

Answer r on Question #63663, Physics / Electromagnetism

Question:

What is difference between emf (electro motive force) and potential difference?

Answer:

The potential difference is numerically equal to the work, which make the electrostatic force field when moving the unit positive charge from one point to another field.

$$\varphi_1 - \varphi_2 = \frac{W}{q}$$

Electromotive force is the physical quantity that is numerically equal to the work of outside forces make when moving a single positive charge.

$$\varepsilon = \frac{W_{\text{outside forces}}}{q}$$

Electromotive force is the energy characteristics of the current source. EMF is converting other forms of energy into electrical (eg. chemical energy stored in a battery).

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