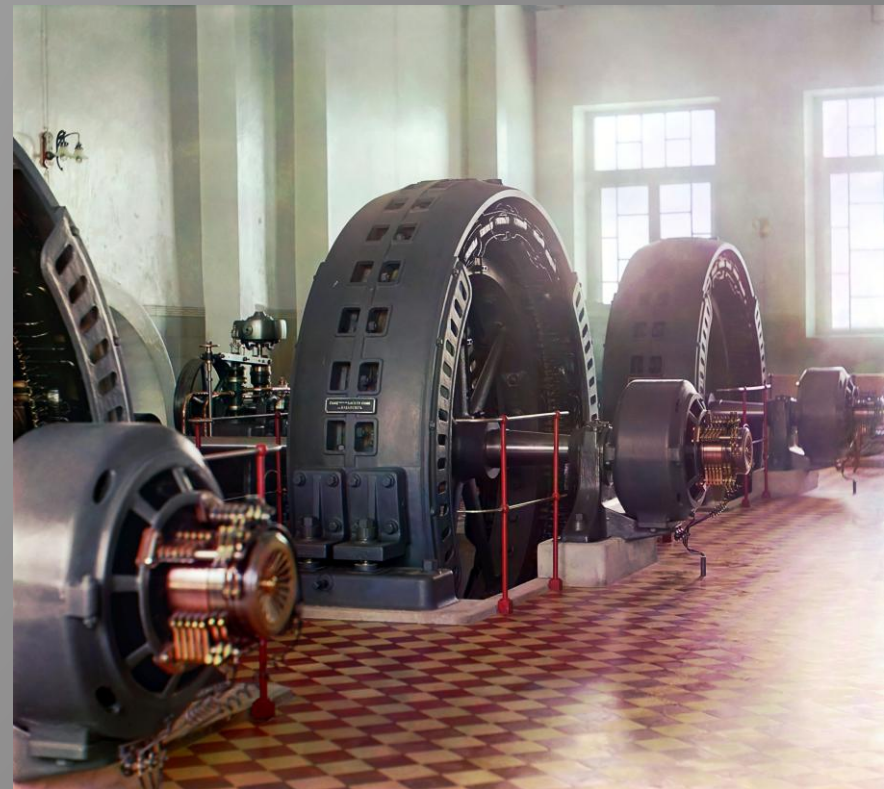


AUTOMATISMOS 2

Repaso: Circuitos de Corriente Alterna

U.Na.M. – Facultad de Ingeniería – Ingeniería Electrónica – Año 2026

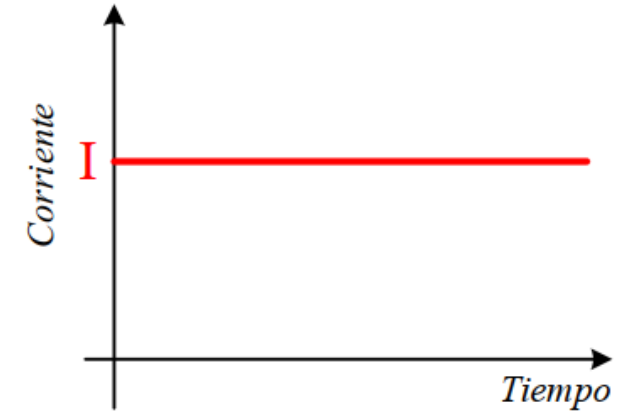
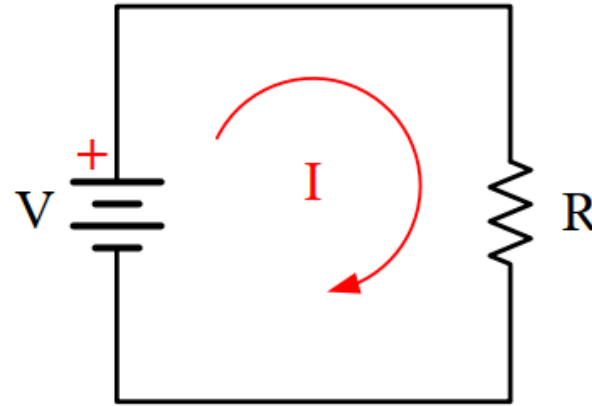


- ❖ **Corriente Continua vs Corriente Alterna**
- ❖ **Representación Matemática en CA**
- ❖ **Efectos de R, L y C en los circuitos de CA**

