

```

In[1]:= rawData10 = Transpose[
  Import[
    "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range10width1.csv",
    "Data", "HeaderLines" → 1]];
value10 = rawData10[[3]];
counter10 = rawData10[[4]];
maxCounter = Max[counter10];
hist10 = Transpose[{value10, counter10 / maxCounter}];

rawData20 = Transpose[
  Import[
    "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range20width1.csv",
    "Data", "HeaderLines" → 1]];
value20 = rawData20[[3]];
counter20 = rawData20[[4]];
maxCounter20 = Max[counter20];
hist20 = Transpose[{value20, counter20 / maxCounter20}];

rawData30 = Transpose[
  Import[
    "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range30width1.csv",
    "Data", "HeaderLines" → 1]];
value30 = rawData30[[3]];
counter30 = rawData30[[4]];
maxCounter30 = Max[counter30];
hist30 = Transpose[{value30, counter30 / maxCounter30}];

rawData40 = Transpose[
  Import[
    "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range40width1.csv",
    "Data", "HeaderLines" → 1]];
value40 = rawData40[[3]];
counter40 = rawData40[[4]];
maxCounter40 = Max[counter40];
hist40 = Transpose[{value40, counter40 / maxCounter40}];

```

```

In[21]:= rawData110 = Transpose[
    Import[
        "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range110width1.csv",
        "Data", "HeaderLines" → 1]];
value110 = rawData110[[3]];
counter110 = rawData110[[4]];
maxCounter110 = Max[counter110];
hist110 = Transpose[{value110, counter110/maxCounter110}];

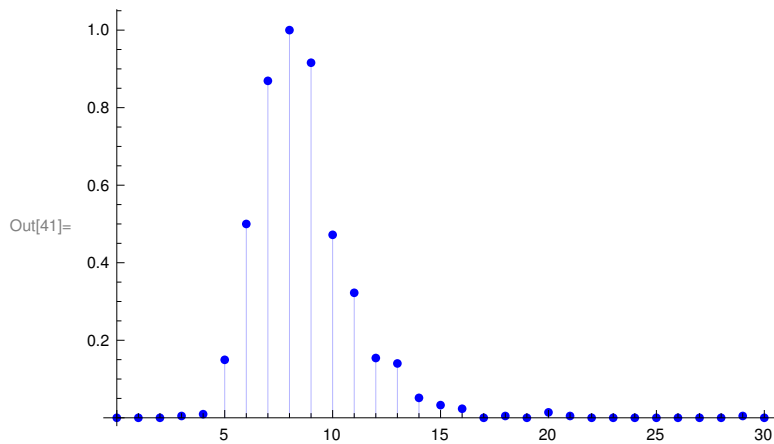
rawData120 = Transpose[
    Import[
        "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range120width1.csv",
        "Data", "HeaderLines" → 1]];
value120 = rawData120[[3]];
counter120 = rawData120[[4]];
maxCounter120 = Max[counter120];
hist120 = Transpose[{value120, counter120/maxCounter120}];

rawData130 = Transpose[
    Import[
        "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range130width1.csv",
        "Data", "HeaderLines" → 1]];
value130 = rawData130[[3]];
counter130 = rawData130[[4]];
maxCounter130 = Max[counter130];
hist130 = Transpose[{value130, counter130/maxCounter130}];

rawData140 = Transpose[
    Import[
        "/home/neofelia/Desktop/Bachelor/static_lambda/histograms/n0l07range140width1.csv",
        "Data", "HeaderLines" → 1]];
value140 = rawData140[[3]];
counter140 = rawData140[[4]];
maxCounter140 = Max[counter140];
hist140 = Transpose[{value140, counter140/maxCounter140}];

```

```
In[41]:= ListPlot[{hist10}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```



```
In[42]:= nlm10 = NonlinearModelFit[hist10, A0 * 
$$e^{-e^{\frac{-a-x}{b}} + \frac{-a-x}{b}}}, {{A0}, {b}, {a, -10}}, x];$$

```

