C1COH2S

Intensity of two sources separated by s. Superposition of two double slit pattern.

The slits have width d and separation a, one pattern is untilted with $\psi = 0$, the other tilted by $\psi = s/Z$, distance from sources to slit is Z.
Distance from slit to screen is X, coordinate on screen is Y, $Y/X = \theta$.
By enlarging ψ, starting from 0, one finds the first " fringe disappearence". If ψ is further enlarged, the fringes reappear, but now the minima are not zero.
Another point of view: Fringes may disapear for constant s and changing a.

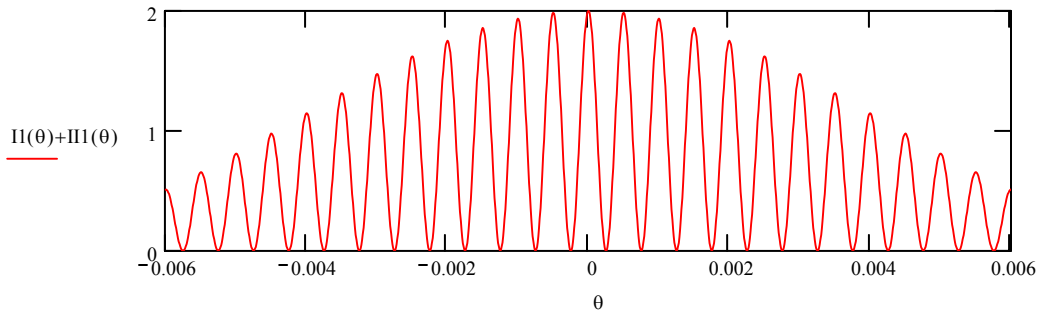
$\theta \equiv -.006, -.00599 .. .006$ $\quad d \equiv .05$ $\quad a := 1$ $\quad Z \equiv 9000$ $\quad \lambda := .0005$

$$I1(\theta) := \frac{\sin\left[(\pi)\cdot\frac{d}{\lambda}\cdot\sin(\theta)\right]^2}{\left[\pi\cdot\frac{d}{\lambda}\cdot(\sin(\theta))\right]^2}\cdot\cos\left[\pi\cdot\frac{a}{\lambda}\cdot((\sin(\theta)))\right]^2$$

$$II1(\theta) := \frac{\sin\left[\pi\cdot\frac{d}{\lambda}\cdot((\sin(\theta)))\right]^2}{\left[\pi\cdot\frac{d}{\lambda}\cdot((\sin(\theta)))\right]^2}\cdot\cos\left[\pi\cdot\frac{a}{\lambda}\cdot((\sin(\theta)+\sin(\psi 1)))\right]^2$$

$s1 \equiv 0$

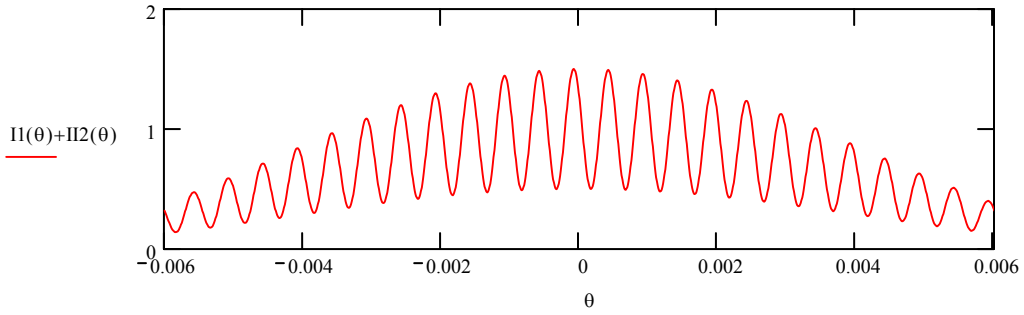
$\psi 1 \equiv \frac{s1}{Z}$



$$\psi 2 := \frac{s2}{Z}$$

$$II2(\theta) := \frac{\sin\left[\pi \cdot \frac{d}{\lambda} \cdot ((\sin(\theta)))\right]^2}{\left[\pi \cdot \frac{d}{\lambda} \cdot ((\sin(\theta)))\right]^2} \cdot \cos\left[\pi \cdot \frac{a}{\lambda} \cdot ((\sin(\theta) + \sin(\psi 2)))\right]^2$$

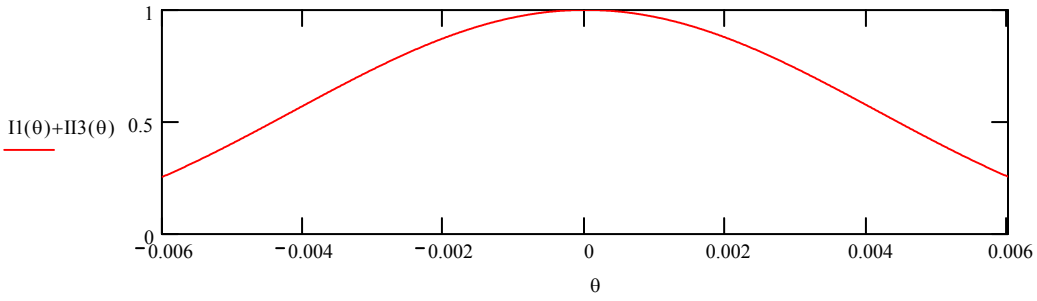
$s2 \equiv 1.5$



$$\psi 3 := \frac{s3}{Z}$$

$$II3(\theta) := \frac{\sin\left[\pi \cdot \frac{d}{\lambda} \cdot ((\sin(\theta)))\right]^2}{\left[\pi \cdot \frac{d}{\lambda} \cdot ((\sin(\theta)))\right]^2} \cdot \cos\left[\pi \cdot \frac{a}{\lambda} \cdot ((\sin(\theta) + \sin(\psi 3)))\right]^2$$

$s3 \equiv 2.25$



$$II4(\theta) := \frac{\sin\left[\pi \cdot \frac{d}{\lambda} \cdot ((\sin(\theta)))\right]^2}{\left[\pi \cdot \frac{d}{\lambda} \cdot ((\sin(\theta)))\right]^2} \cdot \cos\left[\pi \cdot \frac{a}{\lambda} \cdot ((\sin(\theta) + \sin(\psi 4)))\right]^2$$

$$\psi 4 := \frac{s4}{Z}$$

$$s4 \equiv 2.6$$