

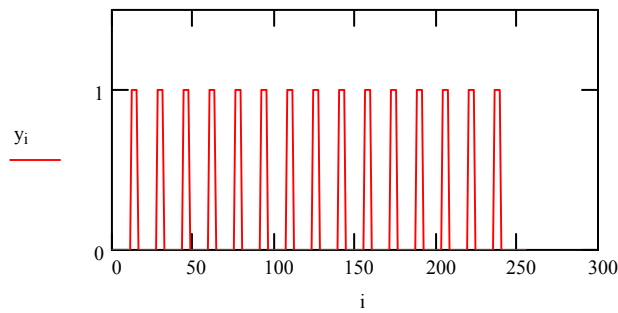
W9TRAJ1S

Incoherent case.

Fourier transformation of a periodic structure using the transfer function: (Bessel)

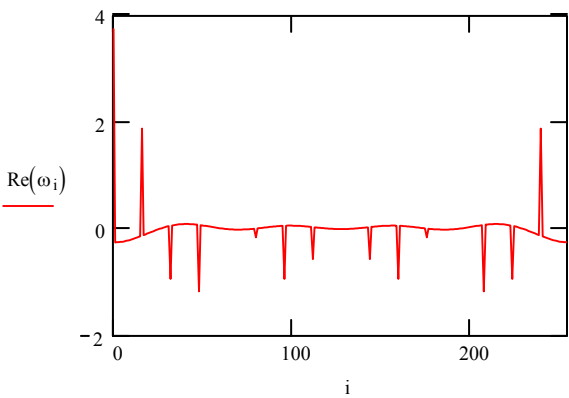
Object: Sum of step functions $i := 0, 1 \dots 255$ $b := 2$ $qq := 14$

$$y_i := \sum_{n=0}^{qq} \left[\Phi[i - [4 \cdot (2 \cdot n + 1) + 2] \cdot b] - \Phi[i - [4 \cdot (2 \cdot n + 1) + 4] \cdot b] \right] \quad \lambda := .0005$$



FT of the Object y is ω $fn \equiv 10$

$$\omega := \text{cfft}(y) \\ N := \text{last}(\omega) \\ N = 255$$



**Ft of spread function is
transfer function τ**

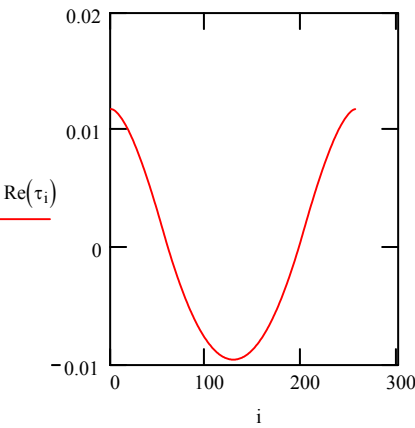
$$f\# = f/2a = \text{fn}$$

$$\tau := \text{cfft}(S)$$

$$N := \text{last}(\tau)$$

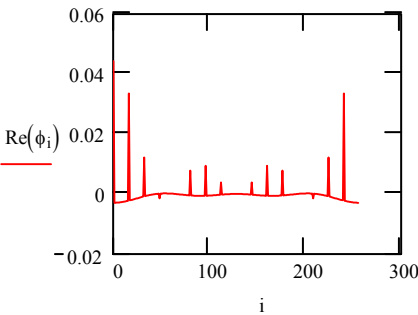
$$N = 255$$

$$S_i := 4 \cdot \frac{\left[\frac{J_1\left(\frac{\pi \cdot i}{\text{fn} \cdot \lambda \cdot 255}\right)}{\left(\frac{\pi \cdot i}{\text{fn} \cdot \lambda \cdot 255}\right)} \right]^2}$$



Product of FT of object and transfer function is ϕ

$$\phi_i := (\tau_i \cdot \omega_i)$$



Image

**FT (inverse) of the Product of FT of object and
transfer function**

$$yy := \text{icfft}(\phi)$$

$$N2 := \text{last}(\phi)$$

$$N2 = 255$$

