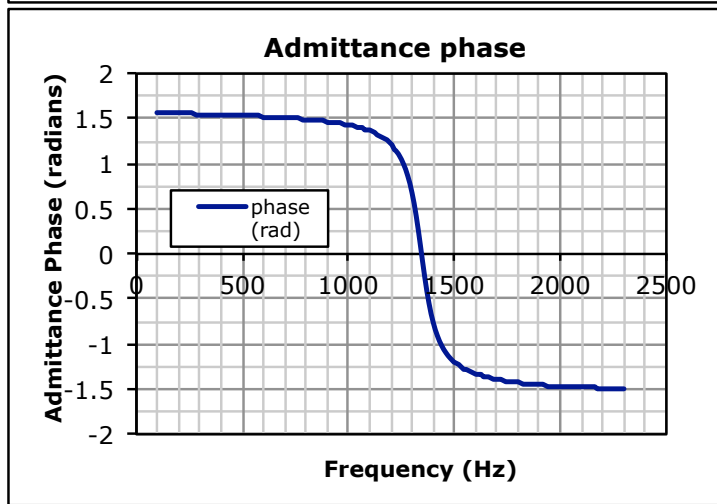
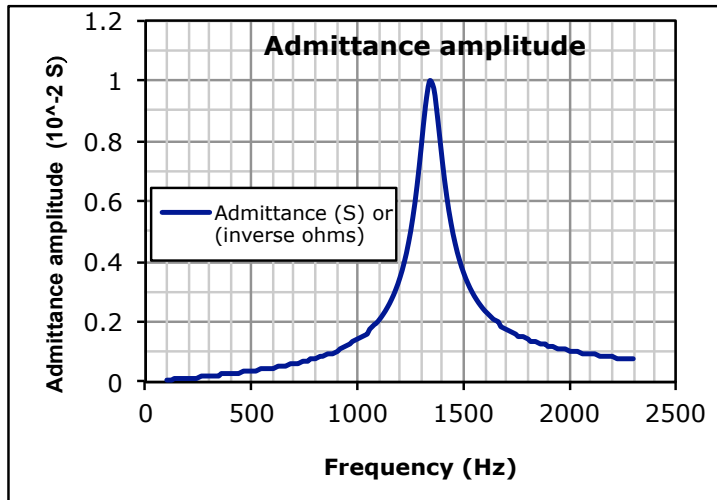


PH421: Paradigms in Physics – Oscillations

RESPONSE OF A SERIES LRC CIRCUIT TO DIFFERENT FREQUENCIES

Work in groups with large whiteboards and remember to assign roles of manager, skeptic and recorder. Your group will be assigned a letter. Work efficiently - this is a 10-minute exercise.

Here is information about a series LRC circuit, in graphical form.



Here is the information about the driving voltage $V_0 e^{i(2\pi ft + \phi_{\text{voltage}})}$

Freq	Magnitude	Phase
700 Hz	2 V	0
1400 Hz	1 V	0
2100 Hz	10 V	0

GROUP A
GROUP B
GROUP C

TASK: Sketch a plot of the observed oscilloscope traces of the driving voltage and the current in the circuit (as observed via the voltage across the resistor). Include several cycles.

Work on another frequency if you finish early, then think about what happens if all three voltages are applied simultaneously.