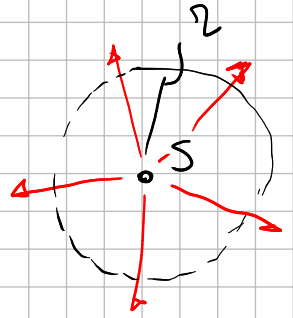
INTENSITÀ

$$I_m \propto \frac{1}{T}\int_0^T E^2(r,t)\,dt$$ INTENSITÀ MEDIA



$$\mathcal{P}_m = I_m(r)\,4\pi r^2 \propto E_m^2(r)\,4\pi r^2 = \text{cost} \Rightarrow E_m^2(r) \propto \frac{1}{r^2}$$

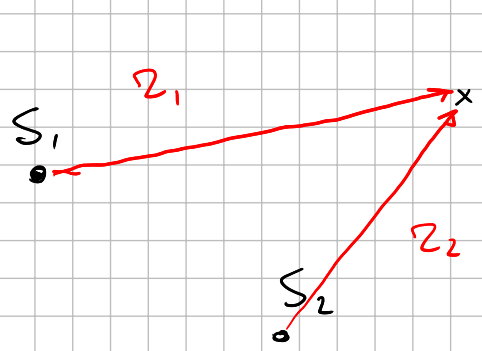
$\mathcal{P}_m$ → POTENZA (DELLA LAMPADINA)

$$\Rightarrow \boxed{E_m(r) \propto \frac{1}{r}}$$

$$E(r,t) = \frac{E_0}{r}\cos(kr - \omega t + \phi)$$

r → DISTANZA DALLA SORGENTE

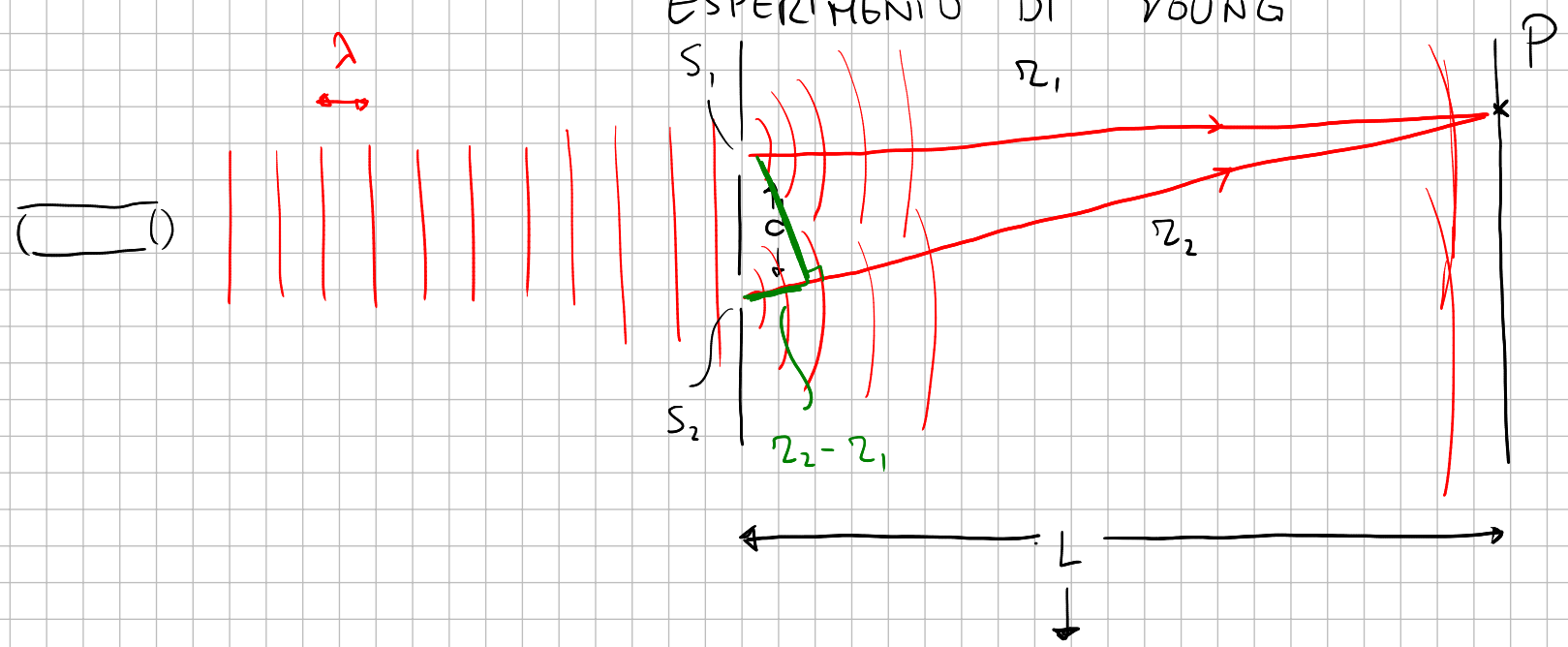
$(kr - \omega t + \phi)$ → FASE DELL'ONDA



