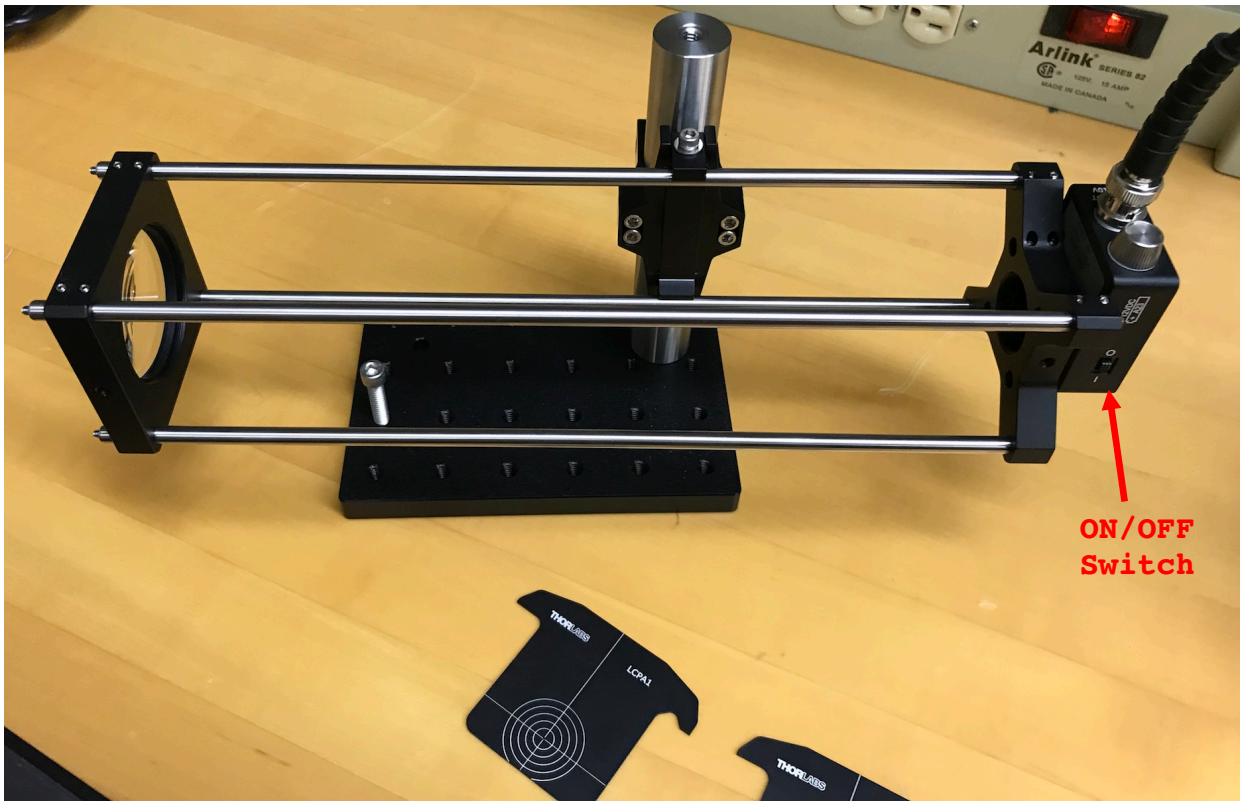
ROTATING MIRROR SPEED MEASUREMENT DEVICE



This device was designed to provide a way to measure the rotation speed of the rotating mirror in the Speed of Light experiment independently of the blackbox readout provided by the Speed-of-Light apparatus. It is cage structure that supports a bi-convex, 150mm focal length lens on one side, and on the other side a silicon photodiode detector with integrated amplifier (Thorlabs model DET36A). These are separated by about 300mm. There are two targets that can hang from the cage rods to help align this apparatus with the laser beam. By sending the laser beam through this device, and sending the output of the detector to the input of an oscilloscope, the variation of light intensity as the mirror rotates can be recorded and measured. This measurement will help you set an uncertainty on the rotation speed of the mirror.

Be sure to turn the detector ON when you use it, and OFF when you're done, otherwise the battery will run down.

Place at the optimal distance from the rotating mirror to get the best signal (hint: consider the thin lens equations to figure out this distance.)