```
Normal[nlm10];
```

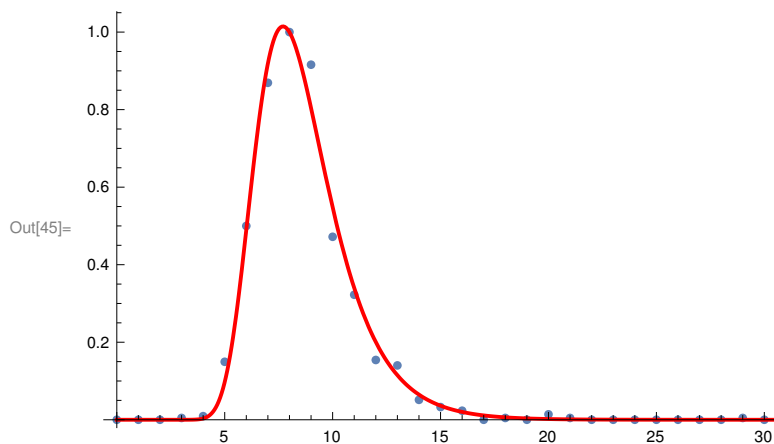
```
nlm10["BestFitParameters"]
```

```
(*nlm["FitResiduals"] ; *)
```

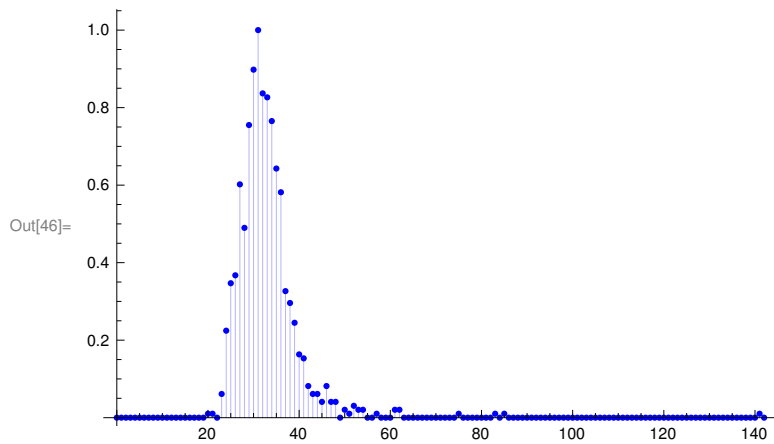
```
Show[ListPlot[hist10, PlotRange -> All],
```

```
Plot[nlm10[x], {x, 0, 200}, PlotRange -> {{0, 200}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

```
Out[44]= {A0 -> 4.66171, b -> 1.69023, a -> -7.70063}
```



```
In[46]:= ListPlot[{hist20}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```



```
In[47]:=
```

```
nlm20 = NonlinearModelFit[hist20, A0 *  $\frac{e^{-\frac{a-x}{b}} + e^{-\frac{a+x}{b}}}{b}$ , {{A0}, {b}, {a, -20}}, x];
```

```
Normal[nlm20];
```

```
nlm10["BestFitParameters"]
```

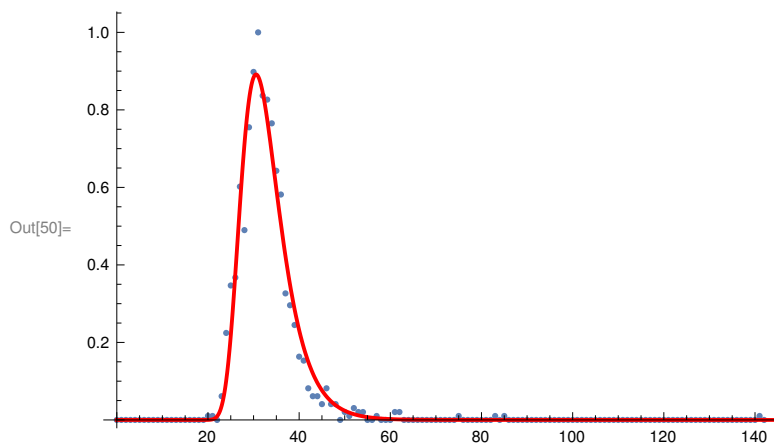
```
(*nlm["FitResiduals"] ; *)
```

