

# COLISIONES



**Choques Elástico y  
Plástico de dos  
partículas en una  
dimensión**

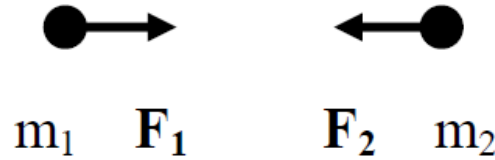
# Impulso lineal

$$\mathbf{p} = m \times \mathbf{v}$$

$$\mathbf{F} = m \times \mathbf{a}$$

$$\mathbf{F} = \frac{d\mathbf{p}}{dt}$$

# Sistema de 2 partículas interactuantes

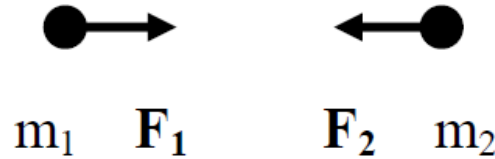


$$\mathbf{F}_1 + \mathbf{F}_2 = 0$$

$$\frac{d\mathbf{p}_1}{dt} + \frac{d\mathbf{p}_2}{dt} = 0$$

$$\frac{d(\mathbf{p}_1 + \mathbf{p}_2)}{dt} = 0$$

# Sistema de 2 partículas interactuantes



$$\frac{d(\mathbf{p}_1 + \mathbf{p}_2)}{dt} = 0$$

$$\mathbf{P} = \mathbf{p}_1 + \mathbf{p}_2 = \text{constante}$$

# Sistema de 2 partículas interactuantes

$$\mathbf{P} = \mathbf{p}_1 + \mathbf{p}_2 = \text{constante}$$

$$\mathbf{P} = \mathbf{P} \text{ inicial} = \mathbf{P} \text{ final}$$

$$\mathbf{P} = \mathbf{p}_{1i} + \mathbf{p}_{2i} = \mathbf{p}_{1f} + \mathbf{p}_{2f}$$

# Choque Elástico

$$\mathbf{P} = \mathbf{p}_{1i} + \mathbf{p}_{2i} = \mathbf{p}_{1f} + \mathbf{p}_{2f}$$

$$m_1 \mathbf{v}_{1i} + m_2 \mathbf{v}_{2i} = m_1 \mathbf{v}_{1f} + m_2 \mathbf{v}_{2f}$$

$$Ec_{1i} + Ec_{2i} = Ec_{1f} + Ec_{2f}$$

# Choque Plástico

$$\mathbf{P} = \mathbf{p}_{1i} + \mathbf{p}_{2i} = \mathbf{p}_{1f} + \mathbf{p}_{2f}$$

$$m_1 \mathbf{v}_{1i} + m_2 \mathbf{v}_{2i} = (m_1 + m_2) \mathbf{v}_f$$

*La Energía cinética no se conserva*