

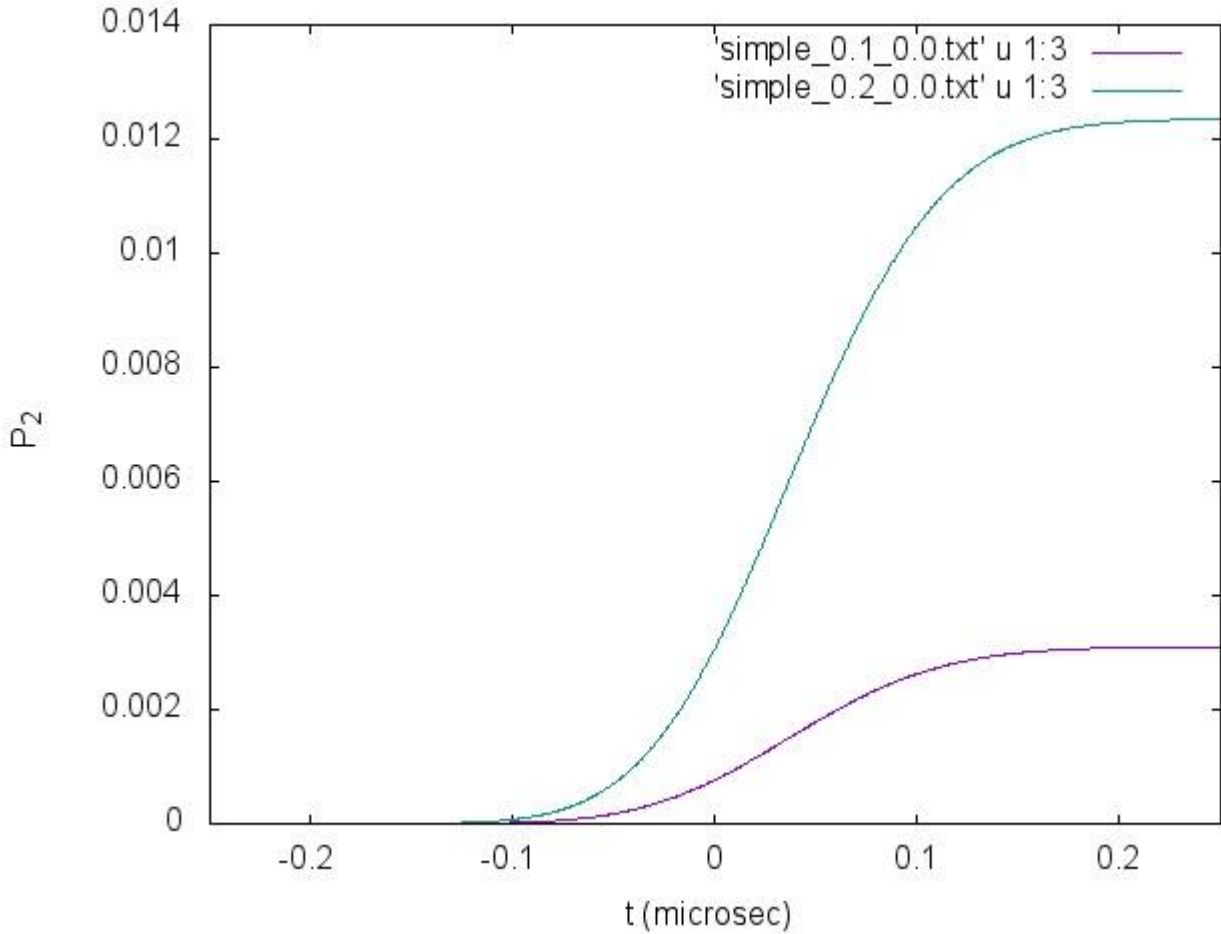
Two state calculations

All calculations have $\tau = 0.1$ microsec, $\omega_0 = 2 \pi / 1E-10$

The detunings are in units of $1/\tau$

