

$$\text{Pr}(t) = \frac{1}{2} + \frac{1}{2} e^{-t/T_2} \cos\left(c_4 \frac{t}{T} + c_3\right)$$

```
In[133]:= Pr = {0.9384765625, 0.8212890625, 0.6728515625, 0.4873046875, 0.3486328125,
0.2548828125, 0.19140625, 0.1767578125, 0.2587890625, 0.35546875, 0.47265625,
0.587890625, 0.6865234375, 0.7265625, 0.76953125, 0.7890625, 0.720703125,
0.658203125, 0.57421875, 0.5029296875, 0.4287109375, 0.3994140625,
0.3740234375, 0.345703125, 0.3701171875, 0.451171875, 0.501953125, 0.568359375,
0.6162109375, 0.626953125, 0.6416015625, 0.650390625, 0.6328125, 0.607421875,
0.5751953125, 0.529296875, 0.486328125, 0.462890625, 0.4365234375,
0.4296875, 0.43359375, 0.515625, 0.5234375, 0.5400390625, 0.5751953125,
0.5869140625, 0.5859375, 0.6123046875, 0.5751953125, 0.5751953125};
Ngates = Table[i, {i, 1, 50}];
```

```
In[199]:= PrN = Table[{Ngates[[i]], Pr[[i]]}, {i, 50}];
```

```
In[*]:= f1 =  $\frac{1}{2} + \frac{1}{2} e^{-t/T_2} \cos\left[c_4 \frac{t}{T} + c_3\right]$ ;
```

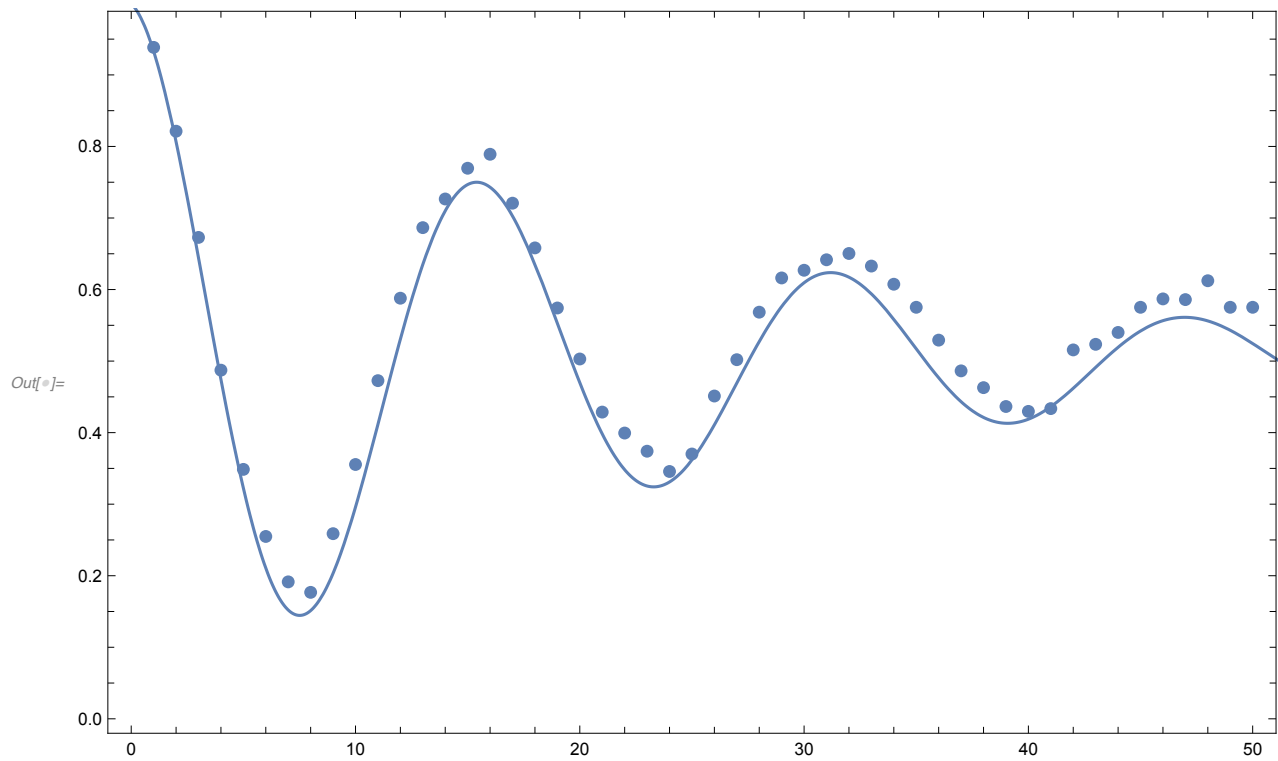
```
In[*]:= fit1 = NonlinearModelFit[PrN, f1, {c4, c3, T2, T}, t]
```

```
Out[*]:= FittedModel[ $\frac{1}{2} + \frac{1}{2} e^{-0.0446051 t} \cos[0.0399519 + 0.398115 t]$ ]
```

```
In[*]:= FindFit[PrN, f1, {c3, c4, T, T2}, t]
```

```
Out[*]:= {c3 → 0.0399519, c4 → 9.97453, T → 25.0544, T2 → 22.419}
```

```
In[ ]:= Show[ListPlot[PrN], Plot[fit1[t], {t, 0, 60}], Frame -> True]
```



