

Lecture 28 (3/30/05)

Magnetostatics

16. Examples of magnetic inductances

Electrodynamics

1. Maxwell equations in medium

$$\vec{\nabla} \cdot \vec{B} = 0$$

$$\vec{\nabla} \cdot \vec{D} = \rho$$

$$\vec{\nabla} \times \vec{E} + \partial_t \vec{B} = 0$$

$$\vec{\nabla} \times \vec{H} - \partial_t \vec{D} = \vec{J}$$

$$\vec{H} = \vec{B} - \vec{M}; \vec{M} = \text{magnetic dipole moment spatial density}$$

$$\vec{D} = \vec{E} + \vec{P}; \vec{P} = \text{electric dipole moment spatial density}$$

2. Plane waves in a nonconducting medium (Jackson 7.1)