Omega in units of $2 \pi / (1E-6 \text{ s})$

Omega = 0.1 & 0.2, Detuning = 0.0

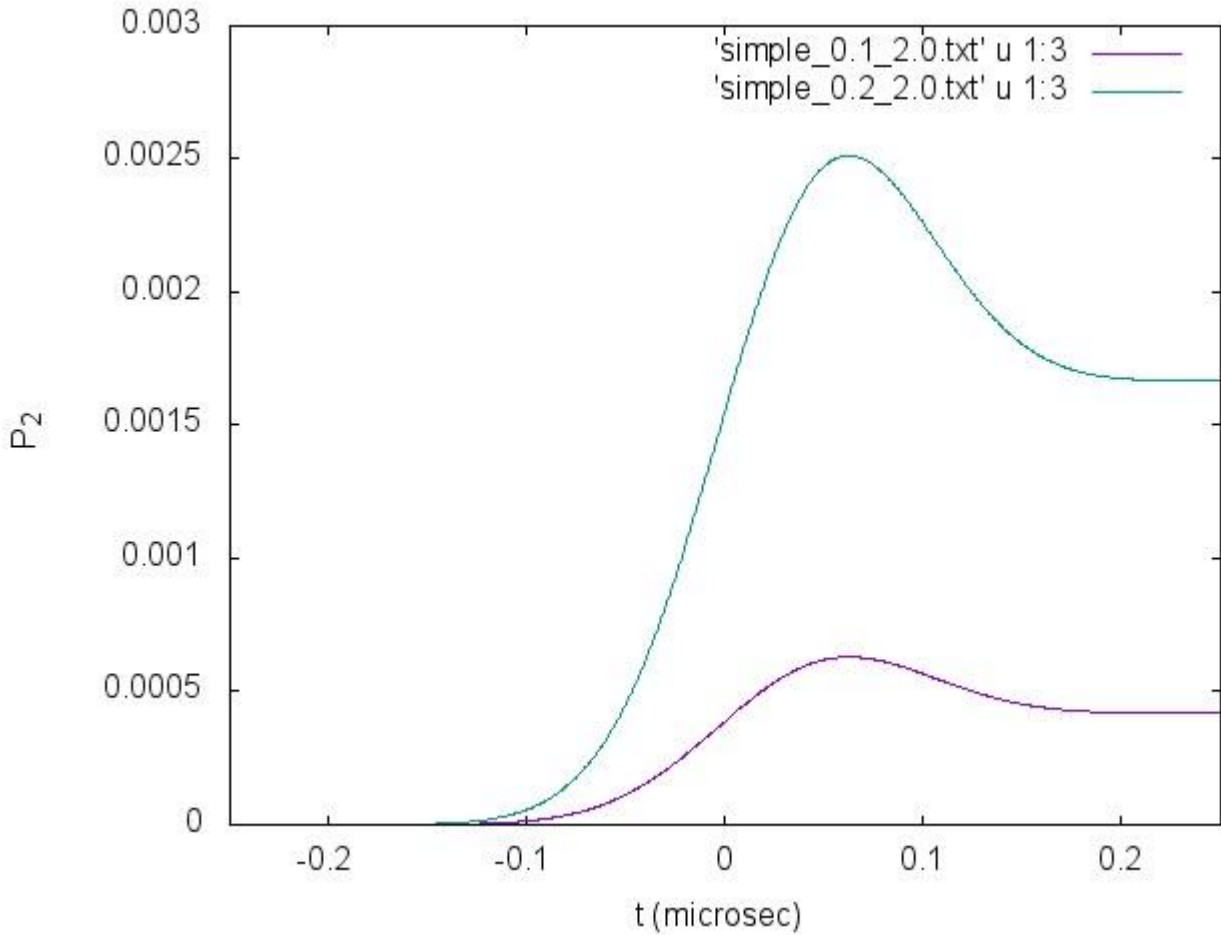


This is the perturbative regime of E-field strength

The probabilities are never large