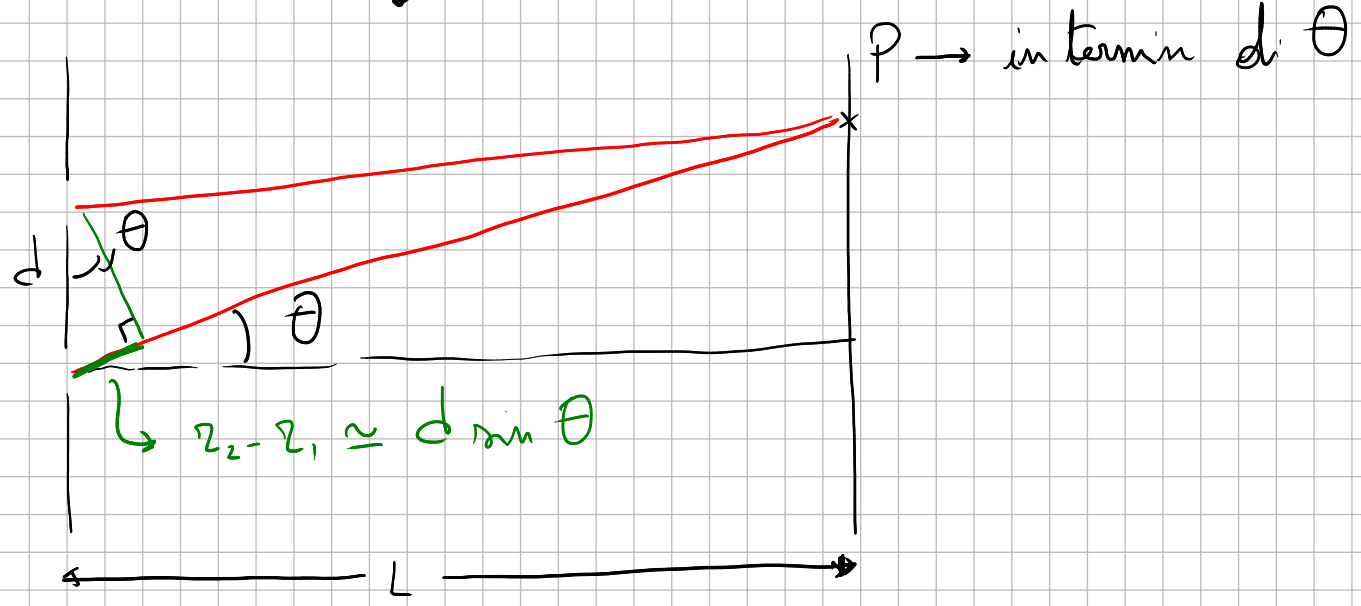
INTERFERENZA

$$\vec{E}(P,t) = \vec{E}_1 + \vec{E}_2 \Rightarrow I_m \propto (\vec{E}_1+\vec{E}_2)^2 = E_1^2+E_2^2+2\vec{E}_1\cdot\vec{E}_2$$

