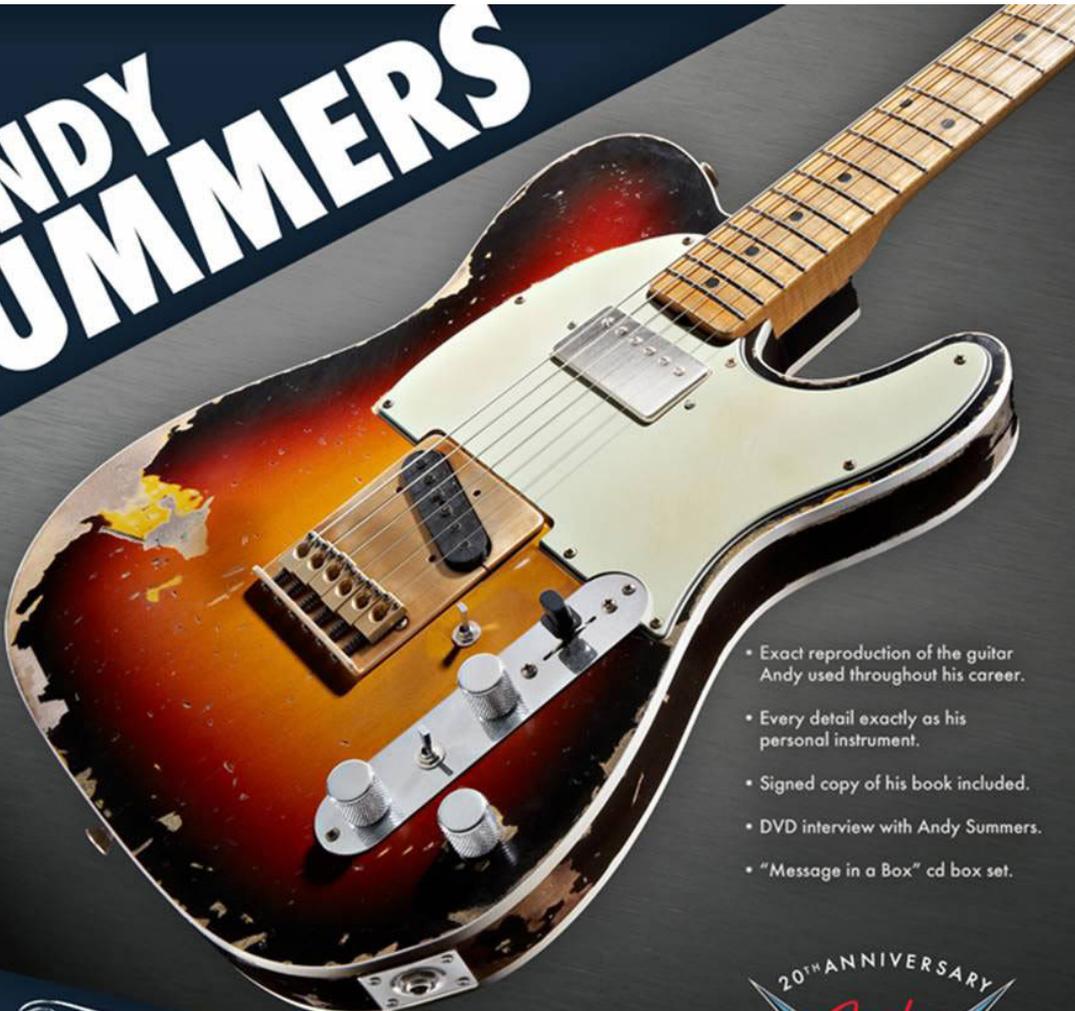


Magnetismo



ANDY SUMMERS

- Exact reproduction of the guitar Andy used throughout his career.
- Every detail exactly as his personal instrument.
- Signed copy of his book included.
- DVD interview with Andy Summers.
- "Message in a Box" cd box set.