The final population is proportional to the square of the E-field

Omega = 0.1 & 0.2, Detuning = 2.0



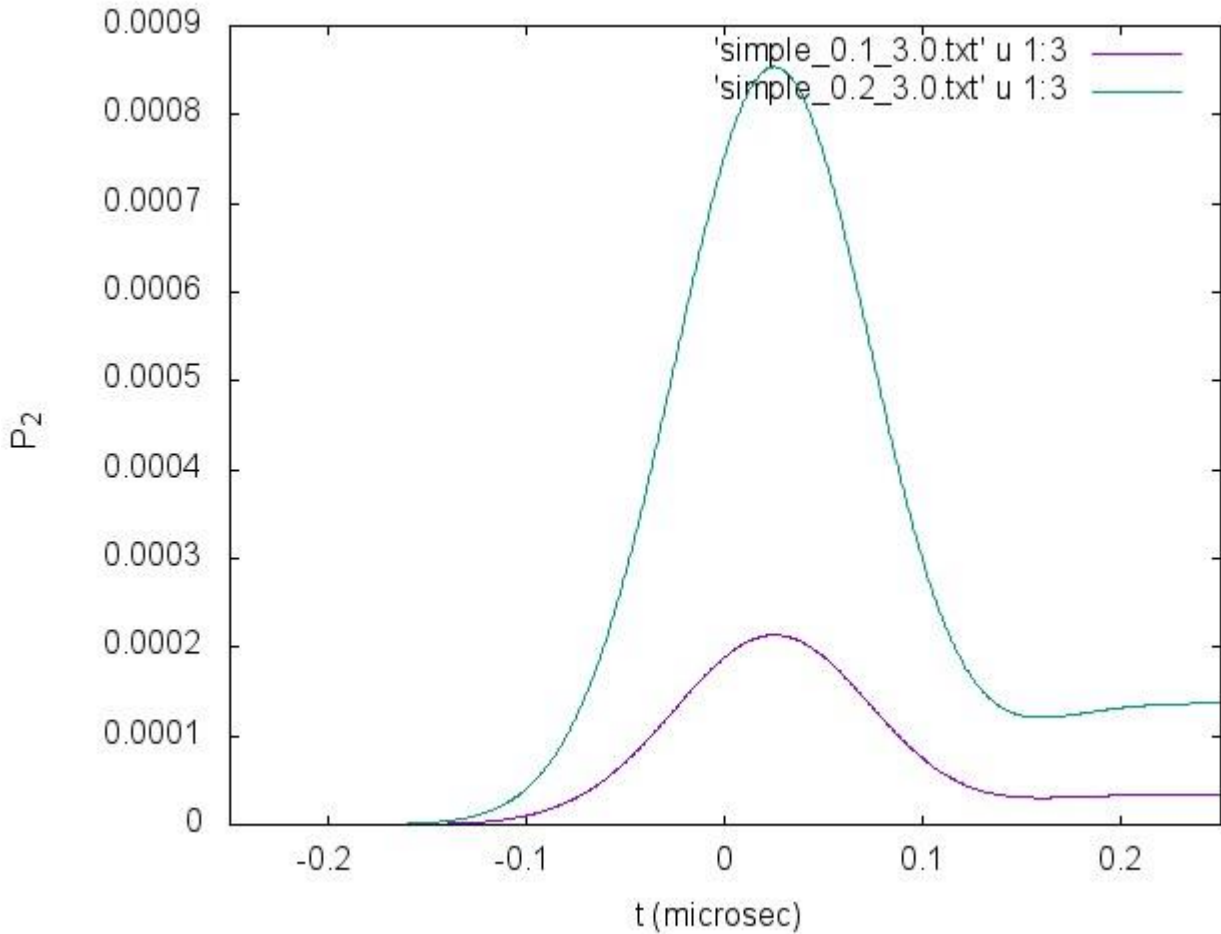
This is the perturbative regime of E-field strength

