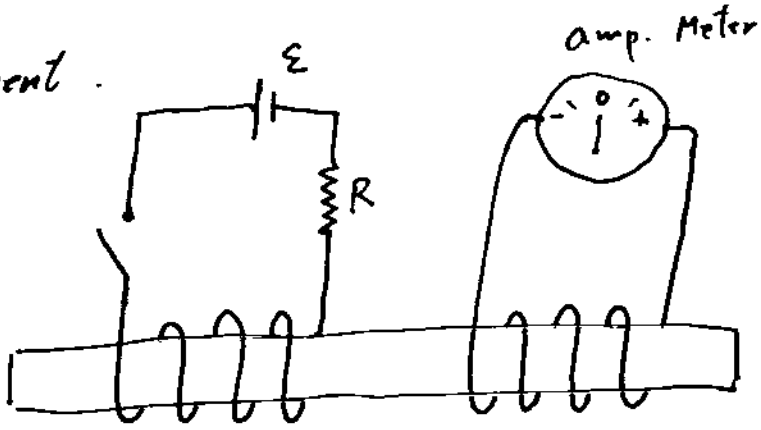
Physics 102.

Lecture 18.

Friday, Oct. 22. 2004

• Induced Electromotive Force (ch. 23)

Faraday's experiment.



A change (on/off) in circuit 1

causes a current in circuit 2.

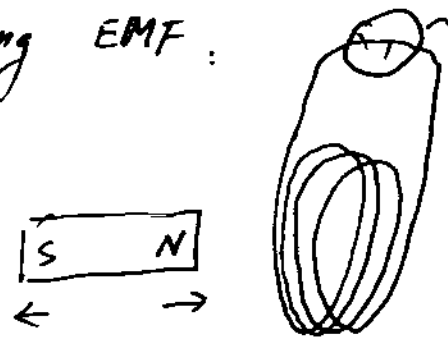
↑

induced current.

(Driven by an induced EMf)

electromotive force.

- Other ways of inducing EMF:



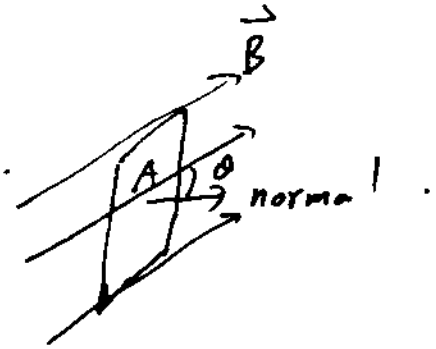
— Moving a bar magnet into/out of a loop.

* — Moving a loop/solenoid in a magnetic field.
  ↑ in certain ways.

— Driving circuit 1 with an ac voltage.
  — Transformer.

- Magnetic Flux.

$$\Phi = \vec{B} \cdot \vec{A} = BA\cos\theta$$



Φ – flux through area A.

θ – angle between $\vec{B}$ and the normal of area A.

unit: Weber = $T \cdot m^2$