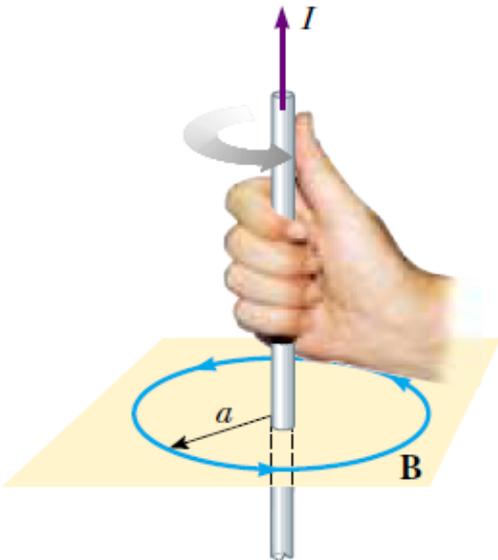
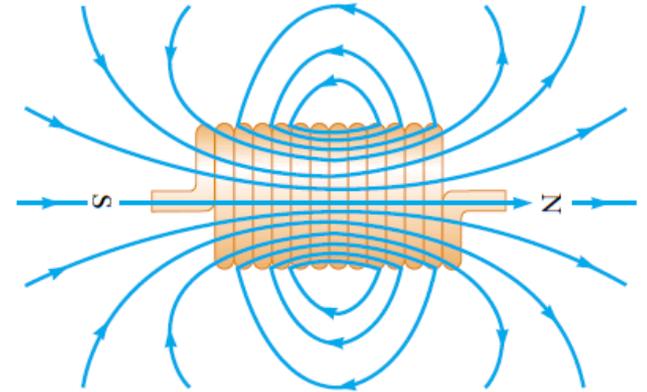
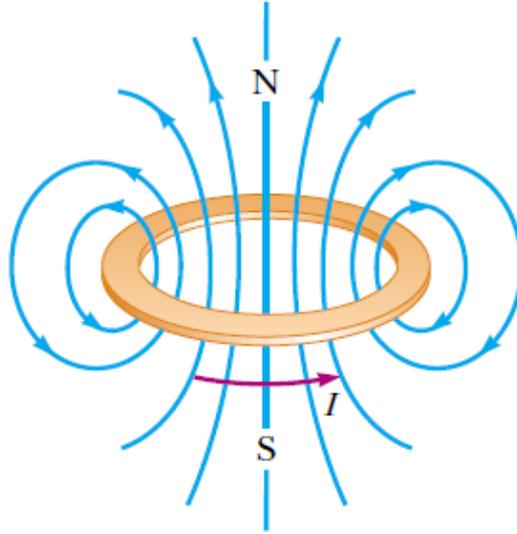
Tribute Telecaster®

20TH ANNIVERSARY
Fender
Custom Shop
1987 2007

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Repaso

$$\mathbf{B}(\mathbf{r}_2) = \frac{\mu_0 I}{2\pi r} \mathbf{e}_\phi$$



$$\mathbf{B}(z) = \frac{\mu_0 I}{2} \frac{a^2}{(z^2 + a^2)^{3/2}} \mathbf{k}$$

$$B_z(z_0) \cong \frac{\mu_0 N I}{L}$$

Ley de Circuitos de Ampere

$$\nabla \cdot \mathbf{J} = 0,$$

Corriente estacionaria

$$\nabla \times \mathbf{B}(\mathbf{r}_2) = \mu_0 \mathbf{J}(\mathbf{r}_2)$$

Ley de Ampere en forma diferencial

$$\int_S \nabla \times \mathbf{B} \cdot \mathbf{n} \, da = \oint_C \mathbf{B} \cdot d\mathbf{l}$$