The probabilities are never large

The final population is proportional to the square of the E-field

The detuning causes the gain in population to decrease

Omega = 0.1 & 0.2, Detuning = 3.0



This is the perturbative regime of E-field strength

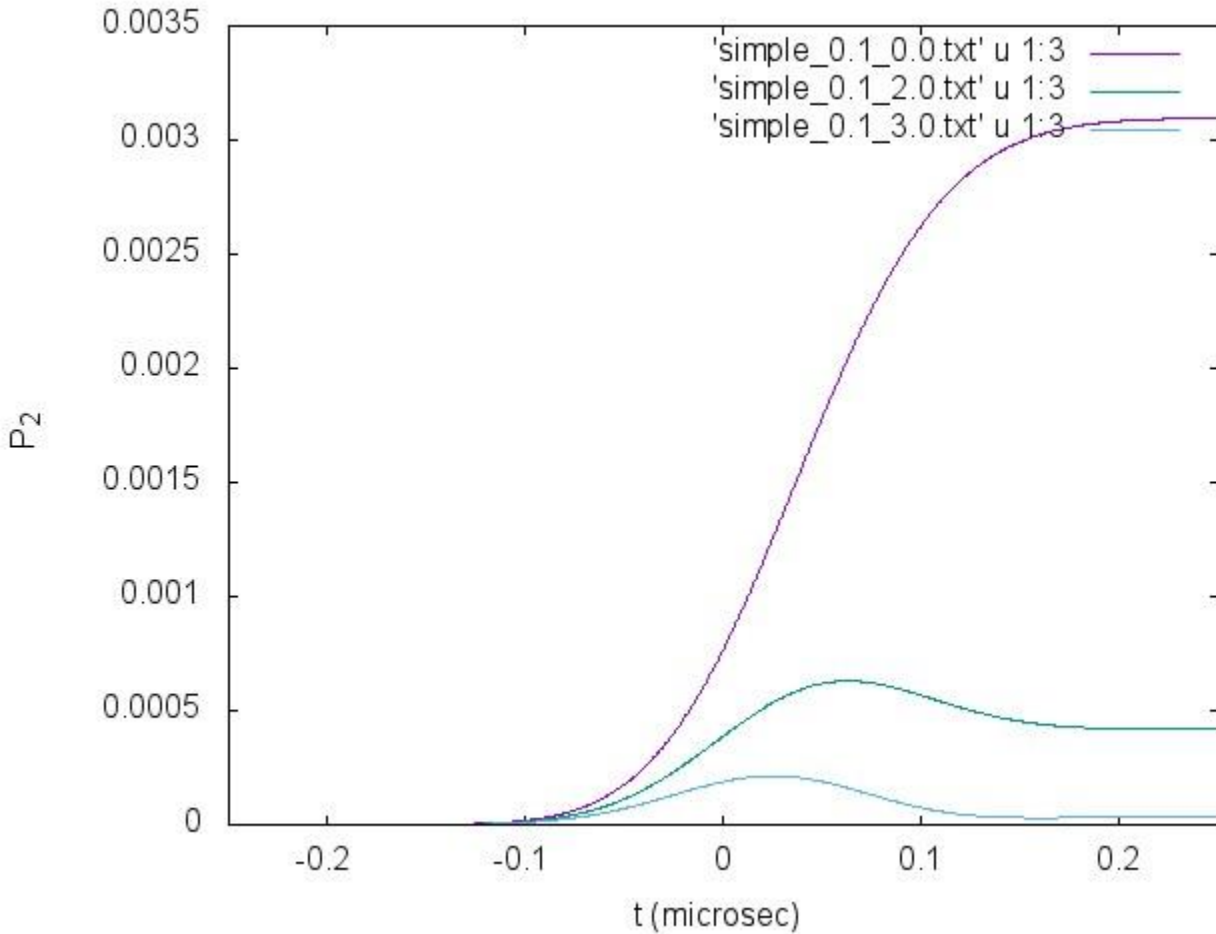
The probabilities are never large

The final population is proportional to the square of the E-field

The detuning causes the gain in population to decrease

As the detuning increases the final population decreases

