Model exponential decay calculations

All calculations have Gamma = 1E9 and delta_omega = 2E7
The "continuum" states go from n=-1999 to n=1999

In all plots the purple line is from the model and the blue gray line is the analytic result
Except for small regions, the purple line is totally covered by the blue gray line

Time decay of the initial state
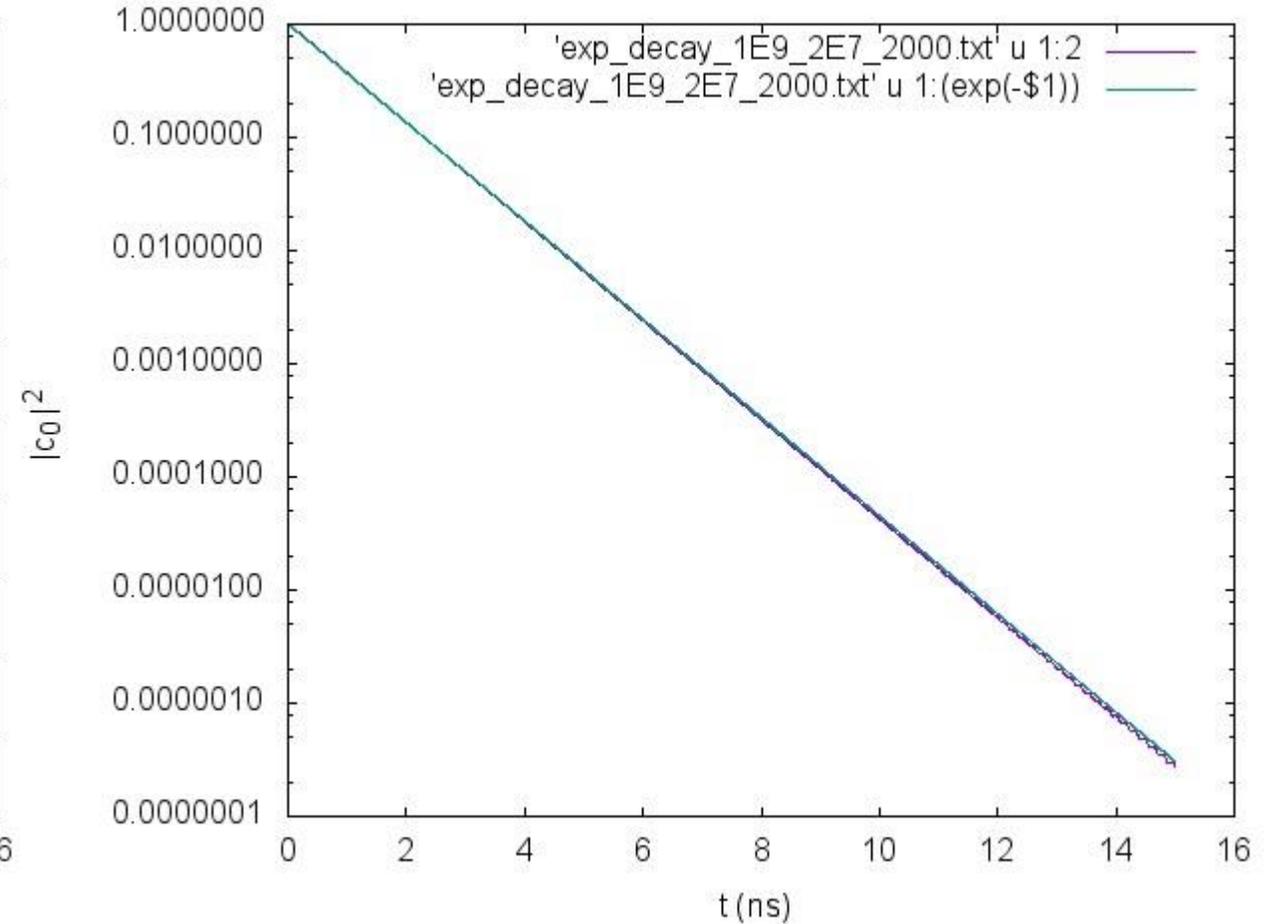