MICHIGAN STATE UNIVERSITY

Class 11

PHY 232
Spring 2002
Prof. S. Billinge

Announcements

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Concepts

1. Motion of a particle in a B-field
2. Forces on current carrying conductors in a B-field
    1. Straight wire
    2. coil
3. B-Fields due to current carrying conductors
    1. Straight conductors
    2. Coils
    3. Solenoid

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Problem solving

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- Right hand rule #2 gives Field due to a current/moving charge (RH rule #1 gave the force on a moving charge/current)
  - Thumbs-up rule
  - Thumb along direction of current (motion of +ve charge)
  - Curled fingers show the field

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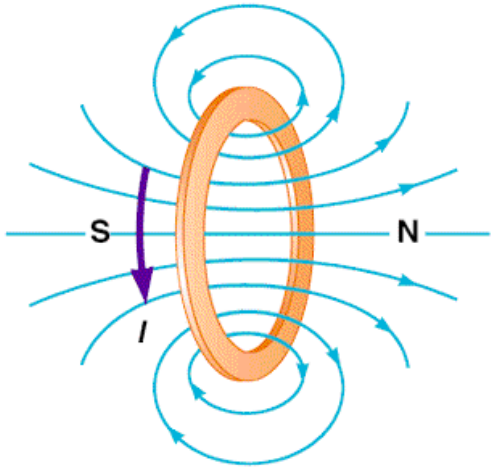
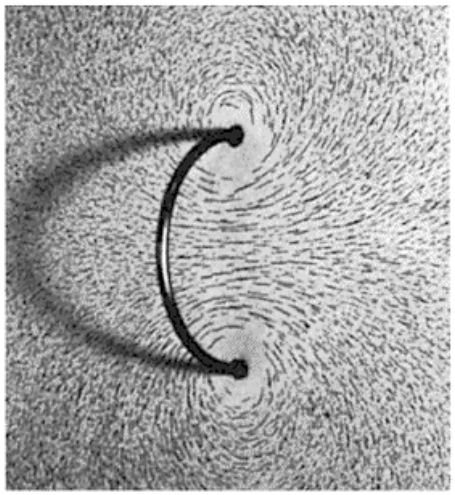
Serway, College Physics, 5/e
Text Figure 19.28a,b



(a)



(b)

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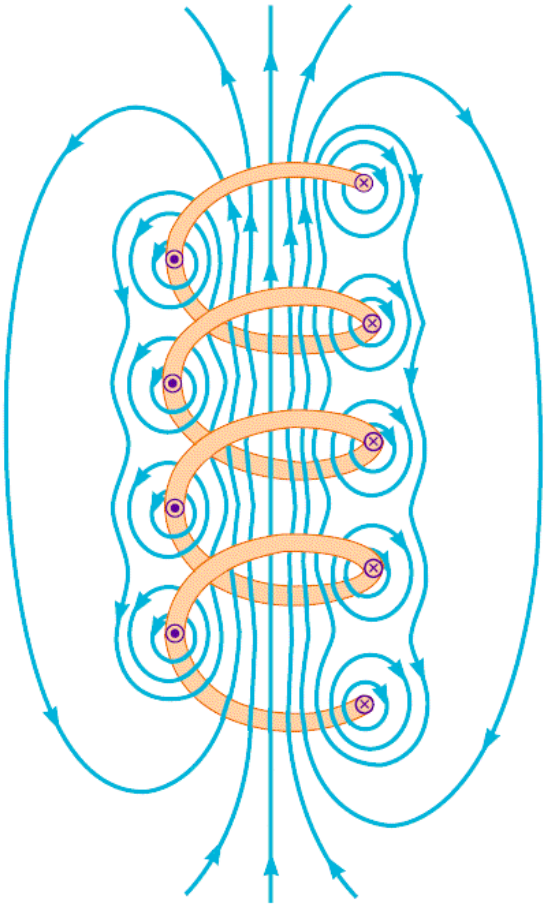
Serway, College Physics, 5/e
Text Figure 19.29



Harcourt Brace & Company

You hold an electron in a strong magnetic field pointing north, then let go. The electron:

1. Starts moving to the north
2. Starts moving to the south
3. Starts moving to the East
4. Starts moving to the West
5. Stays still

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A slinky is hung from the ceiling. A large current is passed through it. When this is done, the slinky:

1. Expands
2. Contracts
3. Stays the same
4. Catches fire and melts dripping hot molten metal on the floor

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