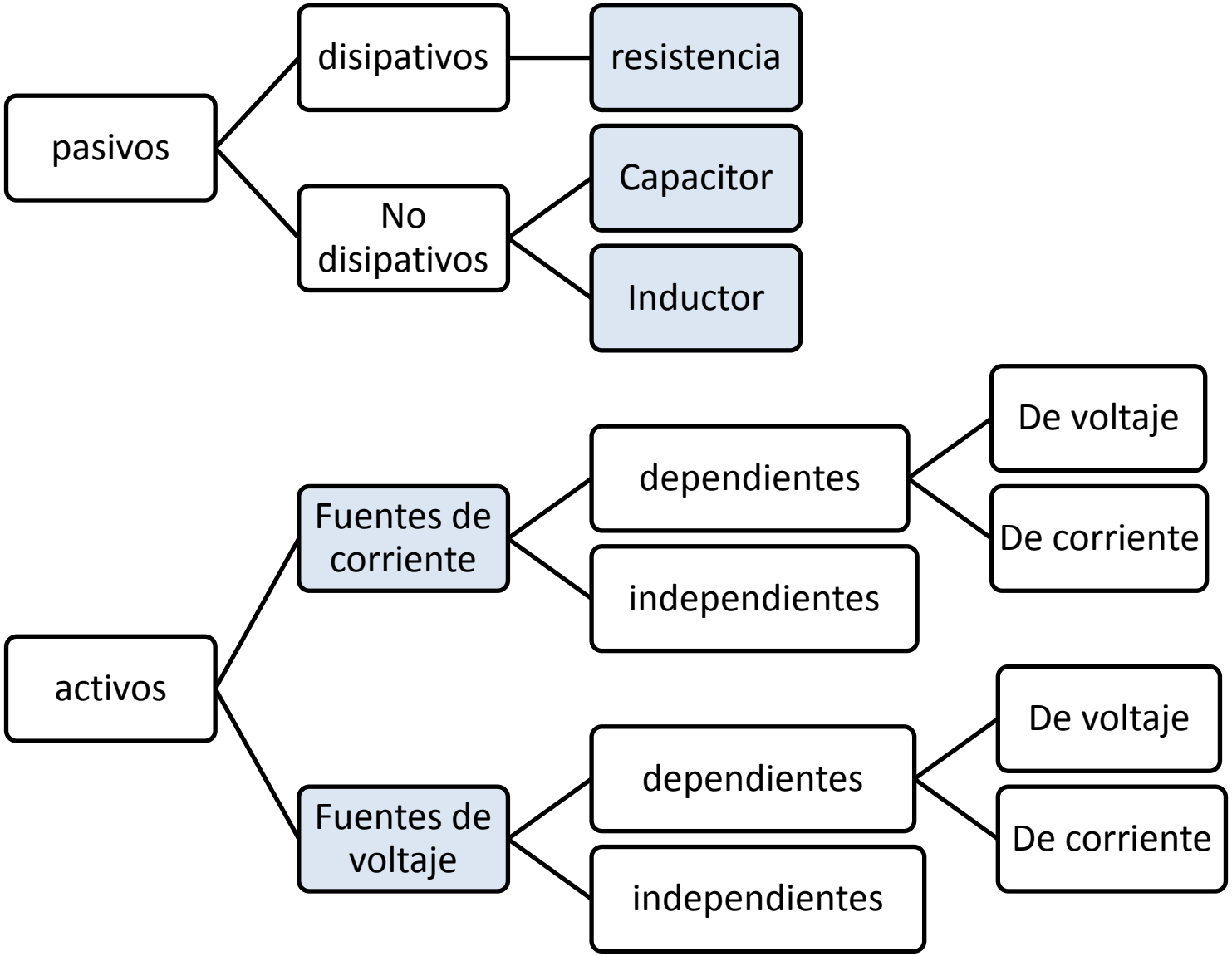
INGENIERIA
UNIVERSIDAD DE LOS ANDES
MÉRIDA VENEZUELA

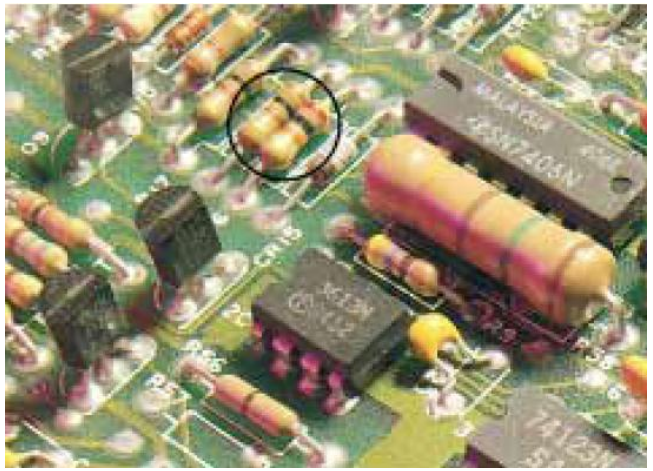
INGENIERIA ELECTRICA
ULA

Elementos del Circuito eléctrico (1/2)

