

## Engineering Physics / C.E.D.T. Research Hazards Safety Report

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### **DESCRIPTION**

Zhaojun's LED project will require the use of UV LEDs. The light emitted will be in the ultra-violet range of 350-400nm. Since the light is not in the visible range, it is more dangerous because the blink reflex cannot offer protection.

Zhaojun's tissue phantom project would involve liquid emulsion and india ink. Proper handling and cleaning with the safe use of sterile plastic gloves would be the optimum. Any spills would need to be treated immediately and disposed of to avoid any hazardous slips.

### **OPERATING PROCEDURES**

It is important that the path of the light sources is kept on a different plane than the viewing angle of the researcher. This will greatly prevent the light from entering the eyes of any researchers. Specular surfaces will generally be used, in the form of optical filters. Collimating optics offer predictable paths, and can be safely arranged by knowing how each lens transforms the optical path.

Aside from the surfaces included in the experiment, any other reflecting surfaces in the lab could redirect the light in a hazardous way. These surfaces should be either removed or non-reflective barriers should be placed between them and the experiment. As well, any reflective clothing and accessories should be removed, such as watches and jewelry, since these could affect the beam path as well.

For the safety, suitable eyewear should be worn that is approved for the wavelength and intensity of light used in the experiment. Wearing the Thorlabs eyewear goggles with 190-534nm OD 7 would greatly benefit the user. The eyewear should be offered to any other researchers in the room as well.

### **EMERGENCY PREPARATION**

In the event of an accident, "88" should be called immediately, and the supervisor should be contacted. Any work on the system should stop, and the light source turned off. An incident report should be filed with the department as soon as possible.