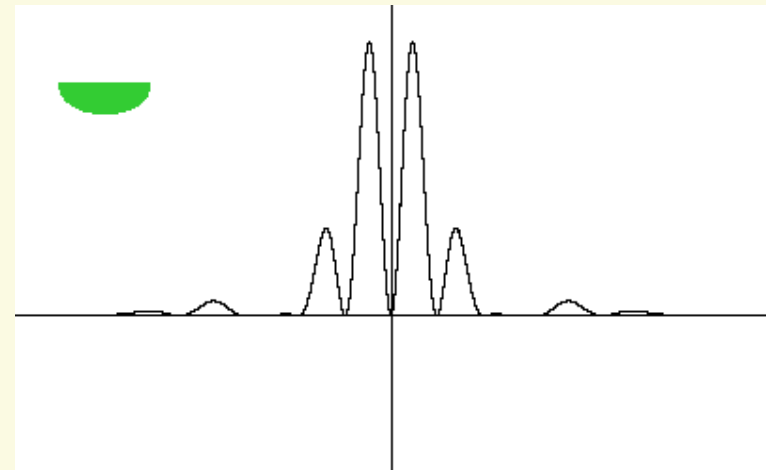
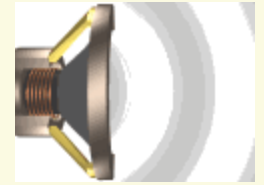


Aula 17: Difraccção

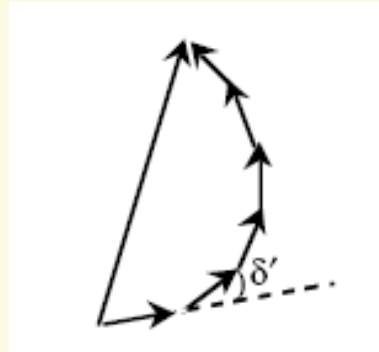
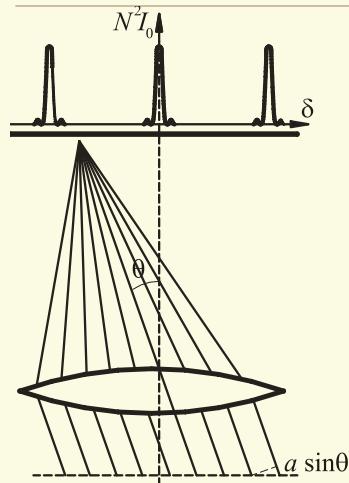
1. Rede de interferência
2. Difraccção por uma fenda
3. Pacote de ondas
4. Velocidade de grupo



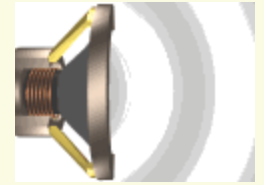
Padrão de interferência de N fendas: animação



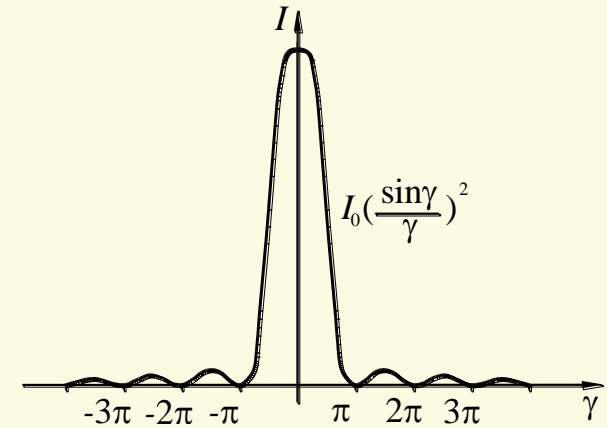
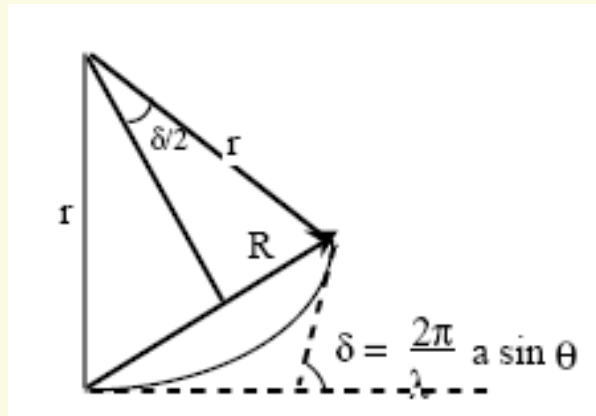
1. Rede de interferência



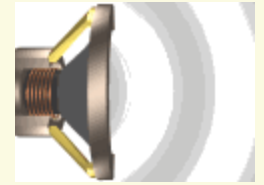
Padrão de difracção numa fenda: animação



2. Difracção por uma fenda



Batidas (música): animação

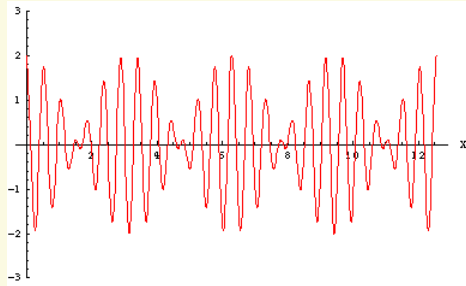


3. Pacote de ondas

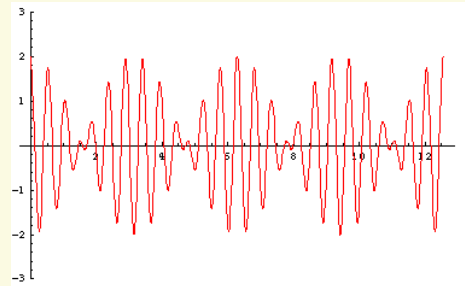
$$u = \frac{\omega}{k} \Psi = \text{sen}(\mathbf{kx} - \omega t)$$

$$v_g = \frac{d\omega}{dk}$$

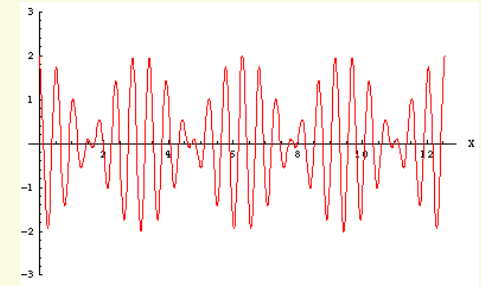
$$\text{sen}((k+dk)x - (\omega+d\omega)t) + \text{sen}((k-dk)x - (\omega-d\omega)t) = 2\text{cos}((dk)x - (d\omega)t) \text{sen}(kx - \omega t)$$



$k = 12, \omega = 2, dk = 1, d\omega = 0$

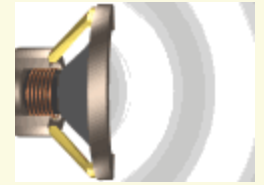


$k = 12, \omega = 0, dk = 1, d\omega = 2$



$k = 12, \omega = 7, dk = 1, d\omega = 1$

Velocidade de grupo: animação



4. Velocidade de grupo

Dispersão de ondas: $\omega = \omega(k)$

$$v_g = v - \lambda \frac{dv}{d\lambda}$$

