# More Python Lab and Quiz Prep

# Physics 218 – Spring 2017

1. Using what you learned while we created the iPython notebook today, create a notebook that you can use to analyze the following fabricated data from next week’s thermal expansion lab.

For the thermal expansion lab you will start with a metal tube of length L. You will apply heat to this tube and it will lengthen by ΔL, while increasing from a temperature of Tinitial to Tfinal . You can determine α, the coefficient of linear expansion using

where ΔT =Tfinal – Tiniital.

Find the value for α ± δα, the coefficient of linear expansion using the following data:

L = 1.05 m

δL = 1 mm

ΔL = 1.25 mm

δΔL = 0.01 mm

Tinitial = 23.4 °C

Tfinal = 92.5 °C

δTinitial = 0.3 °C

δTfinal = 0.1 °C

You will need to write functions for rules 3 and 4. Do all of your calculations in your iPython notebook. Print out the results in a sentence.

Upload your jupyter notebook file to your github account. Go to Moodle to take the one question quiz and paste the link to your github account notebook before the end of quiz time in next week’s lab.

1. For the remainder of the quiz:
   1. Make sure you know how to use error analysis rules
   2. Precision and Accuracy
   3. Understand how functions are used in Python

In class quiz next week.