down too hard. Follow the general rule: snug but not stressed. There are special hex-head screwdrivers for tightening/loosening bolts from the board, and additional bolts can be requested if need be. Optical components not involved in the experiment should be moved to the side and either placed in their container or fastened to the table to guard against accidental knocks/drops/falls. Every fastener on the optical table has a partner tool. If the tool you are using does not couple smoothly with the bolt or fastener, you are probably using the wrong tool. If you station does not have the tool for whatever reason, you can ask an instructor, TA or other group to find a replacement, or salvage one from an unused station (if there are any).

In general try to be careful with the equipment, keeping in mind that the condition of your components helps to produces good results and faster lab times!