

CHAPTER OVERVIEW

9: Electromagnetic Induction

In this and the next several chapters, you will see a wonderful symmetry in the behavior exhibited by time-varying electric and magnetic fields. Mathematically, this symmetry is expressed by an additional term in Ampère's law and by another key equation of electromagnetism called Faraday's law. We also discuss how moving a wire through a magnetic field produces an emf or voltage.

- 9.1: Prelude to Electromagnetic Induction
- 9.2: Faraday's Law
- 9.3: Lenz's Law
- 9.4: Motional Emf
- 9.5: Induced Electric Fields
- 9.6: Eddy Currents
- 9.7: Induction, Transformers, and Generators
- 9.8: Electromagnetic Induction (Exercises)
- 9.9: Mutual Inductance
- 9.10: Self-Inductance and Inductors
- 9.11: Energy in a Magnetic Field
- 9.12: RL Circuits
 - 9.12.1: Oscillations in an LC Circuit
 - 9.12.2: RLC Series Circuits
- 9.13: Inductance (Exercise)

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