ESPERIMENTO DI YOUNG



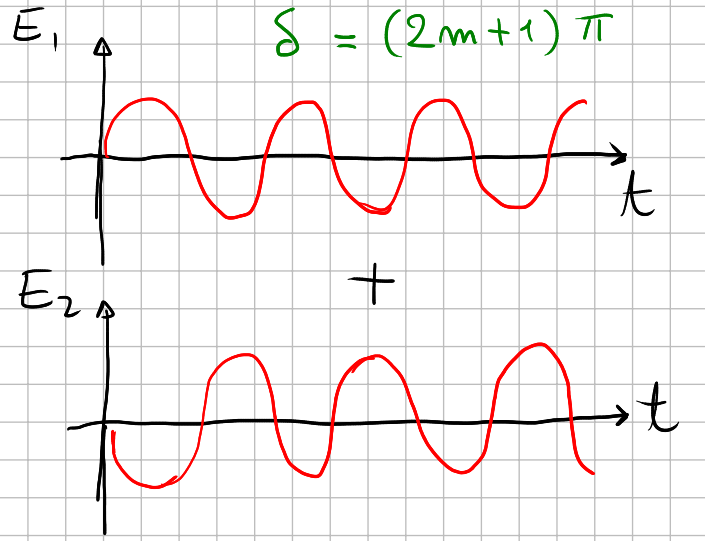
$L \gg d$

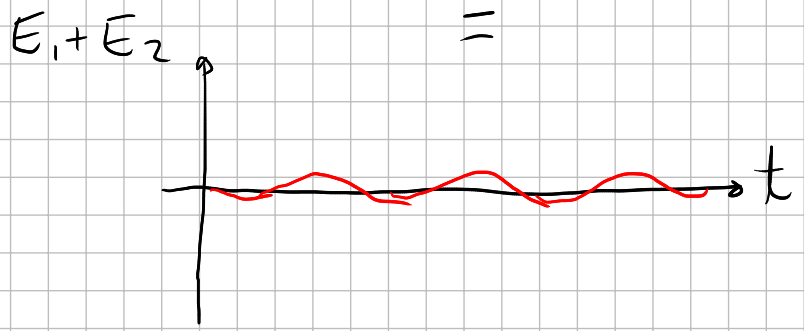


$$E_1 = \frac{E_0}{r_1}\cos(kr_1 - \omega t + \phi) \quad , E_2 = \frac{E_0}{r_2}\cos(kr_2 - \omega t + \phi)$$

$$\delta = kr_2 - \cancel{\omega t} + \cancel{\phi} - kr_1 + \cancel{\omega t} - \cancel{\phi} = k(r_2 - r_1) = kd\sin\theta = \frac{2\pi d \sin\theta}{\lambda}$$

