I3COSGRA

Superposition of two cosine waves, one having an optical path differnce δ with respect to the other. The sum is squared to result in the intensity.

We are looking at the time dependence, the graphs are plots in space x and time t.
Period T, path difference δ, wavelength λ.

1. Graph for optical path difference corresponding to a maximum

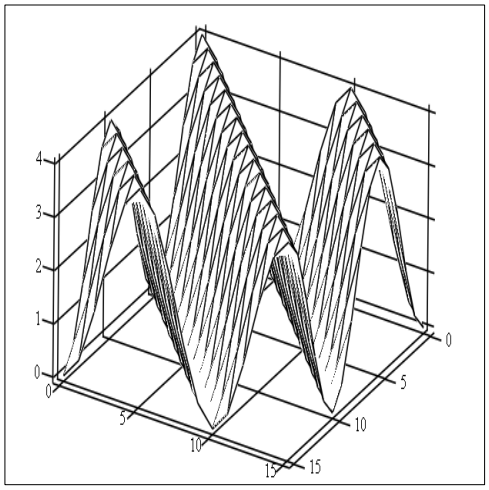
$$\lambda := 1 \qquad A := 1$$

$$N := 15 \qquad i := 0..N \qquad j := 0..N$$

$$x_i := -.2 + .05 \cdot i \qquad t1_j := -.2 + .05 \cdot j$$

$$uc(x, t1) := \left[2 \cdot A \cdot \cos\left[2 \cdot \pi \cdot \left(\frac{\delta 1}{2 \cdot \lambda} \right) \right] \cdot \left[\cos\left[2 \cdot \pi \cdot \left(\frac{x}{\lambda} - \frac{t1}{T} \right) - 2 \cdot \pi \cdot \left(\frac{\delta 1}{2 \cdot \lambda} \right) \right] \right] \right]^2$$

$$M_{i,j} := uc\left(x_i, t1_j\right) \qquad T \equiv 1 \qquad \delta 1 \equiv 1 \qquad t1 \equiv .1$$



M

2. Graph for optical path difference corresponding to a minimum.

$N := 40$

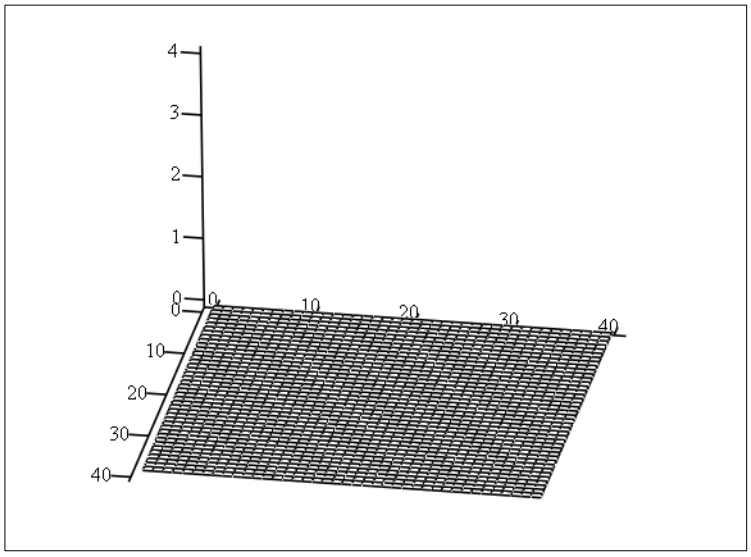
$i := 0..N \qquad j := 0..N$

$xx_i := -.2 + .04 \cdot i \qquad t1_j := -.2 + .02 \cdot j$

$\delta 2 \equiv .5$

$$ud(xx, t1) := \left[2 \cdot A \cdot \cos\left[2 \cdot \pi \cdot \left(\frac{\delta 2}{2 \cdot \lambda} \right) \right] \cdot \left[\cos\left[2 \cdot \pi \cdot \left(\frac{xx}{\lambda} - \frac{t1}{T} \right) - 2 \cdot \pi \cdot \left(\frac{\delta 2}{2 \cdot \lambda} \right) \right] \right] \right]^2$$

$MM_{i,j} := ud(xx_i, t1_j) \qquad t1 \equiv .1 \qquad T \equiv 1$



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