

General Physics (PHY 2140)

Lecture 22

- Electricity and Magnetism
 - ✓ Electromagnetic waves
 - ✓ Properties
 - ✓ Spectrum

<http://www.physics.wayne.edu/~apetrov/PHY2140/>



Lightning Review

Last lecture:

1. AC circuits

- ✓ Resistors, capacitors, inductors in ac circuits
- ✓ Power in an AC circuit
- ✓ Resonance in a RLC circuit

$$X_C = \frac{1}{2\pi fC}, X_L = 2\pi fL$$

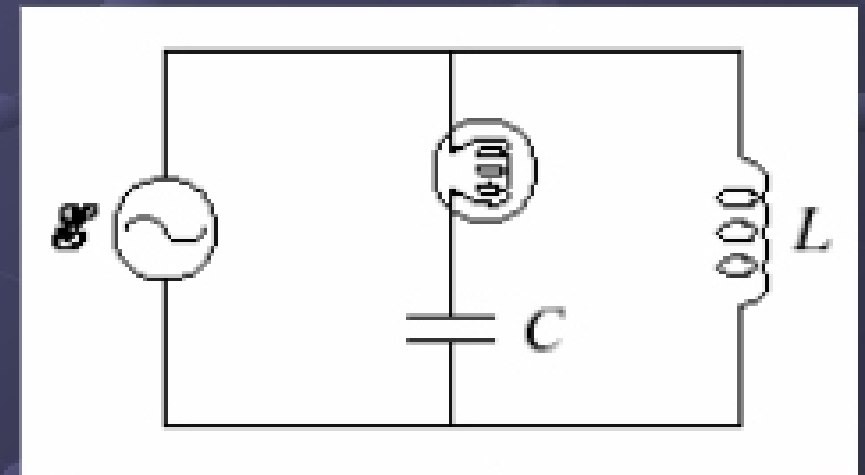
$$Z = \sqrt{R^2 + (X_L - X_C)^2}$$

$$\tan \phi = \frac{X_L - X_C}{R}$$

$$f_0 = \frac{1}{2\pi\sqrt{LC}}$$

Review Problem: The light bulb has a resistance R , and the emf drives the circuit with a frequency ω . The light bulb glows most brightly at

1. very low frequencies.
2. very high frequencies.
3. the frequency $\omega = 1/\sqrt{LC}$



Reminder (for those who don't read syllabus)

Reading Quizzes (bonus 5%):

It is important for you to come to class prepared, i.e. be familiar with the material to be presented. To test your preparedness, a simple five-minute quiz, testing your qualitative familiarity with the material *to be discussed* in class, will be given at the beginning of some of the classes. No make-up reading quizzes will be given.

There could be one today...
... but then again...