

**PREFLIGHTS LESSON 13 – CONSERVATION OF ANGULAR MOMENTUM
(CON'T)**

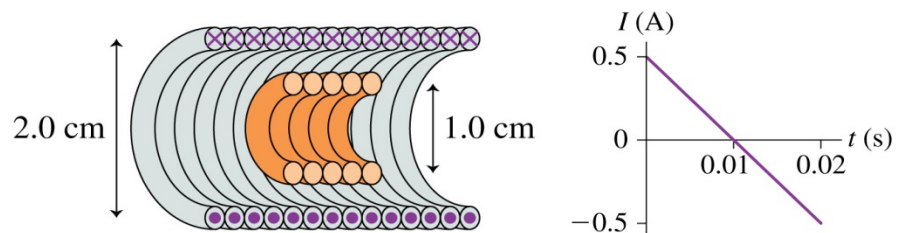
LEARNING OBJECTIVE:

Determine how the conservation laws are applied in electrodynamics.

1) Briefly describe, in two or three sentences each, how conservation of energy, conservation of momentum, and conservation of angular momentum are different in electrodynamics than in classical mechanics.

2) Did we ever figure out if Newton's 3rd law works in electrodynamics? Discuss why you think Newton's 3rd law does or does not work in electrodynamics.

3) A wire coil is placed inside of a solenoid as shown in the picture. The current through the solenoid is reduced as shown in the graph. Does electromagnetic energy flow into or out of the wire coil? Is there electromagnetic momentum in the fields? Is there angular momentum?



4) *Note: This is a review question from Chapter 7.* Two linear materials with different permeabilities and permittivities are sandwiched together. There is a free surface current, \mathbf{K}_f , flowing parallel to the interface, but there is no free charge at the interface. Which of the parallel and perpendicular components of the fields will be continuous across the interface?

5) What did you find difficult or confusing in the pre-class work? If nothing was difficult or confusing, tell me what you found most interesting. Please be as specific as possible.

6) Document whatever help you received on the preclass work.