

## D19FESLITS

### Fresnel's Integrals for the calculation of the diffraction on a slit.

All units in mm, globally definition of parameters.

$$Y := 0, .1 .. 10$$

We call  $\eta_1$   $q(Y) := \left(Y + \frac{d}{2}\right) \cdot \sqrt{\frac{2}{\lambda \cdot X}}$

We call  $\eta_2$   $p(Y) := \left(Y - \frac{d}{2}\right) \cdot \sqrt{\frac{2}{\lambda \cdot X}}$

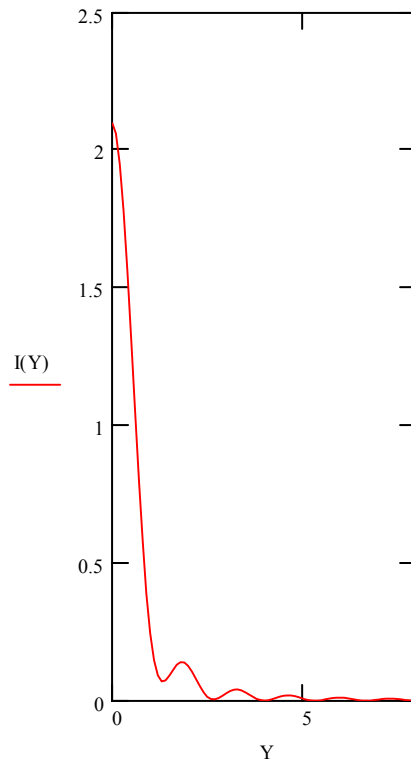
$$Cq(Y) := \int_0^{q(Y)} \cos\left(\frac{\pi}{2} \cdot \eta^2\right) d\eta$$

$$Cp(Y) := \int_0^{p(Y)} \cos\left(\frac{\pi}{2} \cdot \eta^2\right) d\eta$$

$$Sq(Y) := \int_0^{q(Y)} \sin\left(\frac{\pi}{2} \cdot \eta^2\right) d\eta$$

$$Sp(Y) := \int_0^{p(Y)} \sin\left(\frac{\pi}{2} \cdot \eta^2\right) d\eta$$

$$I(Y) := (Cp(Y) - Cq(Y))^2 + (Sp(Y) - Sq(Y))^2$$



$$\sqrt{\frac{2}{\lambda \cdot X}} = 1$$

$$TOL \equiv .1$$

$$\lambda \equiv 5 \cdot 10^{-4} \quad X \equiv 4000$$

$$d \equiv 1.5$$