

The topic this week is **Fourier and Laplace Transforms**.

**Readings:** Riley, Hobson and Pence - Chapter 13

Boccio - 006Fourier Transforms.pdf

[http://chaos.swarthmore.edu/courses/Physics50\\_2010/006\\_FourierTransform.pdf](http://chaos.swarthmore.edu/courses/Physics50_2010/006_FourierTransform.pdf)

Boccio - 0007\_Laplace Transforms.pdf

[http://chaos.swarthmore.edu/courses/Physics50\\_2010/007\\_LaplaceTransform.pdf](http://chaos.swarthmore.edu/courses/Physics50_2010/007_LaplaceTransform.pdf)

### **Fourier Transforms**

13.01 Fourier Transform  $f(t) = \exp(-|t|)$  **(just integrals)**

13.02 Properties of Fourier Transform

13.03 Fourier Transform  $f(x) = H(x-a)\exp(-bx)$  **(just integrals)**

13.07 Fourier Transform - Square Pulse **(just integrals)**

13.09 Poisson Summation Formula

13.19 Auto-Correlation **(just integrals)**

13.20 Cross-Correlation **(just integrals)**

### **Laplace Transforms**

13.21 Laplace Transforms **(just integrals)**

13.22 Find the function; Inverse Laplace Transform

13.23 Don't evaluate the Laplace Transform

13.28 Laplace transform stuff

**You can use tables, calculators or Mathematica to do integrals.**