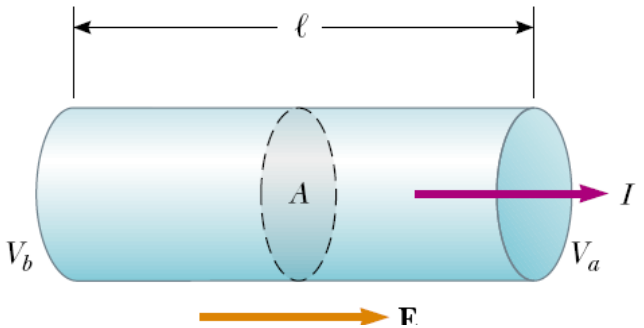
Prof. Gerardo Ceballos

Elementos eléctricos





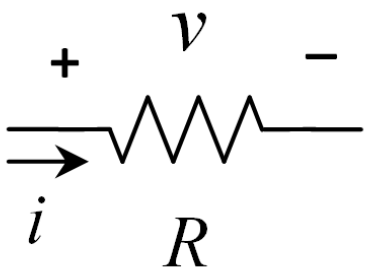
Resistencia



Georg Simon Ohm
German physicist (1789–1854)

$$V = V_b - V_a$$

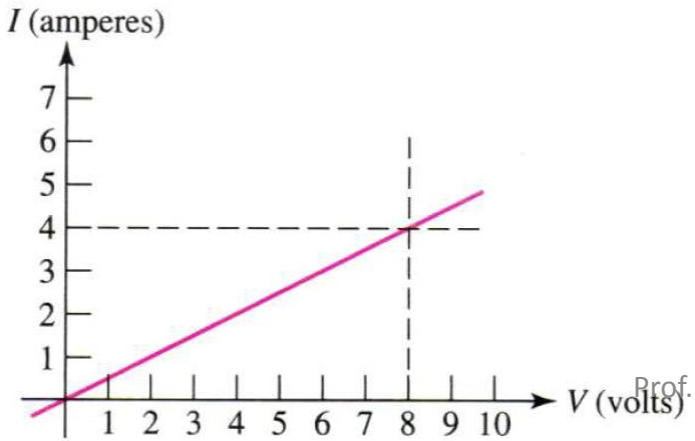
$$R = \rho \frac{\ell}{A} \quad [\Omega] \qquad G = \frac{1}{R} \quad [S]$$



Ley de Ohm

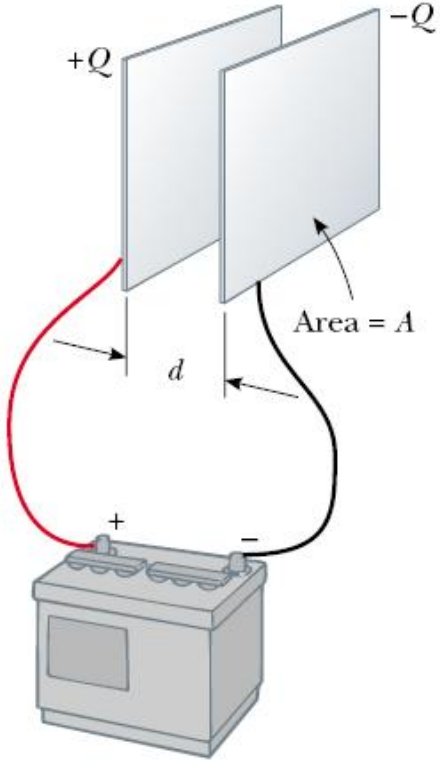
$$v = R.i$$

$$1\ \Omega \equiv \frac{1\ \text{V}}{1\ \text{A}} \qquad \rho = \frac{1}{\sigma}$$