$$\text{Error} = \frac{1}{N} \sum_{i=1}^N (f_1(i) - d(i))^2:$$

```
In[ ]:= error1 = fit1["EstimatedVariance", VarianceEstimatorFunction -> (Mean[#^2] &)]
```

```
Out[ ]:= 0.0013933
```

```
In[192]:= f2 = c1 + c2 e-t/T2 Cos[ c4  $\frac{t}{T}$  + c3];
```

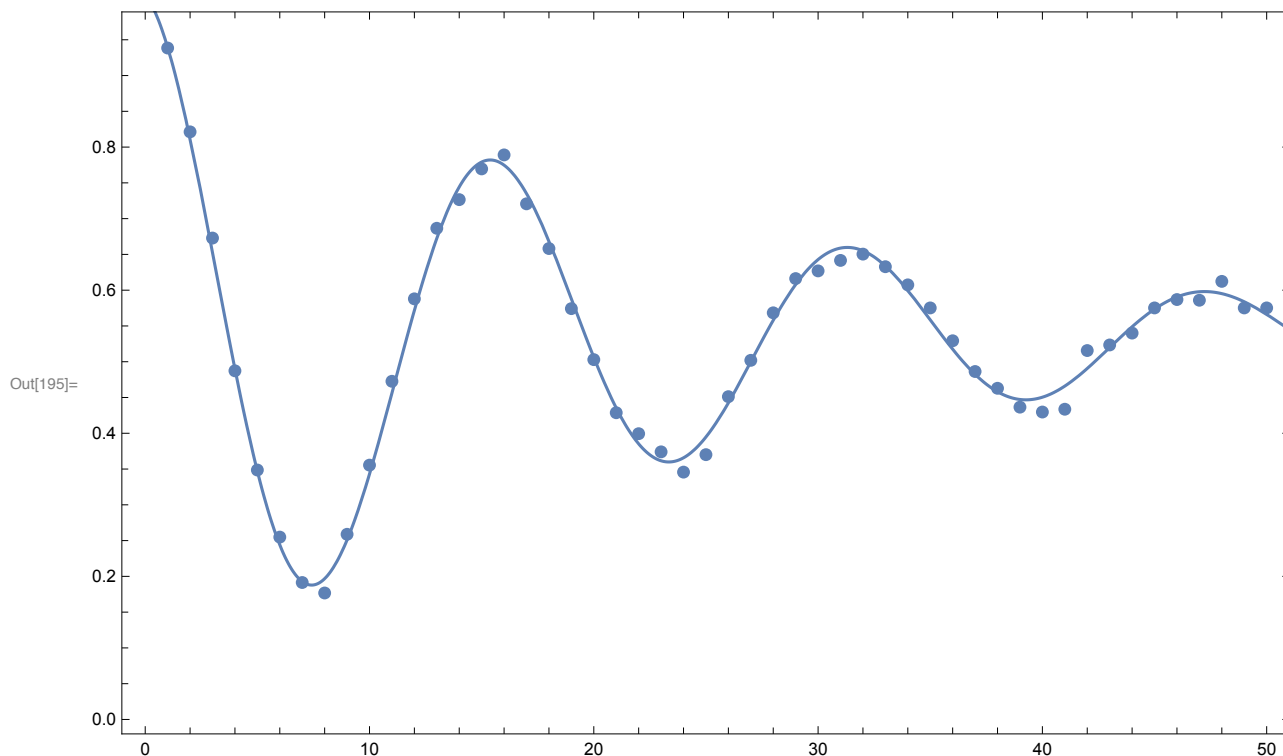
```
In[193]:= fit2 = NonlinearModelFit[PrN, f2, {c1, c2, c4, c3, T2, T}, t]
```

```
Out[193]:= FittedModel[ 0.535208 + 0.480626 e-<21>t Cos[0.104305 + 0.394637 t] ]
```

```
In[194]:= FindFit[PrN, f2, {c1, c2, c3, c4, T, T2}, t]
```

```
Out[194]:= {c1 → 0.535208, c2 → 0.480626, c3 → 0.104305, c4 → 5.2254, T → 13.241, T2 → 23.2806}
```

```
In[195]:= Show[ListPlot[PrN], Plot[fit2[t], {t, 0, 60}], Frame → True]
```



$$\text{Error} = \frac{1}{N} \sum_{i=1}^N (f_1(i) - d(i))^2:$$

```
In[198]:= error2 = fit2["EstimatedVariance", VarianceEstimatorFunction → (Mean[#^2] &)]
```

```
Out[198]:= 0.000175564
```