

Class 14



PHY 232
Spring 2003
Prof. S. Billinge

Announcements

Exam 2 next Thursday

- 50 minutes, Closed book
- Bring #2 pencil, ID, calculator, 1x 8.5x11 handwritten sheet
- Dr. Nagy will teach Tuesday class
 - will spend some time on review
- Get help in helproom where possible



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Concepts

AC circuits

1. The magnitude and the direction of the current oscillates in time
2. $V(t) = V_0 \sin \omega t$
3. Current and voltage have:
 1. An instantaneous value
 2. A peak value
 3. An average value (RMS)



Concepts

- AC circuit problems:
 - Resistors resist the flow of current in all circuits
 - In AC circuits capacitors and inductors also resist this flow
 - *Reactance*, X , is like the “resistance” of capacitors and inductors
 - *Impedance*, Z , of a circuit is defined from $\Delta V_{\max} = I_{\max} Z$ (compare $\Delta V = IR$ that applies in DC circuits)
 - Power dissipated only in the resistor!



A lightbulb and a parallel plate capacitor are in series in a 115V 60Hz AC circuit. When the dielectric is removed from the capacitor The lightbulb:

1. Gets brighter
2. Gets dimmer
3. Stays the same brightness

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Feedback quiz

Split into groups of 2-3. Answer the following questions on paper and hand in on leaving:

Exam #2 will cover homework 4-6, Chapters 18-21 (but *not* EM waves).

1. Which concepts would you like explained again in class
2. Which problems would you like solved again in class