```
Show[ListPlot[hist20, PlotRange -> All],
```

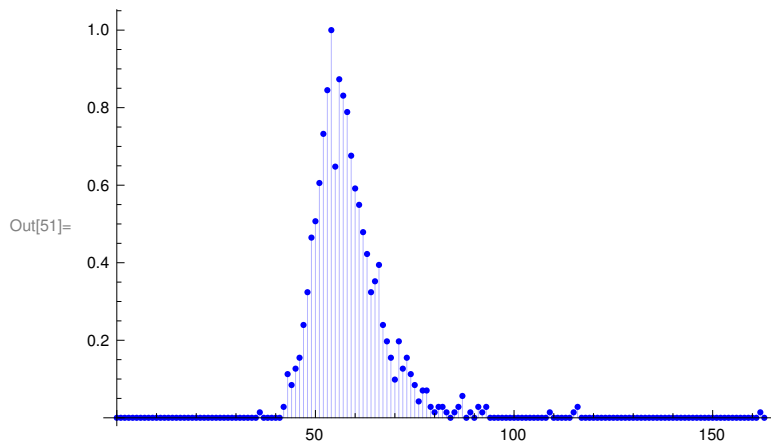
```
Plot[nlm20[x], {x, 0, 200}, PlotRange -> {{0, 200}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

```
Out[49]= {A0 -> 4.66171, b -> 1.69023, a -> -7.70063}
```

General: Exp[-1391.27] is too small to represent as a normalized machine number; precision may be lost.



```
In[51]:= ListPlot[{hist30}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```



```
In[52]:=
```

```
nlm30 = NonlinearModelFit[hist30, A0 *  $\frac{e^{-\frac{a-x}{b}} + e^{-\frac{a+x}{b}}}{b}$ , {{A0}, {b}, {a, -50}}, x];
```

```
Normal[nlm30];
```

```
nlm30["BestFitParameters"]
```

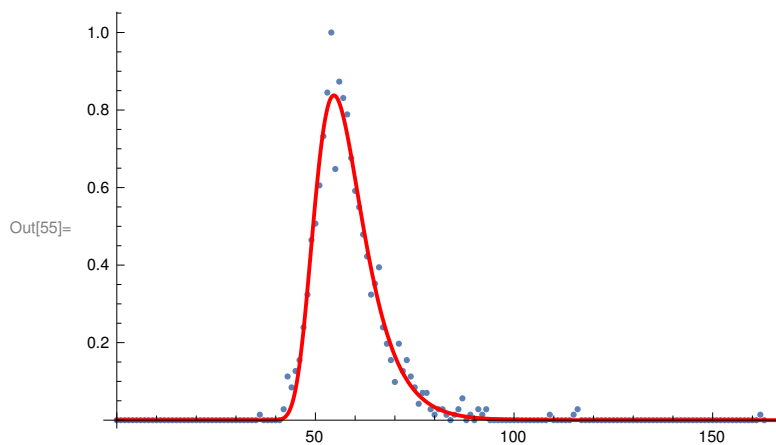
```
(*nlm["FitResiduals"] ; *)
```

```
Show[ListPlot[hist30, PlotRange -> All],
```

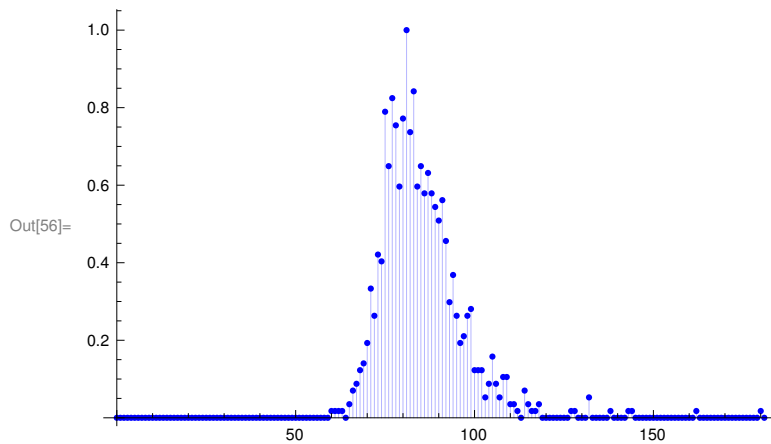
```
Plot[nlm30[x], {x, 0, 200}, PlotRange -> {{0, 200}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

```
Out[54]= {A0 -> 13.7496, b -> 6.03767, a -> -54.6596}
```

