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6.161 Final Project Proposal - Introduction

We intend to restore the Nd:YAG laser into operation. Major issues that we expect to address are:

1. Water leakage on the cooling system;
2. Installation of new water filter;
3. Replacement of the flash bulb.

For the laser repair, we would have to contact Quantronix, the manufacturer, and obtain the necessary replacement parts.

Once the laser is restored, we will attempt frequency doubling by the use of a KDP crystal. Once this is achieved, we will characterize the conversion process. For instance, we could vary the intensity of the input 1064nm beam, and observe the variation in the efficiency of the frequency doubling. We will likely come up with more ideas and more suggestions as we get further in the project.

Timeline (tentative)

11/6/2008, Thursday	Laser training from MIT
11/7/2008, Friday	Write down the relevant part numbers of the laser, for replacement.
11/12/2008, Wednesday	Order parts
11/21/2008, Friday	Finish repair of the laser
11/28/2008, Friday	Observe frequency doubling
... until the end	Characterize the conversion process

Necessary budget

Quantronix Laser Company
www.quantronixlasers.com
1-800-289-7707

Flash lamp: \$258.00
Manual: \$100.00
Water filter: unknown