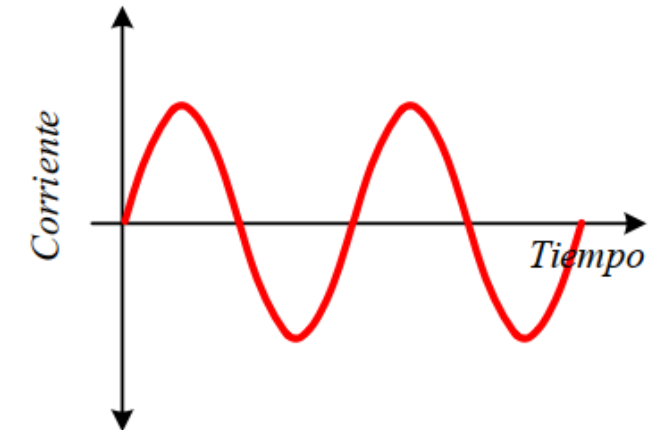
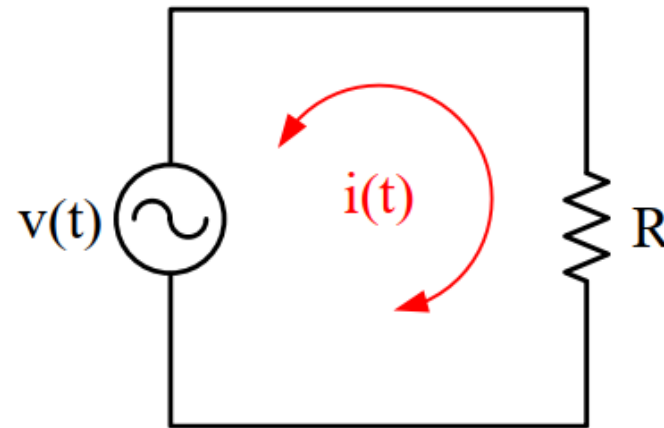
Corriente Continua (CC) Vs Corriente Alterna (CA)