General: Exp[-8530.1] is too small to represent as a normalized machine number; precision may be lost.



```
In[56]:= ListPlot[{hist40}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```

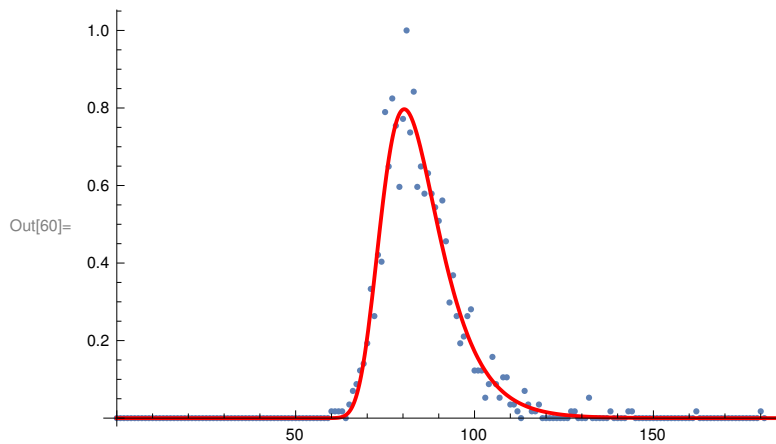


```
In[57]:= nlm40 = NonlinearModelFit[hist40, A0 *  $\frac{e^{-\frac{a-x}{b}} + e^{-\frac{a+x}{b}}}{b}$ , {{A0}, {b}, {a, -80}}, x];

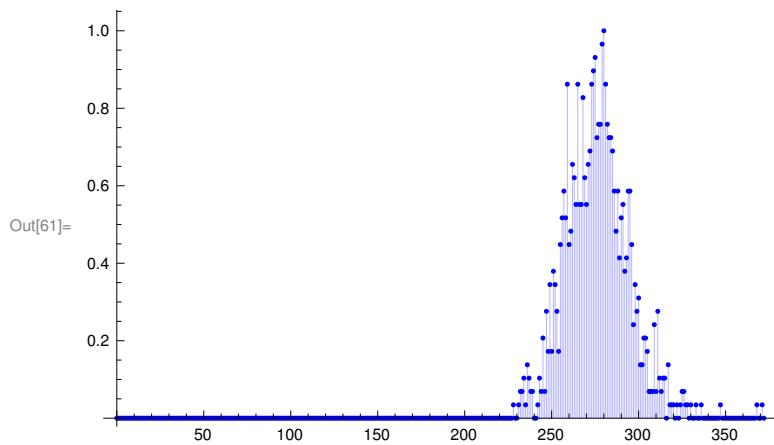
Normal[nlm40];
nlm40["BestFitParameters"]
(*nlm["FitResiduals"] ; *)
Show[ListPlot[hist40, PlotRange -> All],
Plot[nlm40[x], {x, 0, 200}, PlotRange -> {{0, 200}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

