



First lecture

The Faraday effect

Msc. Eman Ahmed

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Department of medical physics

Al-Mustaqbal University-College

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The Faraday effect

Faraday's first law of electromagnetic induction states, "Whenever a conductor is placed in a varying magnetic field, an electromotive force is induced. Likewise, if the conductor circuit is closed, a current is induced, which is called induced current."

What does Faraday's Second Law of Electromagnetic Induction state?

Faraday's first second law of electromagnetic induction states that the induced emf in a coil is equal to the rate of change of flux linkage.

Why are Faraday's laws important?

Faraday's law describes how changing magnetic fields can cause current to flow in wires.

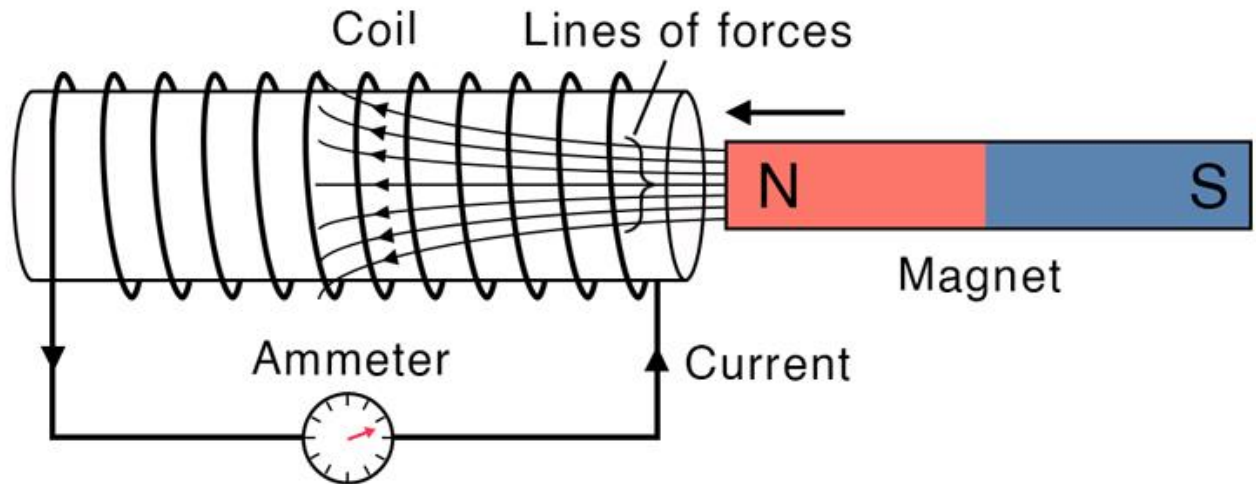
What does the negative sign indicate in Faraday's law of electromagnetic induction formula?

The negative sign indicates that the direction of the induced emf and change in the direction of magnetic fields have opposite signs.

What is meant by EMF?

Electromotive force or emf is a measurement of the energy that causes current to flow through a circuit.

Faraday's Law Equation



$$\varepsilon = -N \frac{d\phi}{dt}$$

ε : Electromotive force (EMF)

N : Number of turns of the coil

$\frac{d\phi}{dt}$: Instantaneous change of magnetic flux with time