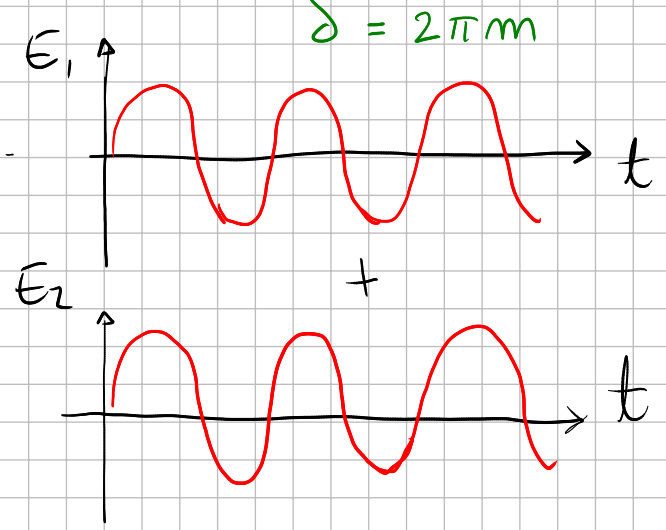
$\delta = (2m+1)\pi$





SFASAMENTO COMPLETO

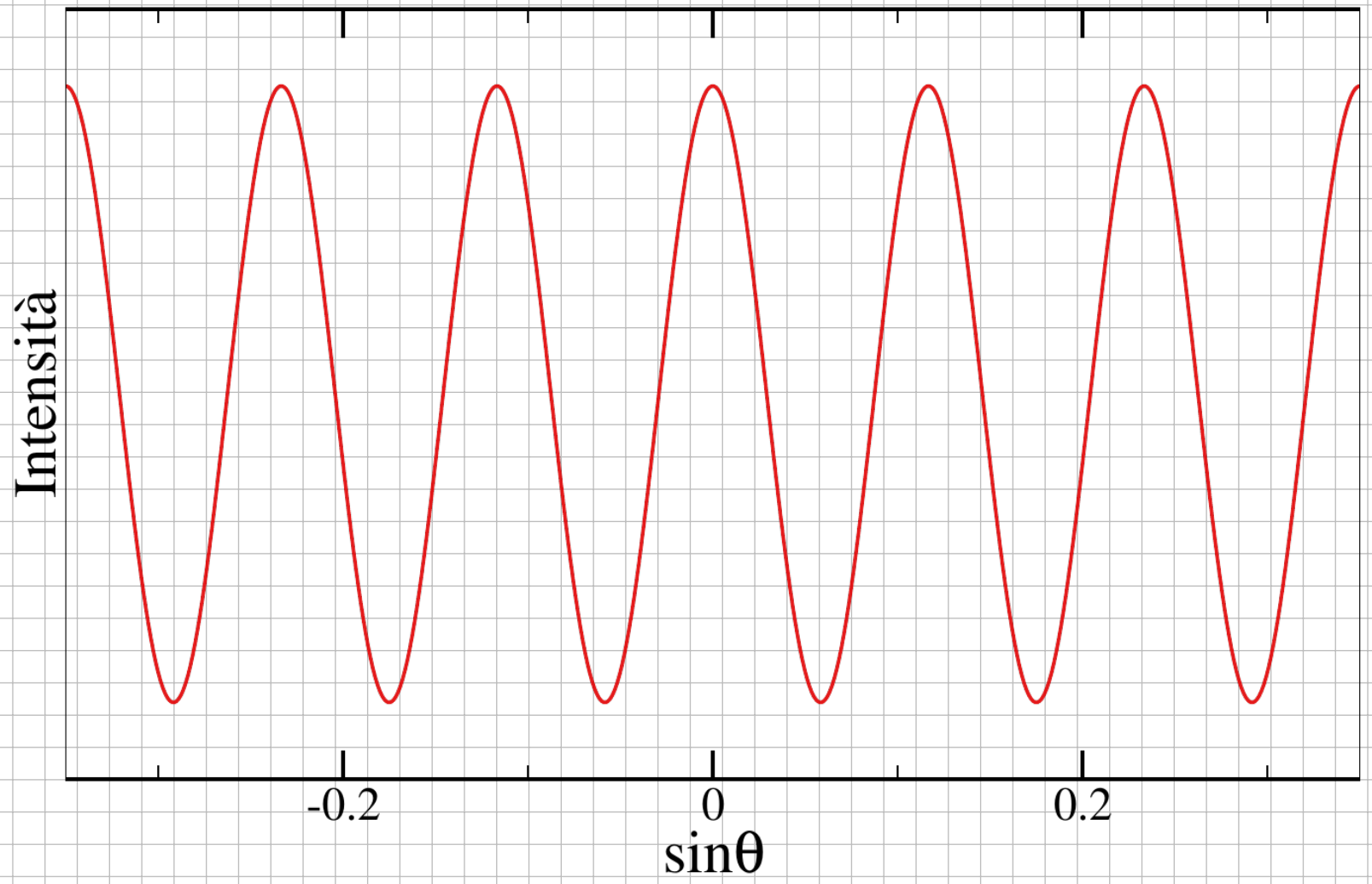
$\delta = 2\pi m$



IN FASE

m INTERO QUALSIASI

$$I(\theta) = 4 I_0 \cos^2\left(\frac{\pi d \sin\theta}{\lambda}\right)$$ INTENSITÀ