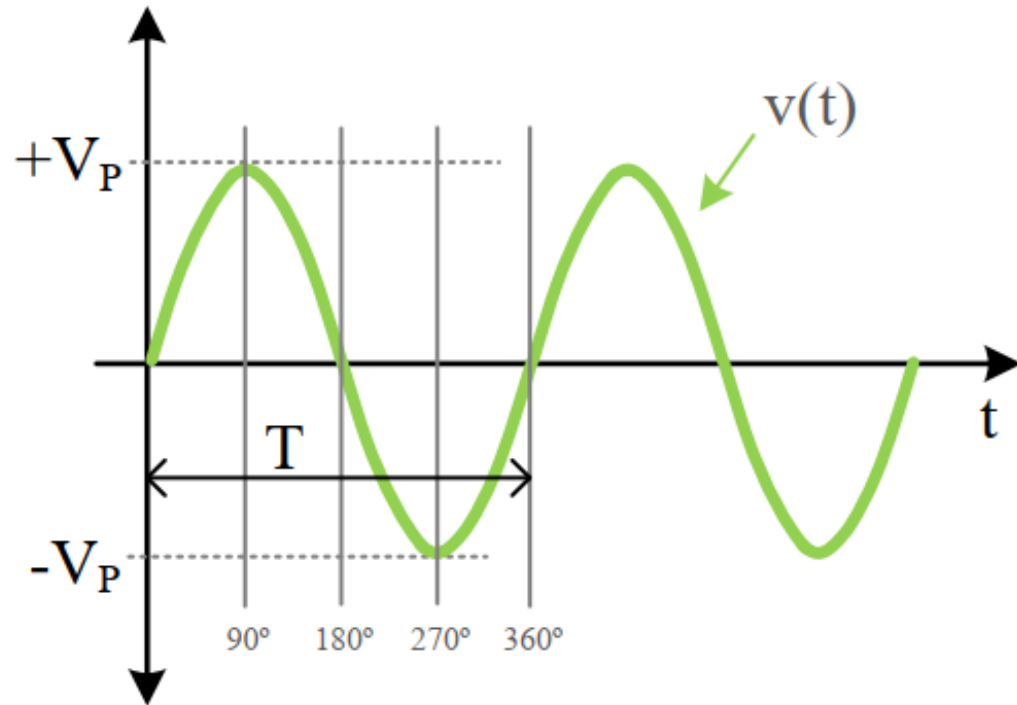


Corriente Continua → **UNIDIRECCIONAL**



Corriente Alterna → **BIDIRECCIONAL**





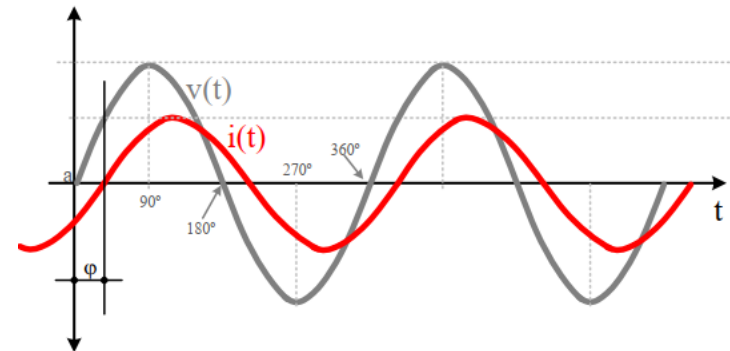
Voltaje Sinusoidal

$$v(t) = V_P \cdot \text{sen}(\omega \cdot t)$$

$$V_P = \sqrt{2} \cdot V_{\text{ef}} \quad \omega = 2 \cdot \pi \cdot f$$

Corriente Sinusoidal

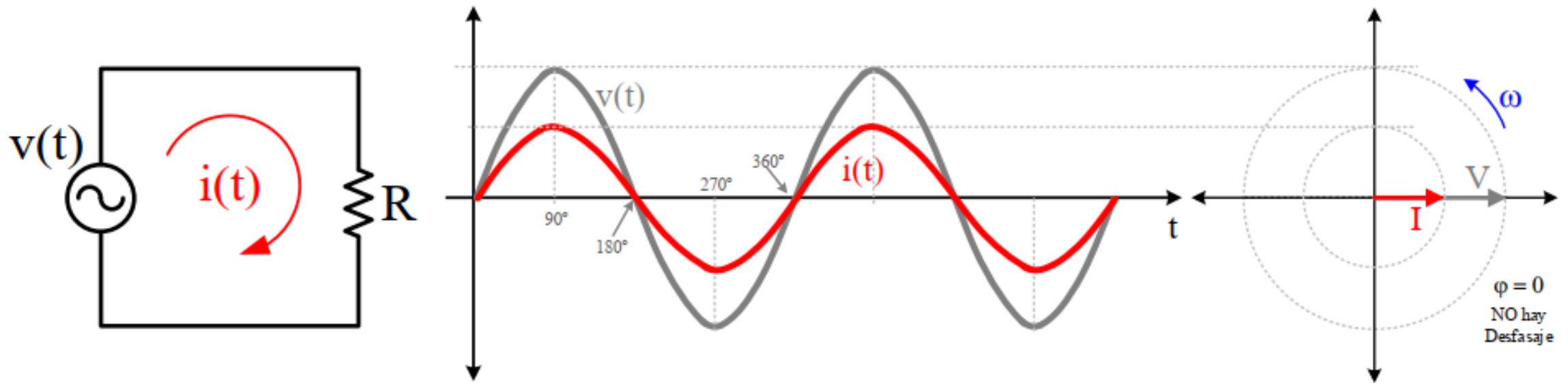
$$i(t) = I_P \cdot \text{sen}(\omega \cdot t \pm \varphi)$$



Efectos de R, L y C en los circuitos de CA



Circuito Resistivo Puro



Voltaje y Corriente en fase ($\phi = 0$)

