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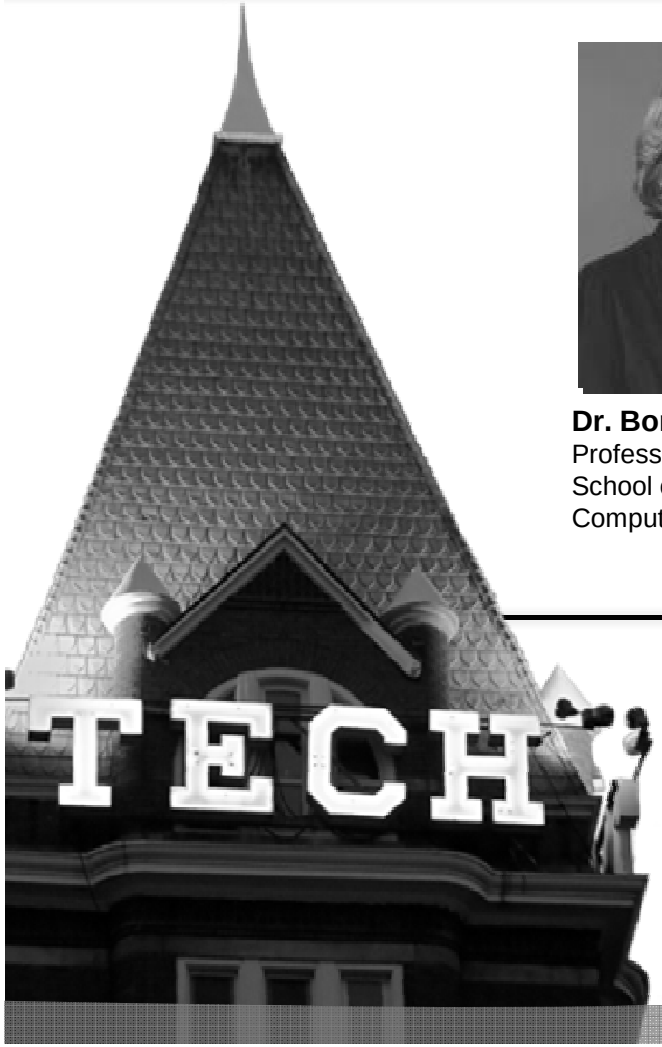

Linear Circuits

Dr. Bonnie H. Ferri
Professor and Associate Chair
School of Electrical and
Computer Engineering

An introduction to linear electric components and a study of circuits containing such devices.

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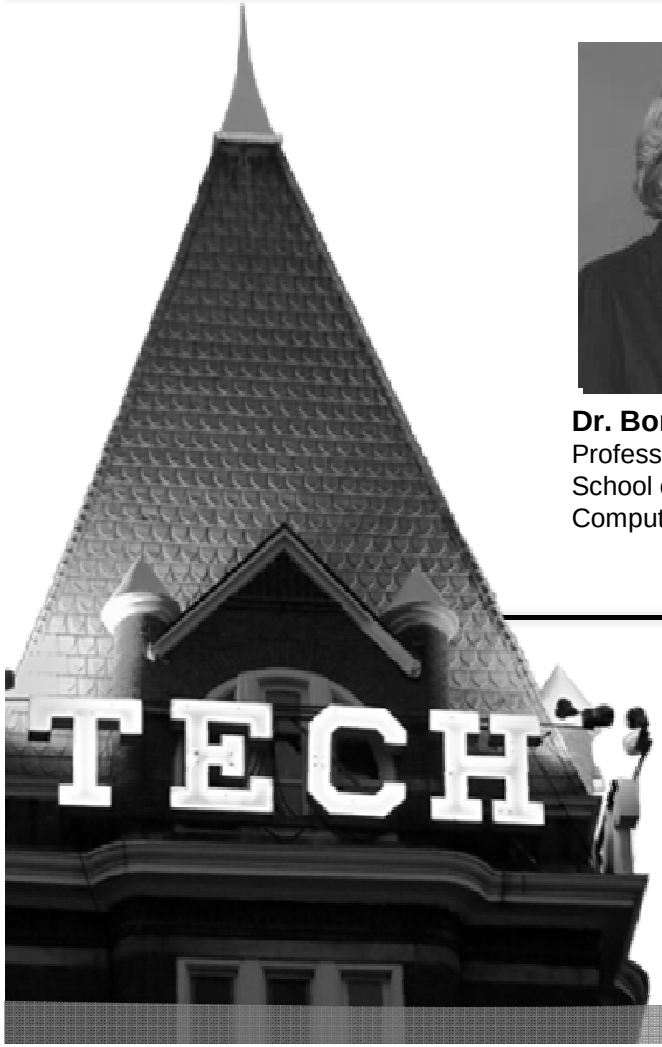

Lab Demo: Applications of Inductance

Dr. Bonnie H. Ferri
Professor and Associate Chair
School of Electrical and
Computer Engineering

Show common applications of inductance

Module 3: Reactive Circuits

- Capacitance
- Inductance
- First-Order Differential Equations
- RC and RL Circuits
- Second-Order Differential Equations
- RLC Circuits
- Applications

Lab Demo: Applications of Inductance

Summary

- Discussed energy exchange in inductors – mechanical to electrical and vice versa
  - Moving conductor in magnetic field induces current
  - Changing current in coiled wire causes a magnetic field
- Showed inductance applications
  - Passive Sensing (guitar pick-up)
  - Active Sensing (metal detector)
  - Actuation (solenoid, speaker)

Credits

Thanks to Allen Robinson, James Steinberg, Kevin Pham, and Al Ferri for help with demonstration ideas. Thanks to Ken Connor and Don Millard for the guitar string experiment.

Thanks to Marion Crowder for videotaping the demonstration.

Inductance drawings done by Nathan Parrish.