

PHYSICS 200: ELECTRICITY and MAGNETISM; Lab 10: AC resonance (phase constant)

1. Set-up

- a. Materials needed: AC resonance apparatus and voltmeter
- b. Open or close each switch to produce the desired series LRC circuit

2. Collecting data

- a. Measure and record resistor voltage, capacitor voltage and inductor voltage for each of the following situations:
 1. Maximum inductance with maximum capacitance
 2. Maximum inductance with minimum capacitance
 3. Minimum inductance with maximum capacitance
 4. Minimum inductance with minimum capacitance

3. Data table

- a. Using a spreadsheet construct a data table containing: resistor voltage, capacitor voltage and inductor voltage for each combination of inductance and capacitance in step "2a"

4. Calculations

- a. Calculate the phase angle for each combination of inductance and capacitance in step "2a"

5. Questions

- a. What is the phase angle when the inductance is a maximum and the capacitance is a maximum?
- b. What is the phase angle when the inductance is a maximum and the capacitance is a minimum?
- c. What is the phase angle when the inductance is a minimum and the capacitance is a maximum?
- d. What is the phase angle when the inductance is a minimum and the capacitance is a minimum?

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