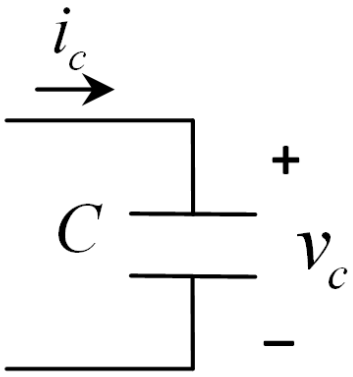
Capacitancia

$$C = \frac{\epsilon A}{d}$$



Coltán, El Congo

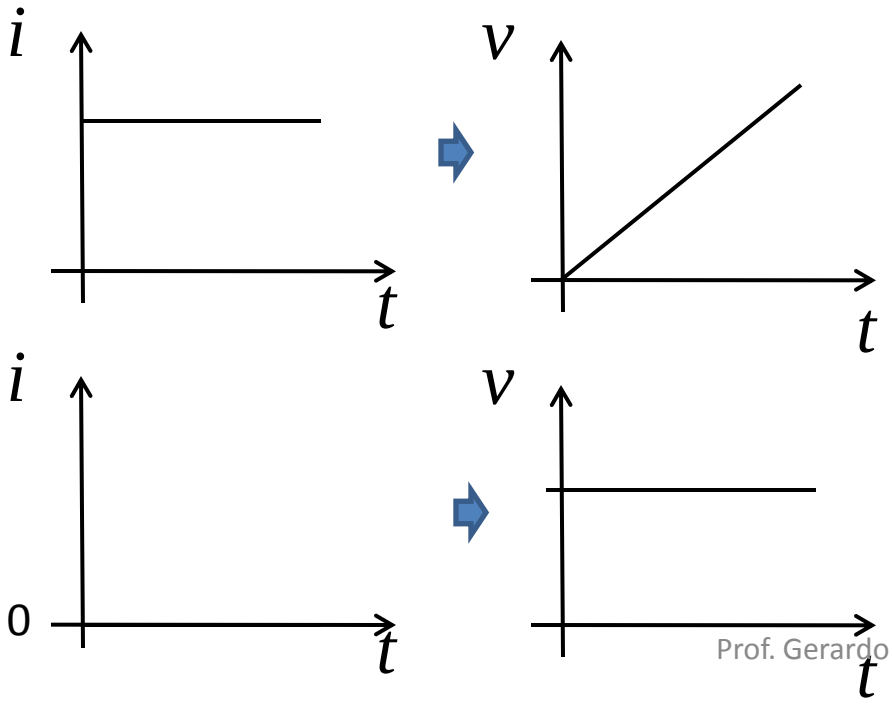
Capacitor



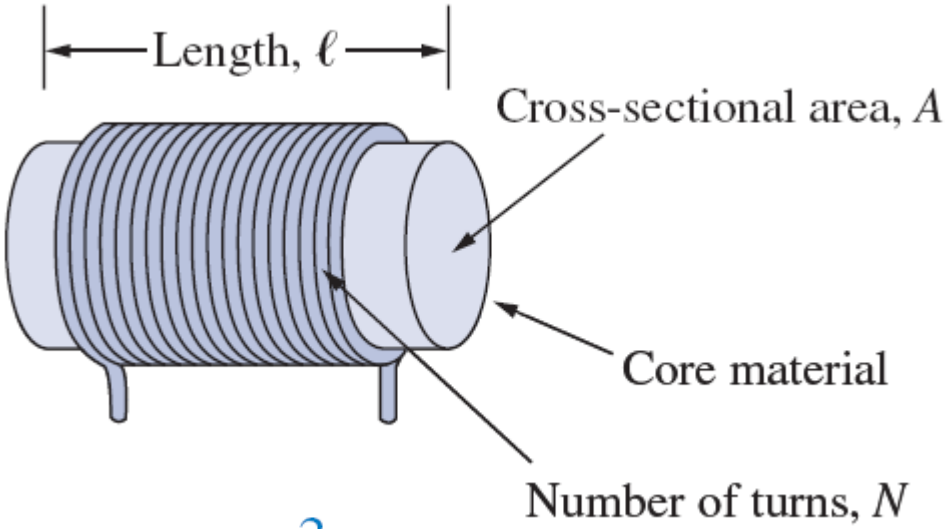
$$C = \frac{q}{v}$$

$$i_c = C\frac{dv_c}{dt}$$

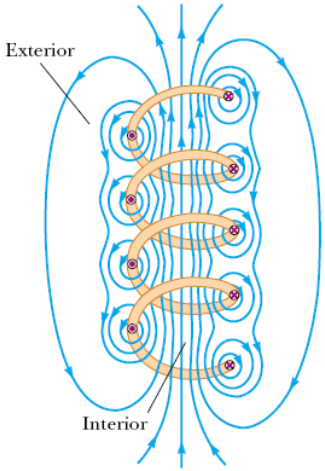
$$v_c(t) = v_c(t_0) + \frac{1}{C}\int_{t_0}^{t} i_c(\tau)d\tau$$