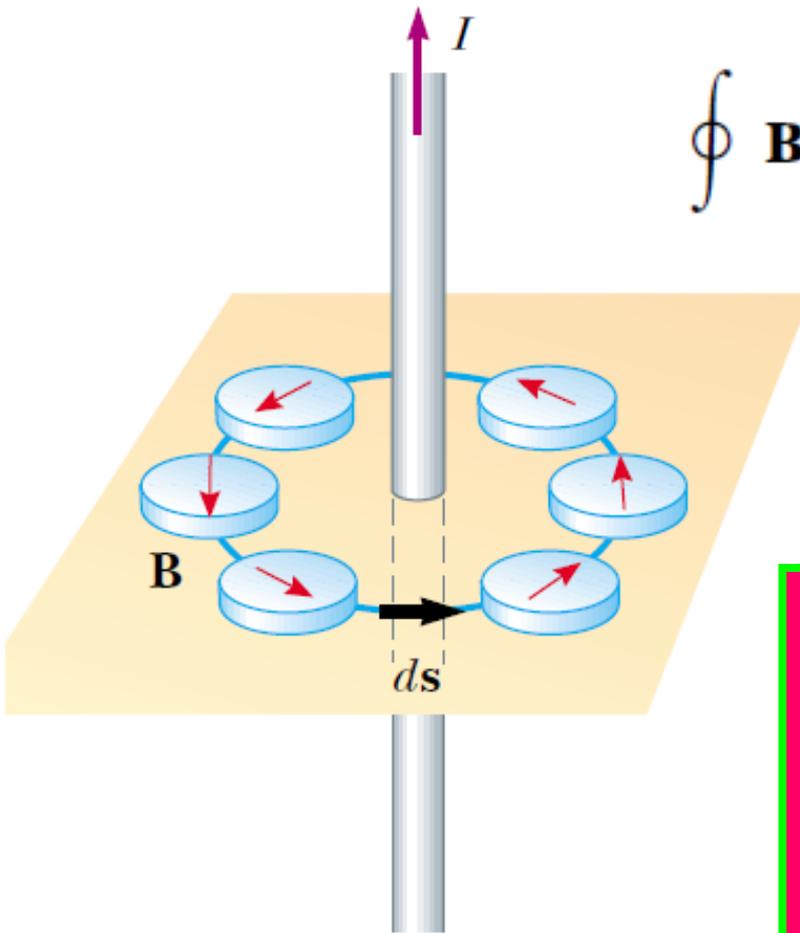
$$\oint_C \mathbf{B} \cdot d\mathbf{l} = \mu_0 \int_S \mathbf{J} \cdot \mathbf{n} \, da$$

Ley de Ampere en forma integral

La ley de Ampere es análoga a la Ley de Gauss en electrostática: permite obtener B debido a distribuciones de corriente de gran simetría.

Ley de Circuitos de Ampere

$$\oint \mathbf{B} \cdot d\mathbf{s} = B \oint ds = \frac{\mu_0 I}{2\pi r} (2\pi r) = \mu_0 I$$



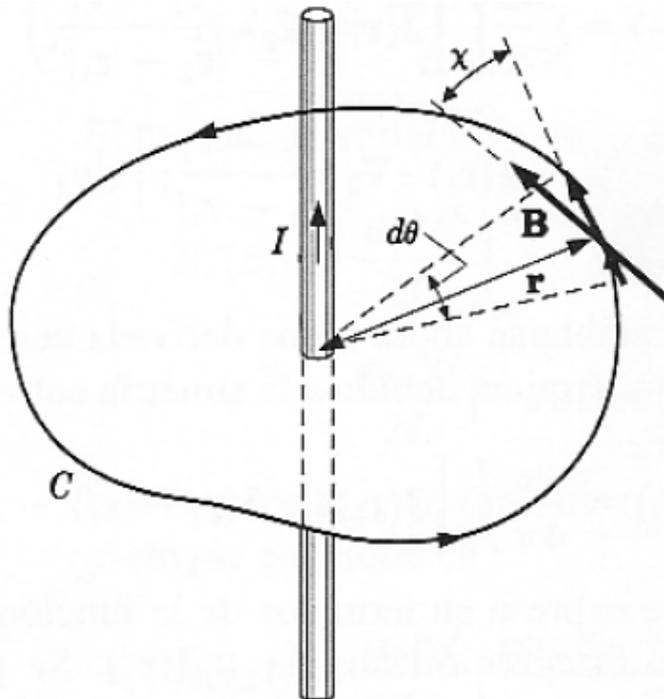
Simetrías para la Ley de Ampere:

