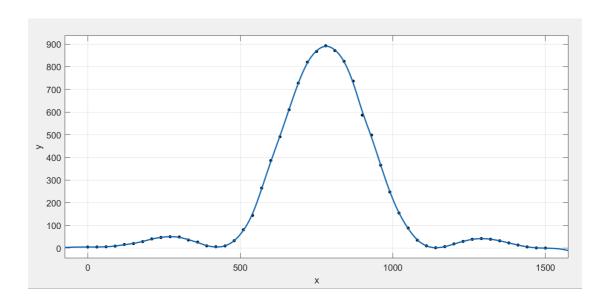
## 一、用光栅测光的波长并计算相对误差

$$egin{aligned} x_1 &= 38.660mm, x_2 = 52.213mm, x_3 = 65.550mm \ \Delta x_1 &= 13.553mm, \Delta x_2 = 13.337mm \therefore \Delta ar{x} = 13.445mm \ \therefore L &= 424.5mm, \ \therefore sin heta pprox heta pprox 0.0317 \ \therefore \lambda pprox 633.45nm \ \therefore \lambda_0 = 650.0nm, \ \therefore E = rac{|\lambda_0 - \lambda|}{\lambda_0} pprox 2.55\% \end{aligned}$$

## 二、绘制单缝光强分布图,求单缝宽a



- 二级明纹中心为(275.3,50.45)、(1290,42.0)
- 一级明纹中心为(780,892.0)
- 二级暗纹中心为 422.3, 1140

$$egin{aligned} \Delta x_1 &= 3.6mm, \ \Delta x_2 &= 3.58mm, \ \therefore \Delta ar{x} &= 3.59mm \ sin heta &pprox heta &pprox 0.0085 \ \therefore a sin heta &= 1.43 \lambda, \ \therefore a &pprox 0.1066mm &pprox 0.10mm \end{aligned}$$

## 三、验证极值处光强比

$$I_0 pprox 892.0, \; ar{I}_1 = 46.225 \ rac{I_1}{I_0} pprox 5.18\%$$