$$v(t) = V_p \cdot \text{sen}(\omega \cdot t)$$

$$I = V / R$$

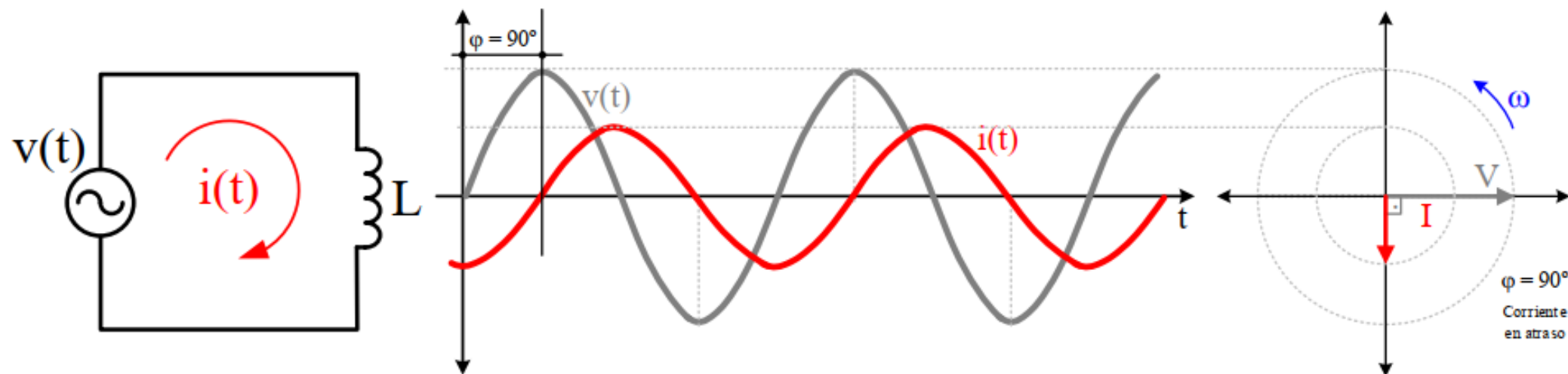
$$i(t) = I_p \cdot \text{sen}(\omega \cdot t)$$

$$P_R = I^2 \cdot R$$

Efectos de R, L y C en los circuitos de CA



Circuito Inductivo Puro



Corriente atrasa al Voltaje 90° ($\phi = +90$)

$$v(t) = V_p \cdot \text{sen}(\omega \cdot t)$$

$$i(t) = I_p \cdot \text{sen}(\omega \cdot t - 90)$$

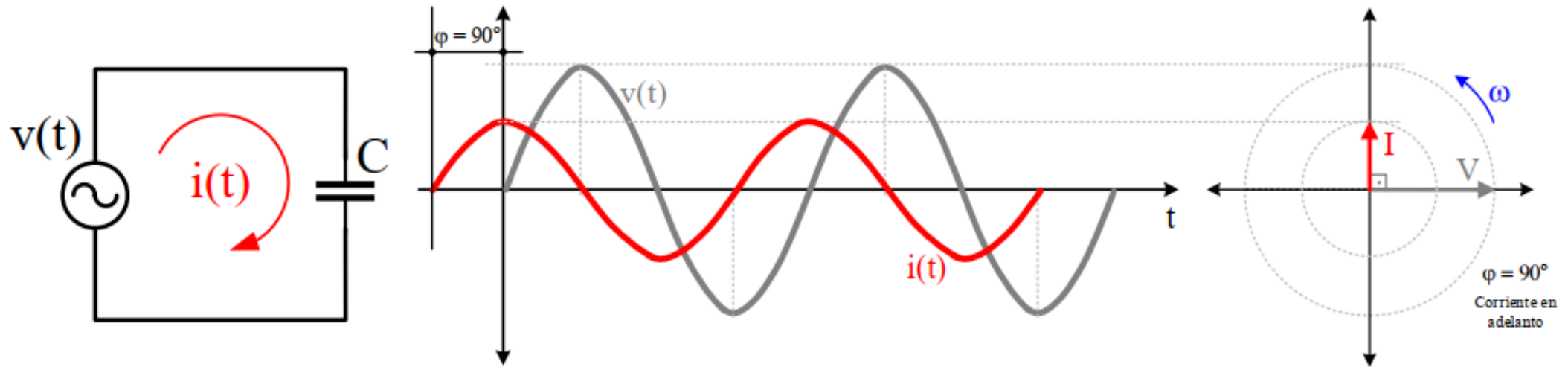
$$I = V / X_L \quad ; \quad X_L = 2 \cdot \pi \cdot f \cdot L \quad [\Omega]$$

$$Q_L = I^2 \cdot X_L \quad [\text{VAr}]$$

Efectos de R, L y C en los circuitos de CA



Circuito Capacitivo Puro



Corriente adelanta al Voltaje 90° ($\phi = -90$)

$$v(t) = V_p \cdot \text{sen}(\omega \cdot t)$$

$$i(t) = I_p \cdot \text{sen}(\omega \cdot t + 90)$$

$$I = V / X_C \quad ; \quad X_C = 1 / (2 \cdot \pi \cdot f \cdot C) \quad [\Omega]$$

$$Q_C = I^2 \cdot X_C \quad [\text{VAr}]$$