- ***Hilo infinito con corriente***
- ***Solenoides infinito***
- ***Plano infinito con corriente***

Ley de circuitos de Ampere

¿Cómo elijo la curva sobre la cual evaluar la integral de línea?

Miro la simetría del problema



$$\mathbf{B} \cdot d\mathbf{l} = |\mathbf{B}| |d\mathbf{l}| \cos \chi = |\mathbf{B}| r d\theta$$

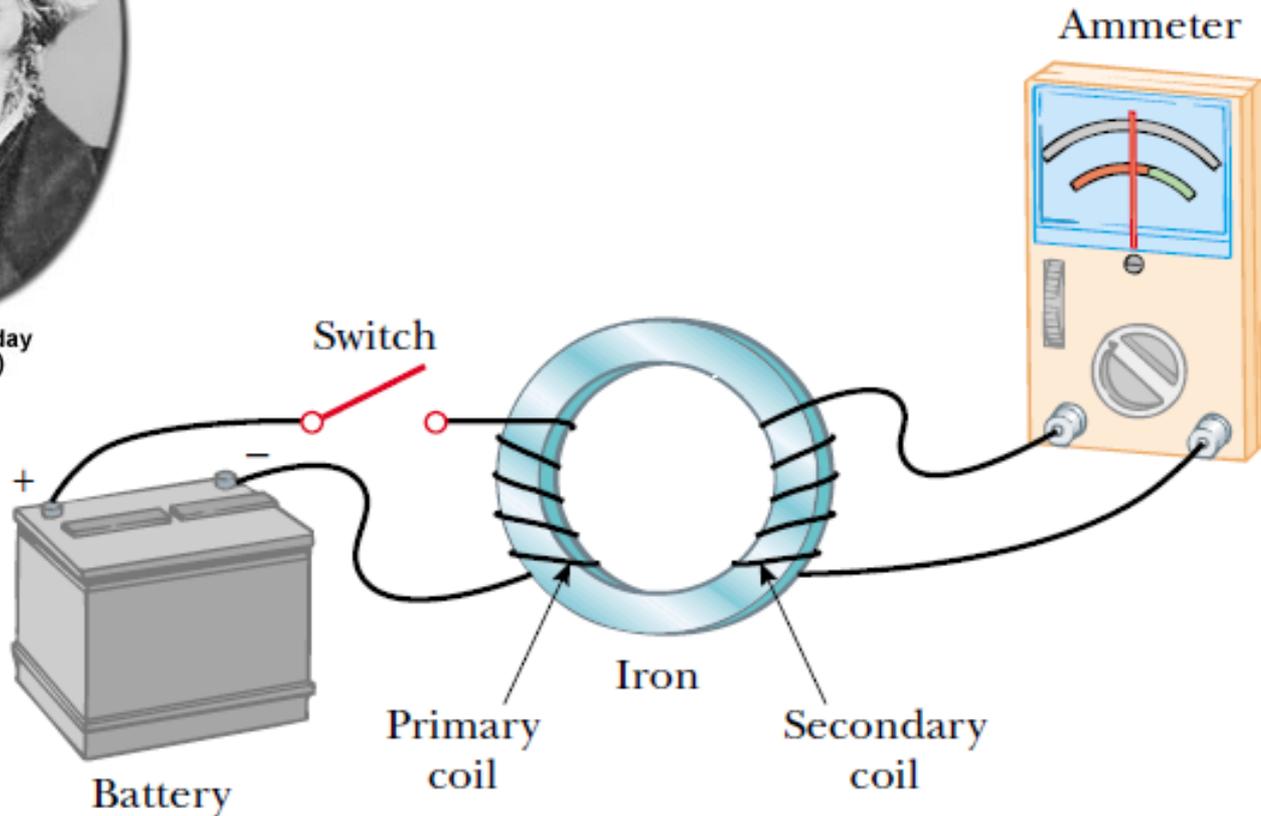
En este caso, el producto escalar proyecta la curva sobre un círculo!