Inductor



$$L = \frac{N^2 \mu A}{\ell}$$



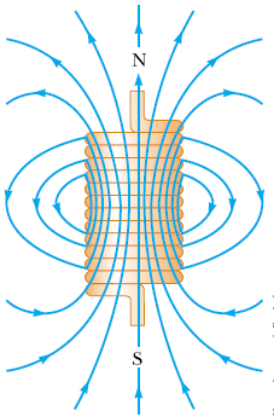
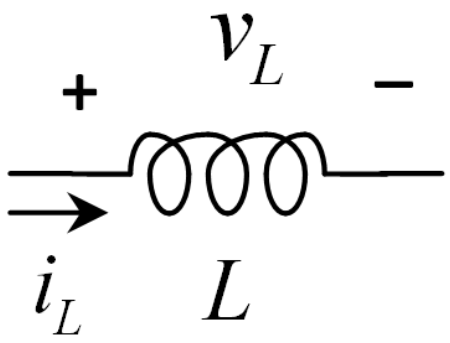
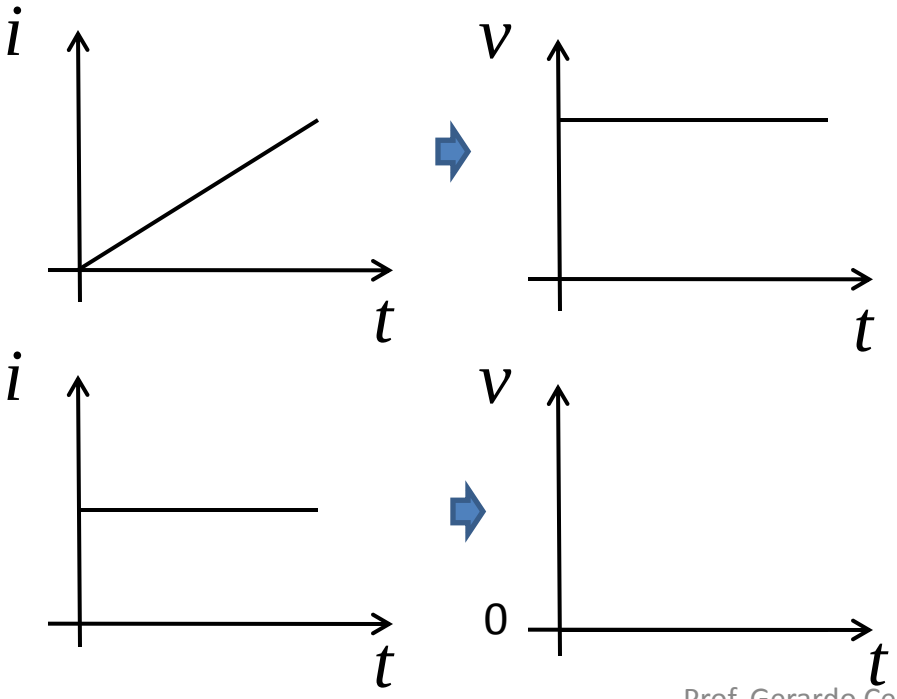


Figure 30.17 The magnetic field lines for a loosely wound solenoid.

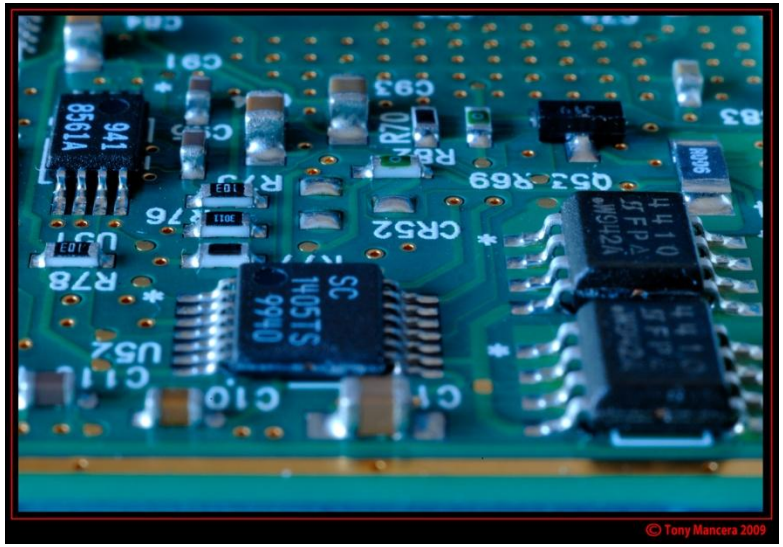
Inductor



$$v_L = L\frac{di_L}{dt} \qquad i_L(t) = i_L(t_0) + \frac{1}{L}\int_{t_0}^{t} v_L(\tau)\,d\tau$$



Conductor



Bibliografía

- Ilustraciones de:
  - Serway, Physics, 6ta ed.
  - Alexander, Sadiku, Fundamentals of Electric Circuits, 5th ed.