

```
In[1]:= SetDirectory["/Users/danikaluntz-martin/Desktop/Advanced Lab/DoubleSlit-ED"];
countsfar1 = Import["20141122_single_slit_far.csv"];
countsfar1;
ListPlot[countsfar1, AxesLabel → {Distance (mm), Counts}];
```

```
In[5]:=  $\theta = (x - x_0) / R;$ 
 $\alpha = \pi * a * \sin[\theta] / \lambda;$ 
 $\beta = \pi * d * \sin[\theta] / \lambda;$ 
```

$$i_2 = \frac{i_0}{4} * (\text{Sinc}[\alpha])^2;$$

```
x0 = 5.8;
a = 0.085;
d = 0.343;
R = 500;
 $\lambda = .000546;$ 
```

```
In[18]:= fitfar1 = NonlinearModelFit[countsfar1, i2, {i0}, x];
plotfar1 = Plot[fitfar1[x], {x, -10, 10}];
plotfarb = Plot[0.21642509498661616 (575.4539524532704 + 0.0023980364459083407 )
Sinc[489.0757794050044 Sin[ $\frac{1}{500} (-5.8 + x)$ ]]^2, {x, 0, 10}, PlotStyle → Red];
Show[ListPlot[countsfar1], plotfarb, AxesLabel → {Distance [mm], Counts}]
```