Out[59]= {A0 -> 17.399, b -> 8.03294, a -> -80.3604}

General: Exp[-22090.3] is too small to represent as a normalized machine number; precision may be lost.



```
In[61]:= ListPlot[{hist110}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```



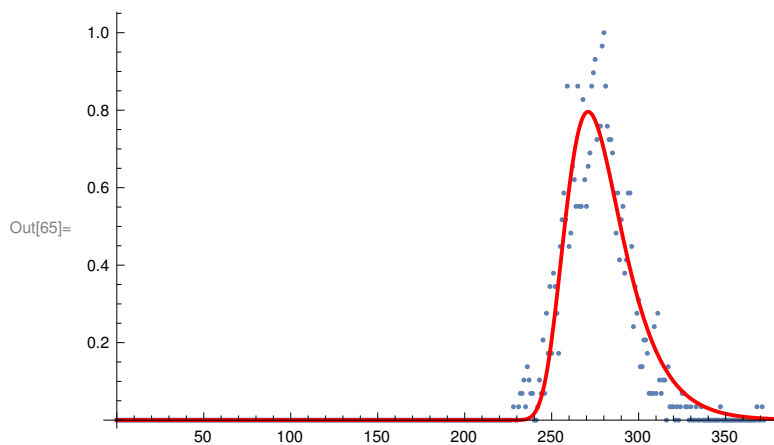
```
In[62]:=
```

```
nlm110 = NonlinearModelFit[hist110, A0 * 
$$e^{\frac{-a-x}{b} + \frac{-a-x}{b}}$$
, {{A0}, {b}, {a, -220}}, x];

Normal[nlm110];
nlm110["BestFitParameters"]
(*nlm["FitResiduals"] ; *)
Show[ListPlot[hist110, PlotRange -> All],
Plot[nlm110[x], {x, 0, 600}, PlotRange -> {{0, 600}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

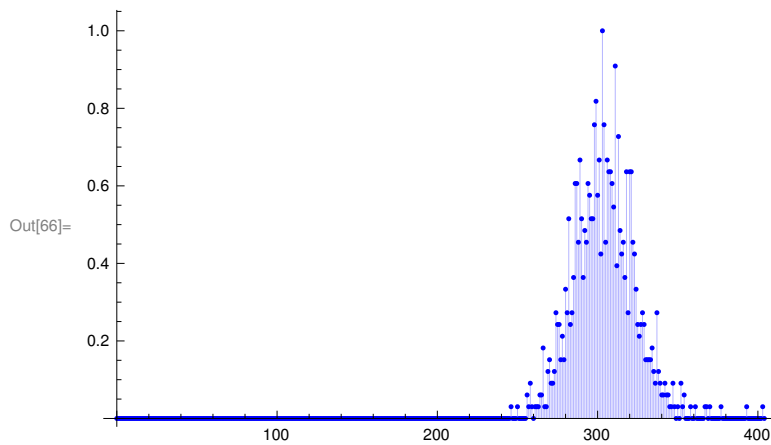
Out[64]= {A0 -> 35.1306, b -> 16.2373, a -> -270.959}

General: $\text{Exp}[-1.76575 \times 10^7]$ is too small to represent as a normalized machine number; precision may be lost.



In[66]:=

```
ListPlot[{hist120}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```

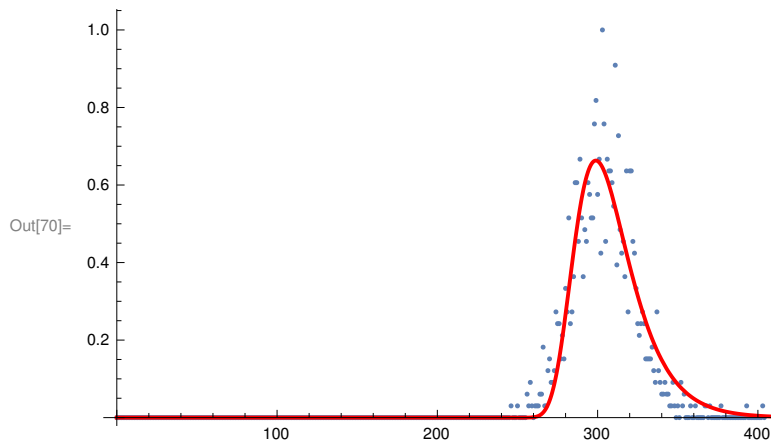


```
In[67]:= nlm120 = NonlinearModelFit[hist120, A0 * 
$$e^{\frac{-a-x}{b} + \frac{-a-x}{b}}$$
, {{A0}, {b}, {a, -300}}, x];
```

