QSIM LSF model

This is a simple model where the LSF is supposed to be constant over the field of view. It uses a simple parametric model of variation with wavelength.
The model is a convolution of a step function(representing the slit width h) with a gaussian of parameter sigma. The resulting function is then sample by the pixel size.

The slit width is assumed to be constant. The gaussian sigma parameter is a polynomial approximation of order 3 with wavelength.

In reality we know that the LSF is different from slice to slice, and within a slice it is not as simple as it assumed there. For more realistic LSF the INM shall be used.

Computation of LSF(lbda, y) lbda: wavelength in A
y = -5 ... 5

LSF is normalized so that Sum(LSF) for all y == 1
LSF = T(y2+dy/2) - T(y2-dy/2) - T(y1+dy/2) + T(y1-dy/2) T(x) = exp(-x**2/2) + sqrt(2*pi)/2 * x * erf(x/sqrt(2))
x = (lbda-6975)/4650
y1 = (y-h/2)/sigma
y2 = (y+h/2)/sigma
h = 2.09
sigma(x) = c[3] + c[2]*x + c[1]*x**2 + c[0]*x**3
c = [-0.09876662, 0.44410609, -0.03166038, 0.46285363]

Exemple
LSF(6000) = array([1.35563937e-15, 1.29242015e-09, 2.87088720e-05, 1.45978758e-02, 2.55903993e-01, 4.58938842e-01, 2.55903993e-01, 1.45978758e-02, 2.87088720e-05, 1.29241998e-09, 2.03345906e-15])