Ley de inducción de Faraday

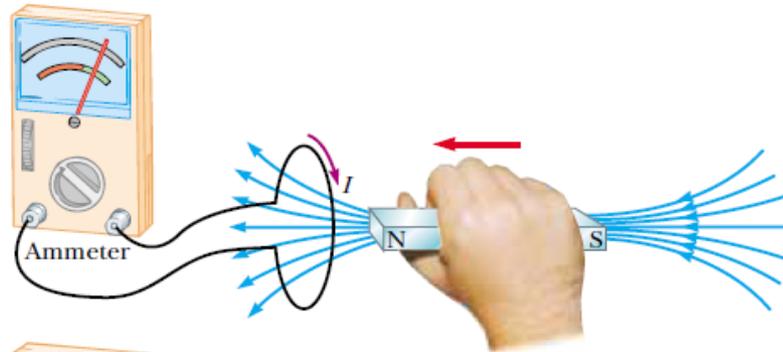


Michael Faraday
(1791-1867)

En función de los resultados de Oersted, Faraday pensaba que un campo B debía generar una corriente sobre un conductor.

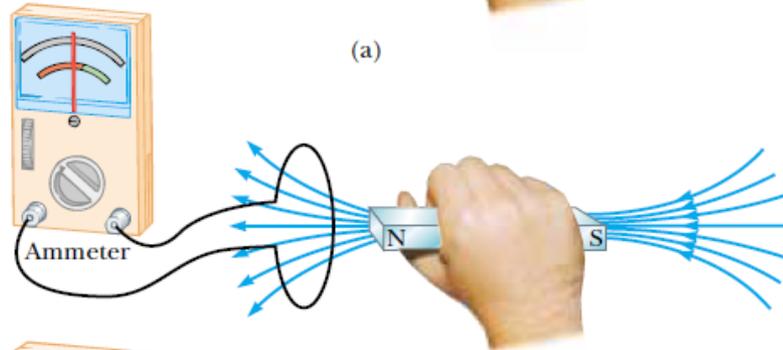


Ley de inducción de Faraday



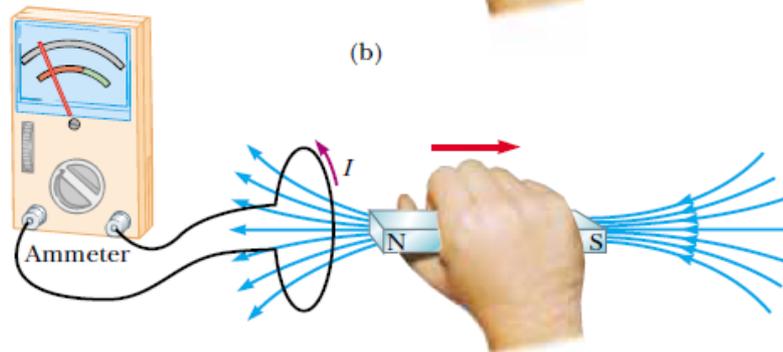
Mano acercándose \Rightarrow Corriente inducida

(a)



Mano quieta \Rightarrow Corriente nula

(b)



**Mano alejándose \Rightarrow Corriente inducida
(sentido contrario)**

(c)

