Phys 375 HW 6
Fall 2010
Due 15 November, 2010

1. A single slit in an opaque screen 0.10 mm wide is illuminated (in air) by plane waves from a krypton ion laser (λ_0 = 461.9 nm). If the observing screen is 1.0 m away, determine whether or not the resulting diffraction pattern will be of the far-field variety and then compute the angular width of the central maximum.

2. What is the relative irradiance of the subsidiary maxima in a three-slit Fraunhofer diffraction pattern? Draw a graph of the irradiance distribution, when the slit spacing $a = 2b$, where b is the slit width, for 2 and then 3 slits.

3. Pedrotti[3], 3rd edition, problem 11-3. See Fig. 11-19 on page 290.

4. Pedrotti[3], 3rd edition, problem 11-5

5. Pedrotti[3], 3rd edition, problem 11-11

6. Pedrotti[3], 3rd edition, problem 11-14