```
Normal[nlm120];
nlm120["BestFitParameters"]
(*nlm["FitResiduals"] ; *)
Show[ListPlot[hist120, PlotRange -> All],
Plot[nlm120[x], {x, 0, 600}, PlotRange -> {{0, 600}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

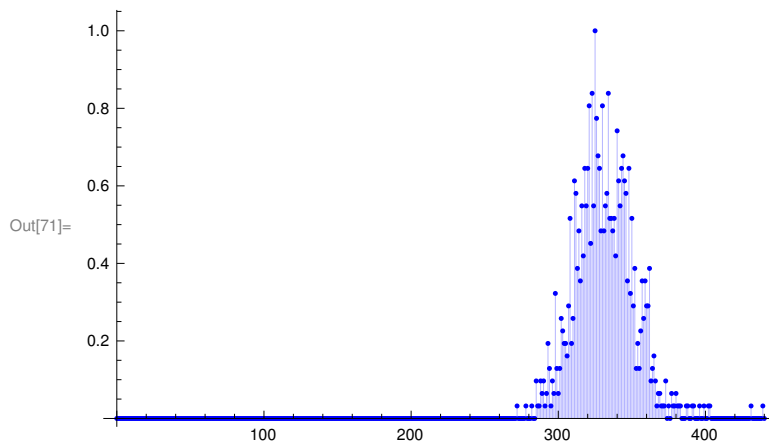
Out[69]= {A0 -> 30.806, b -> 17.0918, a -> -298.877}

General: $\text{Exp}[-3.92665 \times 10^7]$ is too small to represent as a normalized machine number; precision may be lost.



In[71]:=

```
ListPlot[{hist130}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```



In[72]:=
$$\text{nml130} = \text{NonlinearModelFit}[\text{hist130}, A0 * \frac{e^{\frac{-a-x}{b}} + e^{\frac{-a-x}{b}}}{b}, \{\{A0\}, \{b\}, \{a, -350\}\}, x];$$

```
Normal[nml130];
```

```
nml130["BestFitParameters"]
```

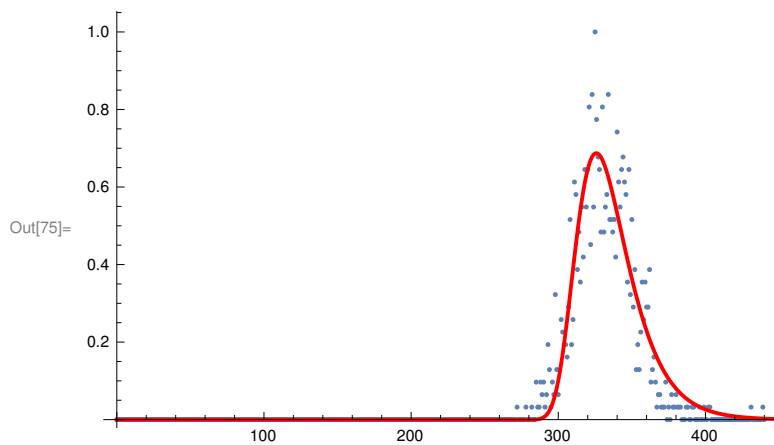
```
(*nml["FitResiduals"] ; *)
```

```
Show[ ListPlot[hist130, PlotRange -> All],
```

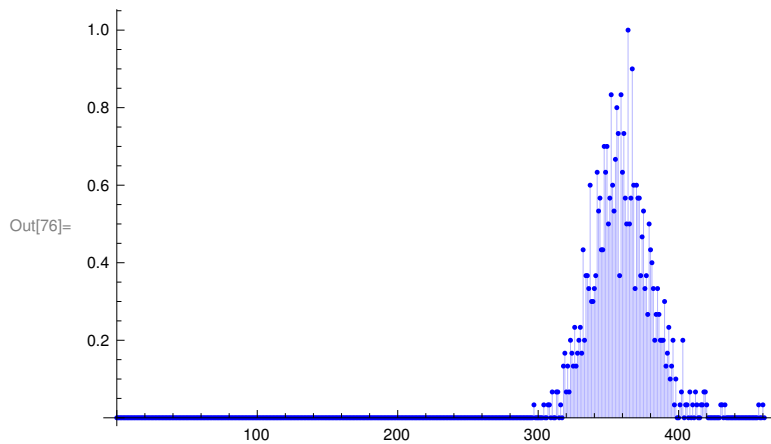
```
Plot[nml130[x], {x, 0, 600}, PlotRange -> {{0, 600}, {0, 100}}, PlotStyle -> {Thick, Red}] ]
```

Out[74]= {A0 -> 32.5821, b -> 17.4409, a -> -325.849}

General: $\text{Exp}[-1.29906 \times 10^8]$ is too small to represent as a normalized machine number; precision may be lost.