Ley de inducción de Faraday

$$\mathcal{E} = - \frac{d\Phi_B}{dt}$$

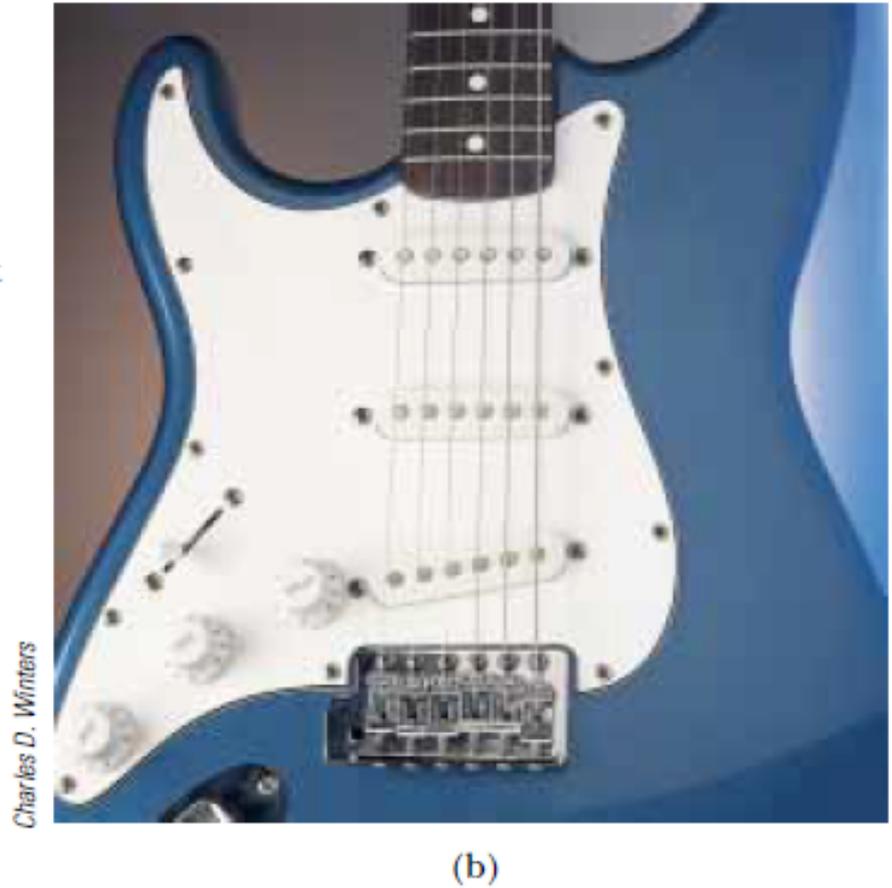
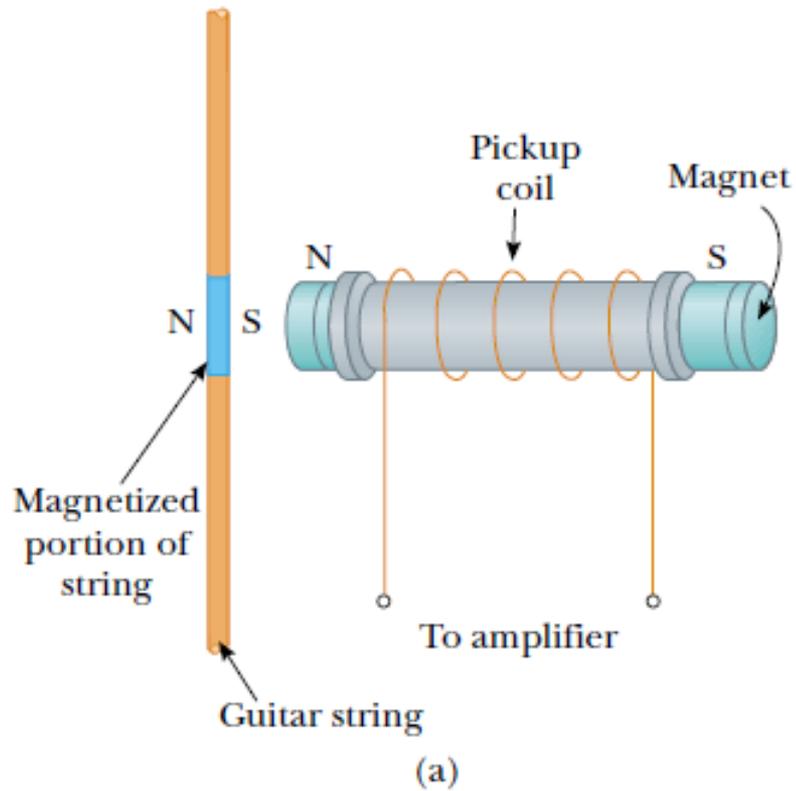
Ley de Flujo

