

Physics 136, Caltech: Applications of Classical Physics — Fall Term, 2006
Assignment 6

Reading

Chapter 6 of Blanford and Thorne.

Problems (due in class, 1pm Wednesday November 8)

Numbers refer to exercises in Blanford and Thorne, as posted on website.

A. If you have never explored wave packet spreading do

1. Exercise 6.2: *Gaussian wave packet and its spreading*

Otherwise do

2. Exercise 6.4: *Gravitational waves from a spinning neutron star*

The results quoted seem to be good to first order in M/r .

B. Exercise 6.8: *Geometric optics for the Schroedinger equation*

C. Do either:

1. Exercise 6.6 *Sound waves in a wind*

or

2. Exercise 6.10: *Stellar gravitational lens*

D. Do either:

1. Exercise 6.12 *Matrix optics for a refracting telescope*

or

2. Exercise 6.13: *Rays bouncing between two mirrors*