In[1]:=
```
SetDirectory["/Users/danikaluntz-martin/Desktop/Advanced Lab/DoubleSlit-ED"];
counts2 = Import["20141122_double_slit_bulb_counts2.csv"];
counts2;
```

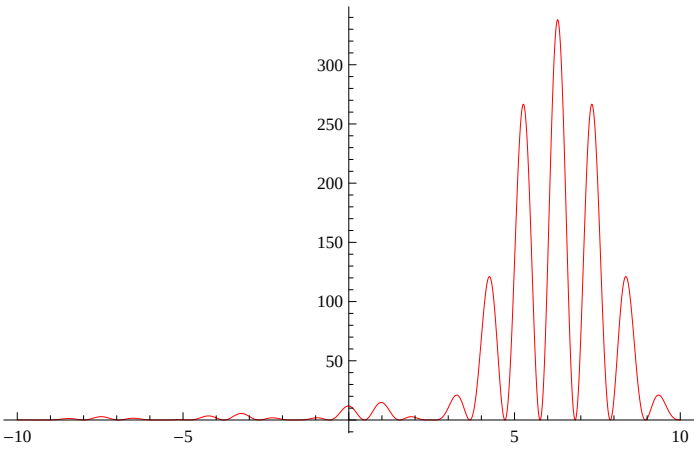
In[4]:=
```
θ = (x - x0) / R;
α = π * a * Sin[θ] / λ;
β = π * d * Sin[θ] / λ;

i2 = i0 * (Sinc[α])^2 * Cos[β]^2;
```

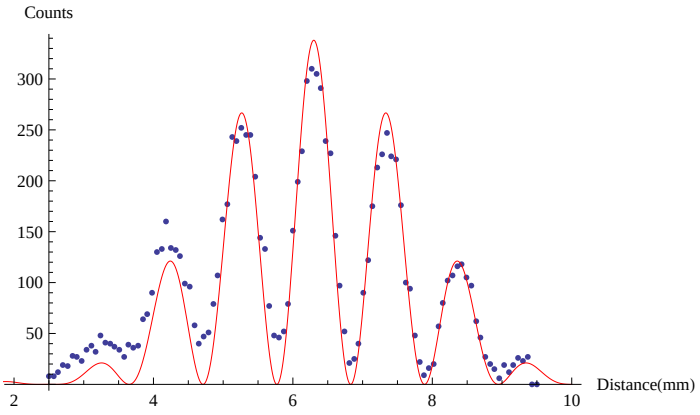
In[8]:=
```
x0 = 6.3;
a = 0.09;
d = 0.335;
R = 650;
λ = .000546;
```

In[13]:=
```
fit2 = NonlinearModelFit[counts2, i2, i0, x];
Normal[fit2];
plot2 = Plot[fit2[x], {x, -10, 10}, PlotRange → All, PlotStyle → Red]
Show[ListPlot[counts2], plot2,
 PlotRange → {{2, 10}, All}, AxesLabel → {Distance [mm], Counts}]
```

Out[15]=



Out[16]=



In[19]:=
$$\text{ChiSq2} = \sum_{j=1}^{105} \left(\frac{\text{fit2["FitResiduals"][[j]]}}{2 \left(\sqrt{\text{counts2[[j, 2]]}} - \sqrt{1.68} \right)} \right)^2$$

```
RedChiSq2 = ChiSq2 / 7
```

Out[19]= 487.614

Out[20]= 69.6591