

**OPTICS AND LASER PHYSICS LABORATORY  
TURNING ON THE ARGON AND DYE LASERS**



FOLLOW INSTRUCTIONS OR LEAVE \$30,000 DEPOSIT!!!!

**BREAKER**

1. On the North wall, throw the left-most breaker to ON position.

**CHILLER**

1. Open Return line from chiller completely.
2. Open Supply valve to chiller until black Omega meter reads 8-10 gal/min.
3. Turn chiller ON -- push toggle on front of chiller to UP position and release. Indicator light will come on.
4. Adjust bypass valve until flow to Innova 70 is  $\approx 3.5$  gal/min.

**INNOVA 70 ARGON LASER**

1. Turn laser power supply (found on floor under optics table) ON -- use key.
2. Turn control panel power ON (use another key).
3. Turn 2 black knobs to a) the Current setting (one on left) and b) Tube Current setting (one on right).
4. Push START button!
5. Wait  $\approx 3$  minutes, current on tube current meter should rise to value it had when last turned off (check log book).
6. If there is a problem with the water, a red light will blink on the control panel. If it blinks more than 2 times, increase flow to laser with valve coming out of chiller; however, do not exceed 4 gal/min. If light keeps blinking, shut down laser and report to someone listed below.
7. Adjust current to operating level (30-35 A). **MAXIMUM CURRENT IS 37 AMPS!! DO NOT EXCEED. USE AS LITTLE CURRENT AS POSSIBLE TO EXTEND TUBE LIFETIME.** If not using the dye laser the current can be as low as 25 amps and the laser will still lase. The dye laser requires 750 mW for good operation.
8. Turn Right knob to Light Output position. Place Power meter in front of output port of laser, open shutter, and peak argon output with mirror mount adjustment knobs on back of laser casing.
9. Record time on, current, and power in Log Book and initial it as the user.
10. Readjust back mirror every 30 minutes or so for optimal power.

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DYE LASER

1. Close Innova 70 shutter and make sure stem on side of dye laser is pulled OUT (located on side towards inner table top).
2. Toggle switch on pumping box (on floor) to PUMP position, UNTIL pressure reaches 20 PSI, then switch toggle to JET position.

Failure to do so will pop hose and spray dye all over! **(Dyes are thought to be carcinogenic so be careful.)** Pressure should go to 32-34 PSI. Adjust with white pressure knob if necessary.

3. Check dye return hose to ensure flow, push stem IN, place the power meter at output port of dye laser, and open Innova 70 shutter. The dye laser should lase. Call for help if it does not.
4. Adjust dye laser for optimum power output using mirror adjustments for the focusing mirror first. These are found near the stem which protects the dye stream. The output mirror adjustments should be adjusted last.

**SHUT DOWN PROCEDURES**

DYE LASER

1. Close the Innova 70 shutter.
2. Pull stem OUT on dye laser to protect mirrors from spraying dye.
3. Turn dye pump OFF.

INNOVA 70

1. Check and record power of Innova 70 in Log Book and then shut Innova 70 shutter.
2. Turn the key in the remote to the OFF position.
3. Turn the key in the power supply to OFF and close breaker on wall.

**ALLOW CHILLER WATER TO RUN FOR ABOUT 5 MINUTES TO COOL THE LASER!!**

CHILLER

1. Turn chiller toggle switch to OFF.
2. Close OFF supply line valve first, then close OFF return line.

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IF LASER OR CHILLER TURNS OFF (FOR WHATEVER REASON) DO NOT ATTEMPT TO  
RESTART!!!

CONTACT ONE OF THE RESPONSIBLE PEOPLE BELOW!!!!

Jan Yarrison-Rice, Rm. 15, (1862) or 523-6288

Perry Rice, Rm. 13 (1374) or 523-6288

S. Douglas Marcum, Rm. 21 (3286) or 756-9170