

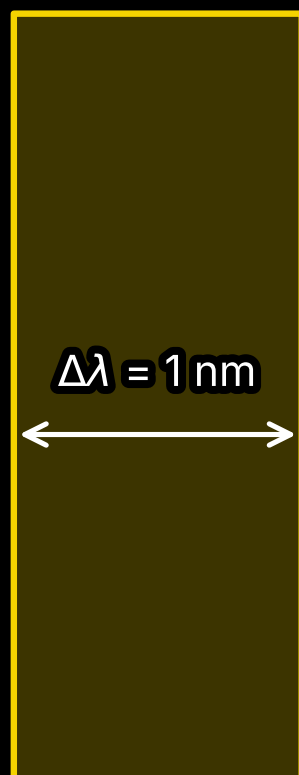
The reference experiment: one conversion chain, exact arithmetic

synthetic spectrum

collection and counting

$$\Phi_{\lambda, \text{nm}} = 21,559.86 \text{ photon s}^{-1} \text{ m}^{-2} \text{ nm}^{-1}$$

(1 Jy at 700 nm)



$$\Delta\lambda = 1 \text{ nm}$$

700 nm

wavelength λ

$$\times A \times \Delta\lambda =$$
$$21,559.86$$

photon s^{-1}



$$A = 1 \text{ m}^2$$
$$t = 1 \text{ s}$$

$$\times t / 4: \text{ photons per pixel}$$

in $t = 1 \text{ s}$

5,389.96 photon	5,389.96 photon
5,389.96 photon	5,389.96 photon

4 pixels, equal split by
construction, not a
point-spread function

reference experiment, idealized

expected electrons

constant QE q ; summed electrons $[e]$
= summed Poisson variance $[e^2]$,
numerically

$$q = 0.0: 0.00$$

$$q = 0.5: 10,779.93$$

$$q = 1.0: 21,559.86$$

no dark current, clock-induced
charge or read noise; expected
values, not a readout