La ley de Flujo se aplica solo si la forma del circuito conductor está bien definida

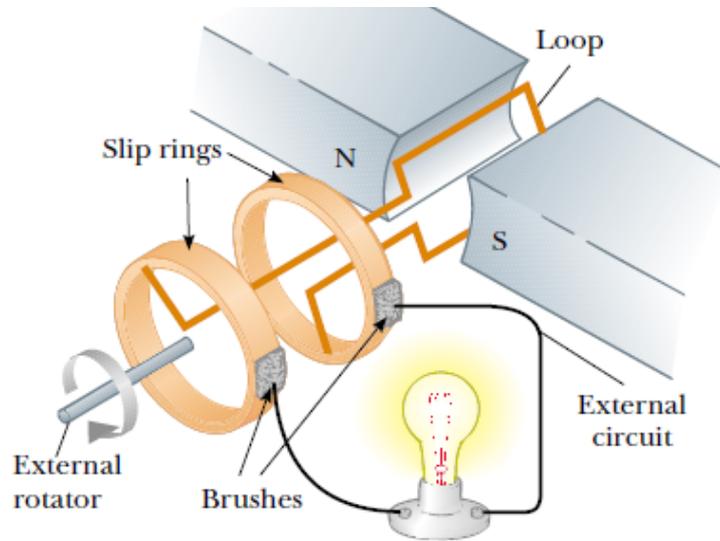
$$\nabla \times \mathbf{E} = - \frac{\partial \mathbf{B}}{\partial t}$$

Ley de Faraday en forma diferencial

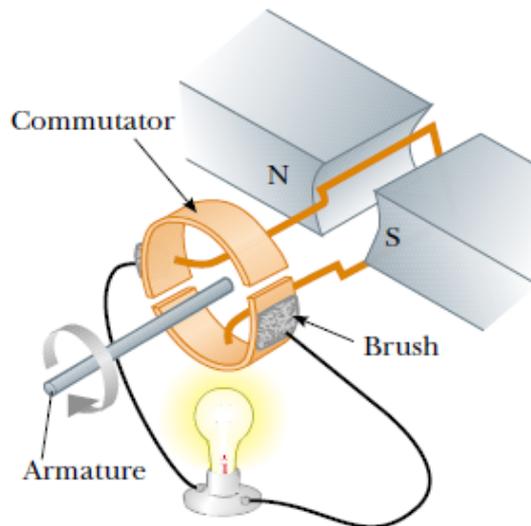
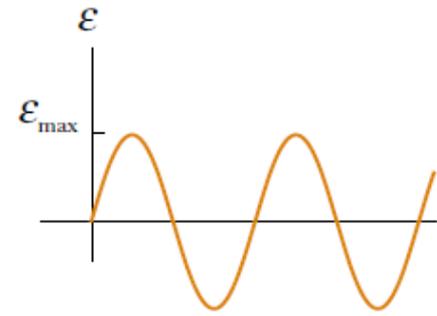
Guitarra eléctrica



Generadores de corriente eléctrica



Corriente alterna



Corriente continua



COSMOLOGY MARCHES ON



