

## I8FRYOLOS

### Fresnel's mirror, Young's double slit, and Lloyd's mirror,

**1. Fresnel's Mirror**       $Y, c, f, b,$  and  $\lambda$  in mm,  $\beta$  in Radc is about  $b$  for calculation of  $X = c + f$       All length in mm

Con := 1       $\lambda$  defined above  
graph

$b := 1000$      $f := 5000$      $c := b \cdot \cos(\beta)$      $\beta \equiv .0002$        $Y := -10, -9.99..10$

$$IF(Y) := \text{Con} \cdot \cos\left(\pi \cdot \frac{Y \cdot 2 \cdot \frac{b}{c+f} \cdot \sin(\beta)}{\lambda}\right)^2$$

### 2. Young's Experiment

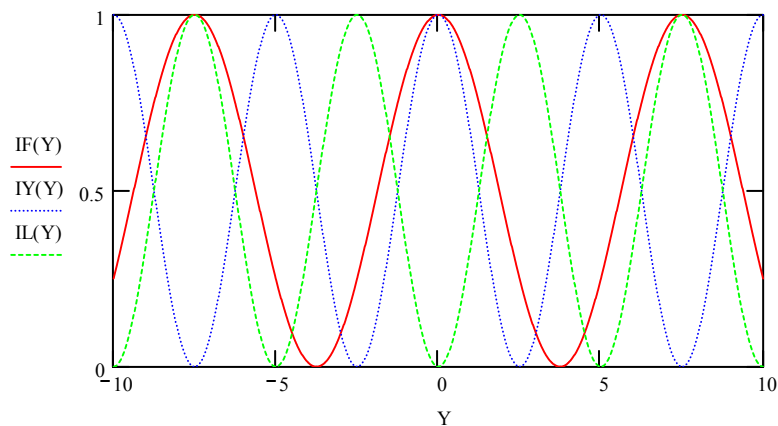
$a \equiv .4$        $X \equiv 4000$

$$IY(Y) := \text{Con} \cdot \cos\left(\pi \cdot \frac{Y \cdot a}{\lambda \cdot X}\right)^2$$

$\lambda \equiv .0005$

### 3. Lloyd's Mirror (same as Young, phase $\pi$ is added)

$$IL(Y) := \text{Con} \cdot \cos\left(\pi \cdot \frac{Y \cdot a}{\lambda \cdot X} + \frac{\pi}{2}\right)^2$$



We see that at  $Y=0$  Young has a maximum, Lloyd a minimum

For Young and Lloyd: The position of maxima are changed by changing  $d$  and  $\lambda$ ,  $X$  is considered fixed.

For Fresnel,  $a, b$  are fixed, position of fringes changes with  $\beta$  and  $\lambda$ .