

# Intermediate Electricity and Magnetism

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## Last Lecture in bullets..

- Faraday's law of induction
- Fix Ampere's law
- Take a 'fresh' look at Maxwell's equations
- E & B fields are 'waves' in electrodynamics. What is the wave speed?? [added to the agenda during class]

# Today:

- Starting talking about electricity and magnetism in media [not in free space!]
- Polarization (E, P, D)
- Magnetization (B, M, H)
- How do the Maxwell equations look like (again!!)

**Main reference for now: Griffith's  
Introduction to Electrodynamics (3<sup>rd</sup> ed.)**

# Where are we heading?

- Maxwell's equations
- Conservation (of charge, energy and momentum)
- Electromagnetic waves
- Wave guides
- Fields and potentials in electrodynamics
- Radiation.. [and more..]
- We will ultimately need to come back and study subjects that we continue to skip