

CHAPTER 5: RANDOM PROCESSES**Reading:**

Chapter 5 of Blandford and Thorne.

Problems - based on version 0405.1.K.pdf of the chapter

- A. Do either:
 - 1. Exercise 5.2 parts (a) and (b) — finite-Fourier-transform filter, or
 - 2. Exercise 5.2 parts (c) and (d) — averaging filter.
- B. Do either:
 - 1. Exercise 5.3: Wiener's optimal filter, or
 - 2. Exercise 5.4: Allan Variance of Clocks
- C. Do either:
 - 1. Exercise 5.6: Noise in an L-C-R circuit, or
 - 2. Exercise 5.10: Equations for A and B
- D. Do either:
 - 1. Exercise 5.7: Thermal noise in a resonant-mass gravitational-wave detector, or
 - 2. Exercise 5.8: Fluctuations of mirror position as measured by a laser
- E. Do either:
 - 1. Exercise 5.12: Solution of Fokker-Planck equation for an oscillator, or
 - 2. Exercise 5.5: Cosmological density fluctuations