PER $\frac{d}{\lambda} = 8.6$

DISTRUTTIVA

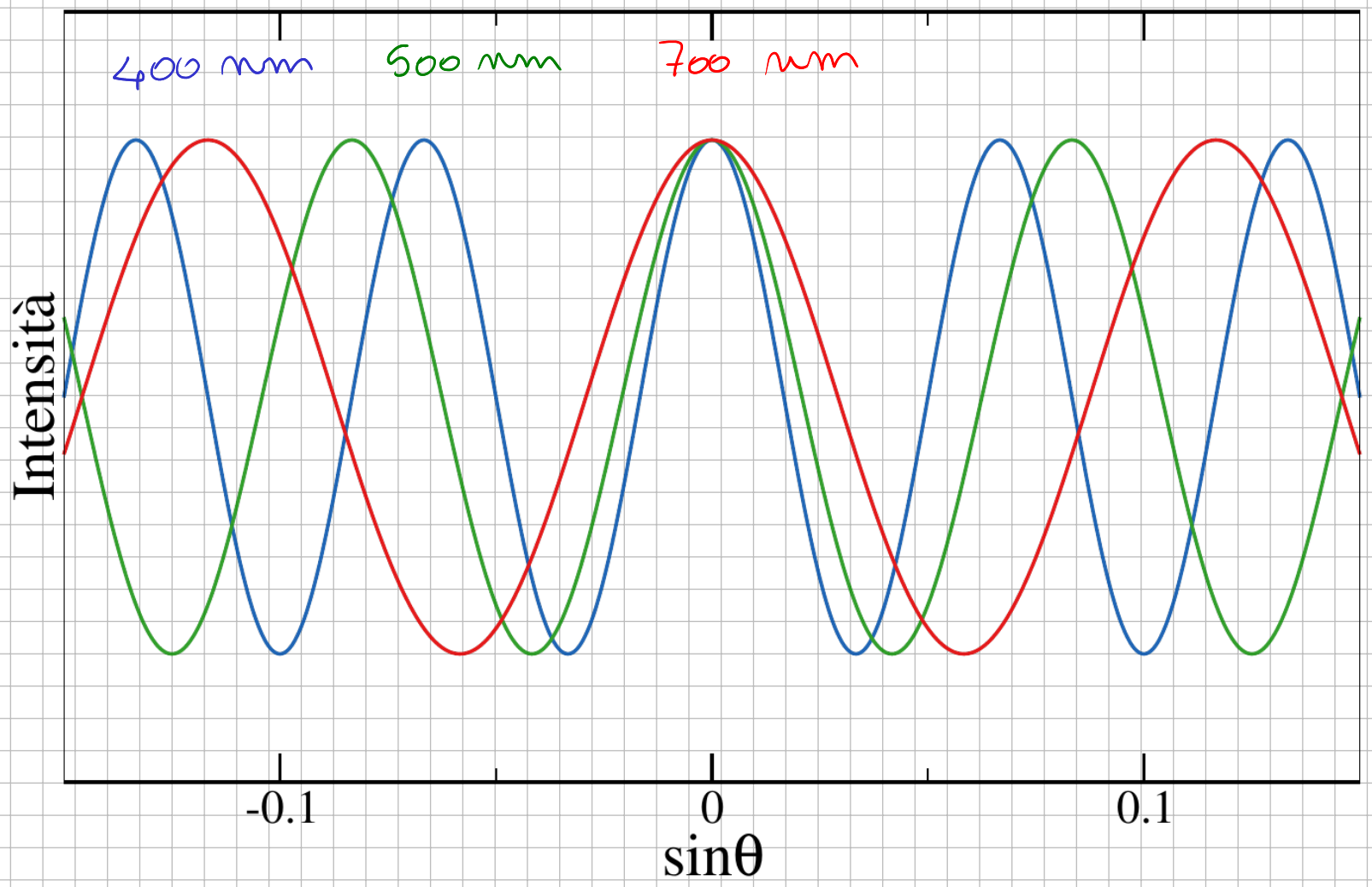
$$d \sin\theta = \left(m + \frac{1}{2}\right)\lambda$$

COSTRUTTIVA

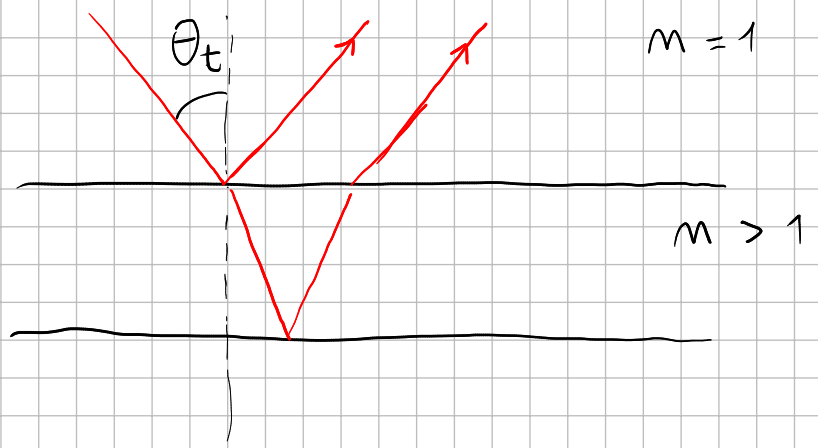
$$d \sin\theta = m\lambda$$

ESEMPIO

$d = 6\,\mu m$



INTERFERENZA DA LAMINE SOTTILI



$$\delta = 2k n d \cos\theta_t - \boxed{\pi}$$

↳ EQ. DI MAXWELL

$\delta = 2m\pi \rightarrow$ COSTRUTTIVA

$\delta = (2m+1)\pi \rightarrow$ DISTRUTTIVA