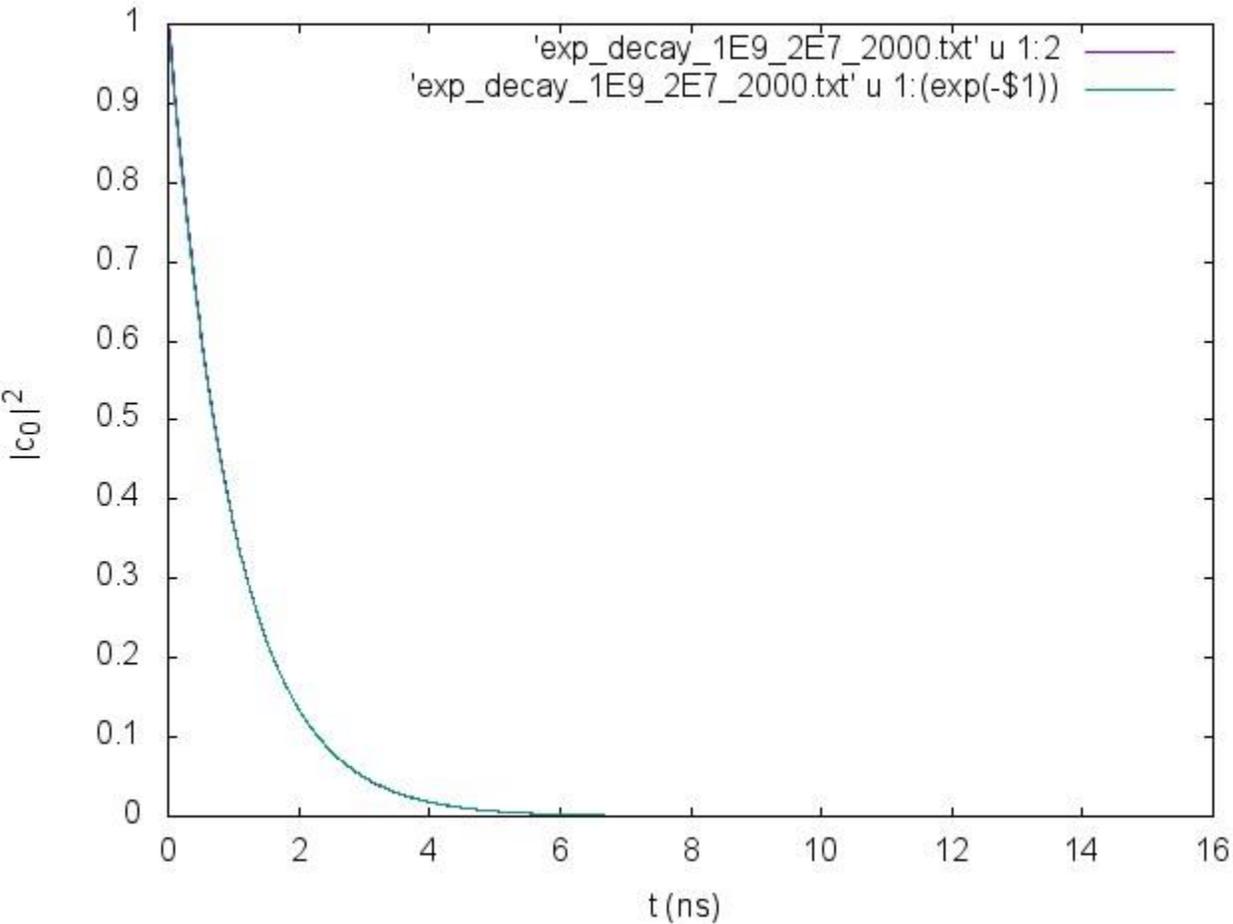
This shows the decay of the initial state over 6 orders of magnitude
On the logscale small errors from the model are visible at late t

Energy distribution of the continuum