```
In[76]:= ListPlot[{hist140}, Filling -> Axis, PlotRange -> All, PlotStyle -> Blue]
```

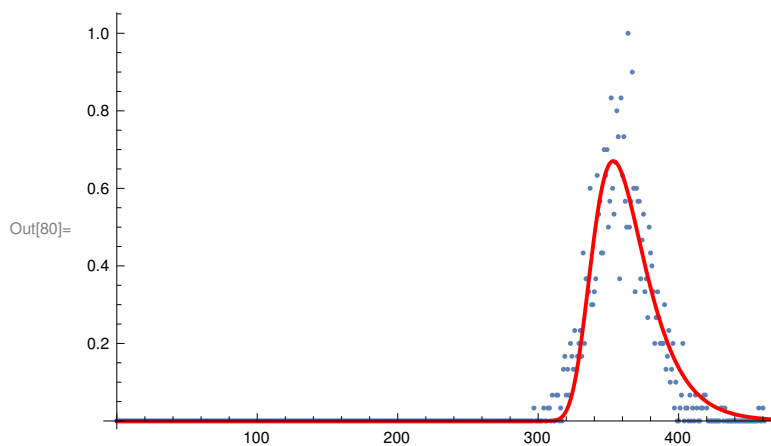


```
In[77]:= nlm140 = NonlinearModelFit[hist140, A0 * 
$$e^{\frac{-a-x}{b} + \frac{-a-x}{b}}$$
, {{A0}, {b}, {a, -350}}, x];

Normal[nlm140];
nlm140["BestFitParameters"]
(*nlm["FitResiduals"] ; *)
Show[ListPlot[hist140, PlotRange -> All],
Plot[nlm140[x], {x, 0, 800}, PlotRange -> {{0, 800}, {0, 100}}, PlotStyle -> {Thick, Red}]]
```

Out[79]= {A0 -> 33.8844, b -> 18.5935, a -> -353.466}

General: $\text{Exp}[-1.80142 \times 10^8]$ is too small to represent as a normalized machine number; precision may be lost.



```
In[81]:=
```

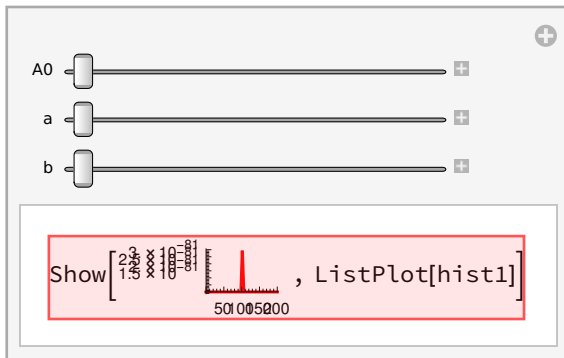
```

In[82]:= Manipulate[
  Show[
    
$$e^{-e^{\frac{-a-x}{b}} + \frac{-a-x}{b}}$$

    Plot[A0 *  $\frac{e^{-e^{\frac{-a-x}{b}} + \frac{-a-x}{b}}}{b}$ , {x, 0, 200}, PlotRange -> All, PlotStyle -> Red],
    ListPlot[hist1]
  ],
  {A0, 1, 50}, {a, -100, 100}, {b, 0.01, 10}
]

```

Out[82]=



General: Underflow occurred in computation.

ListPlot: hist1 is not a list of numbers or pairs of numbers.

Show: Could not combine the graphics objects in Show[, ListPlot[hist1]].