CHAPTER 9: NONLINEAR OPTICS

Reading:
Chapter 9 of Blandford and Thorne (except that Section 9.2 on lasers is optional).

TA:
This problem set will be graded by Xinkai Wu.

Problems

NOTE: If any problem is trivial for you, do not do it. Simply state that it is trivial and pick some other problem to do instead, or make up your own problem related to the chapter.

A. Ex. 9.2, Holographically reconstructed wave.
B. Ex. 9.3, Compact disks.
C. Ex. 9.4, Nonlinear susceptibilities for an isotropic medium.
D. Work one of the following:
   - Ex. 9.5, Growth equation in idealized three-wave mixing.
   - Ex. 9.7, Growth equation in realistic wave-wave mixing.

E. Ex. 9.8, Efficiency of frequency doubling.