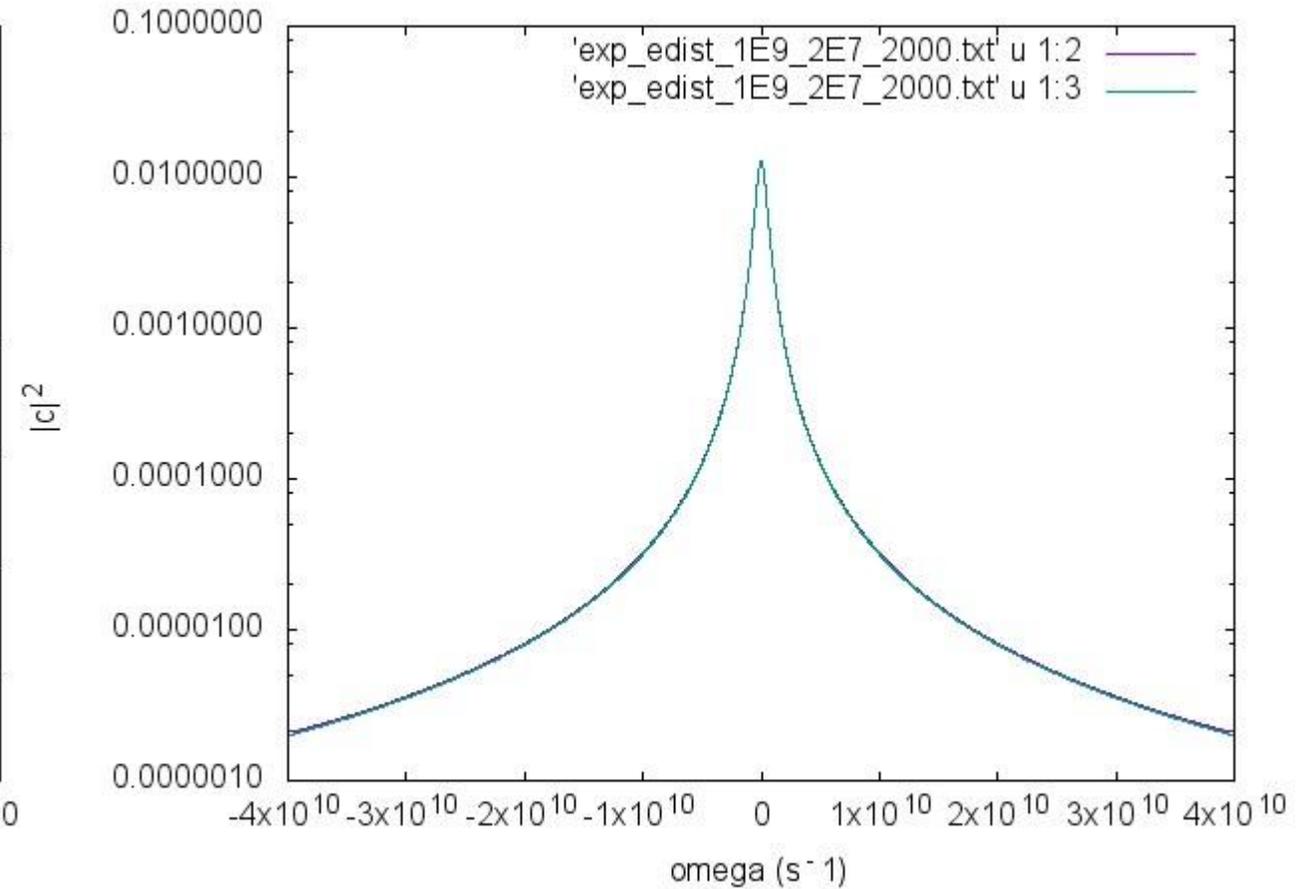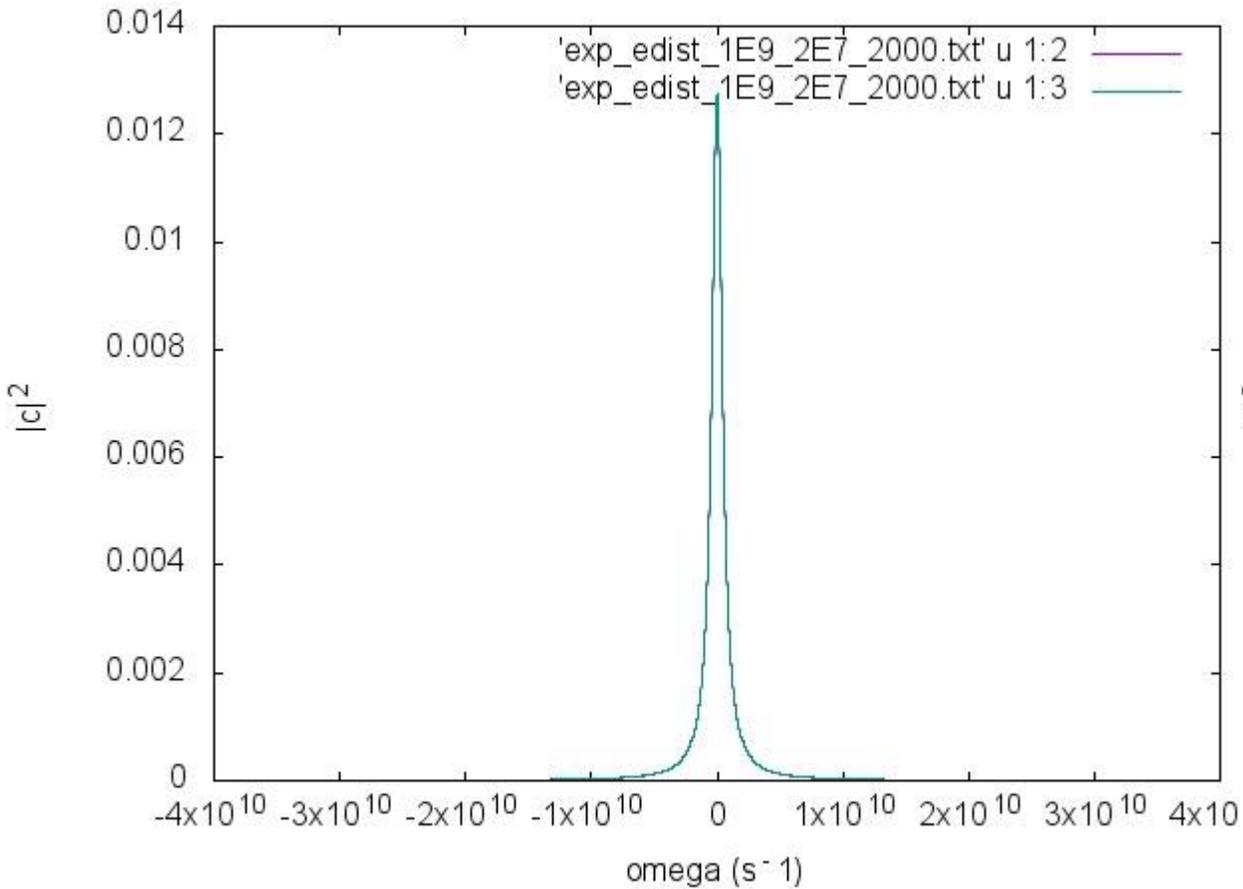
This shows population in the final state vs omega
There are small errors where the continuum runs out