Omega = 0.1, Detuning = 0.0, 2.0, 3.0



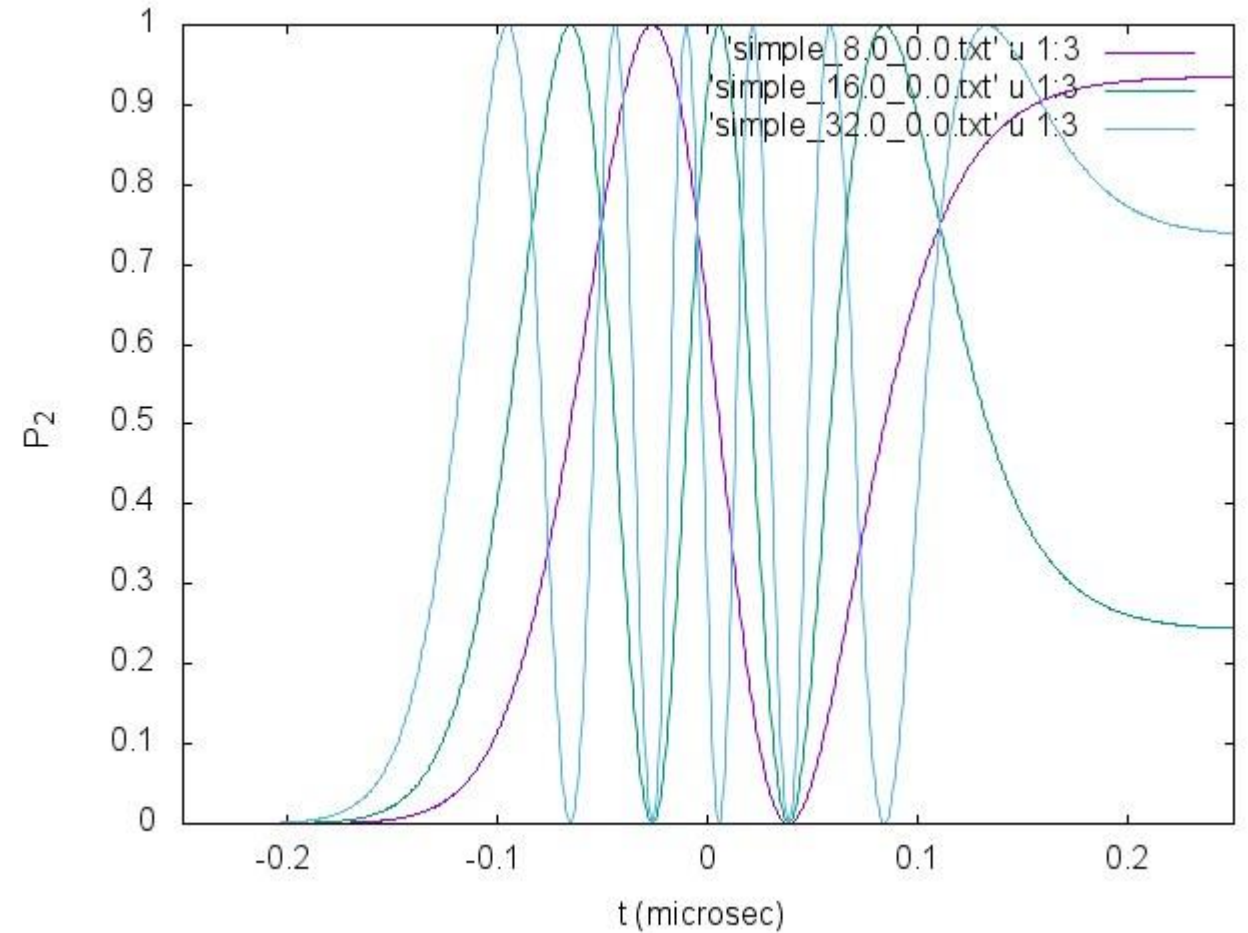
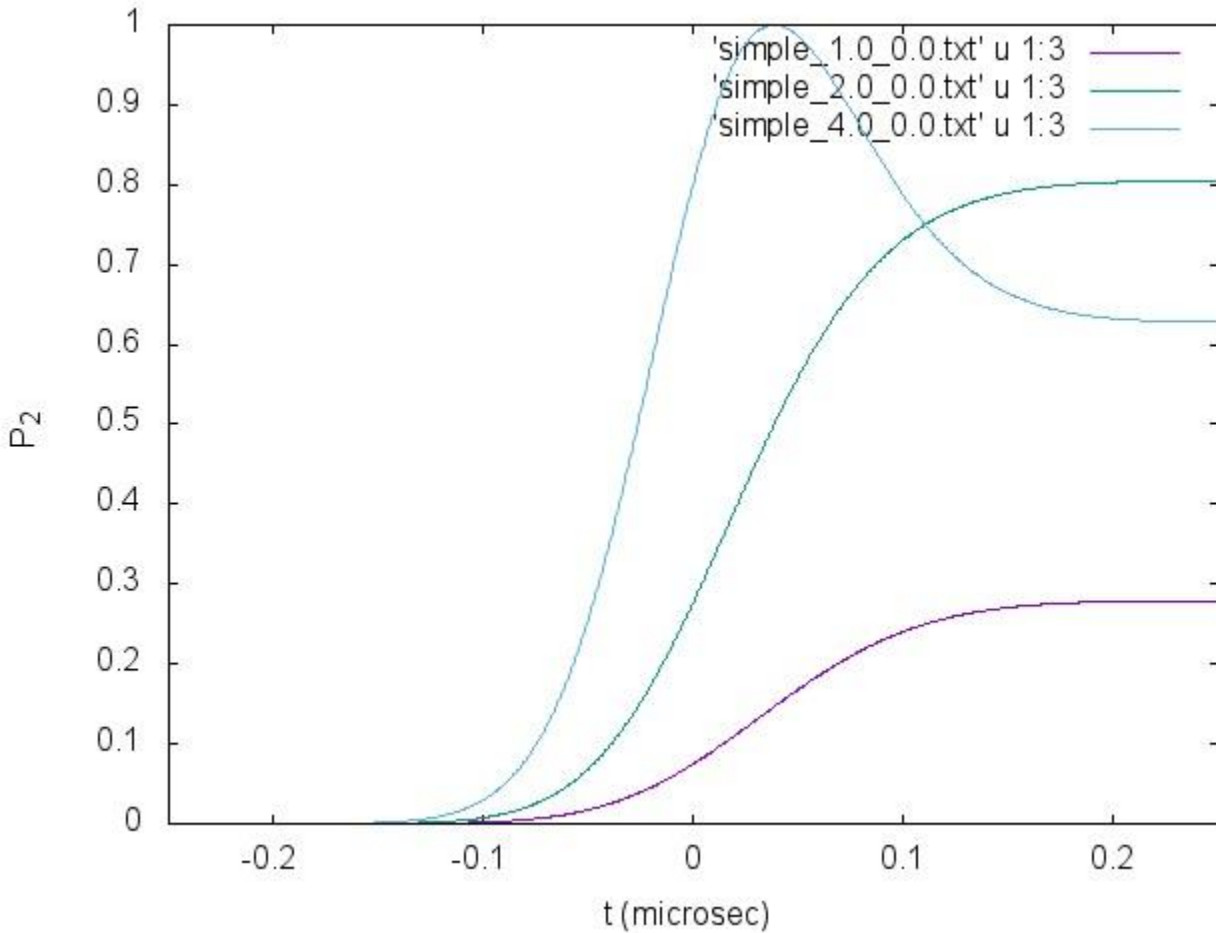
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The detuning causes the gain in population to decrease

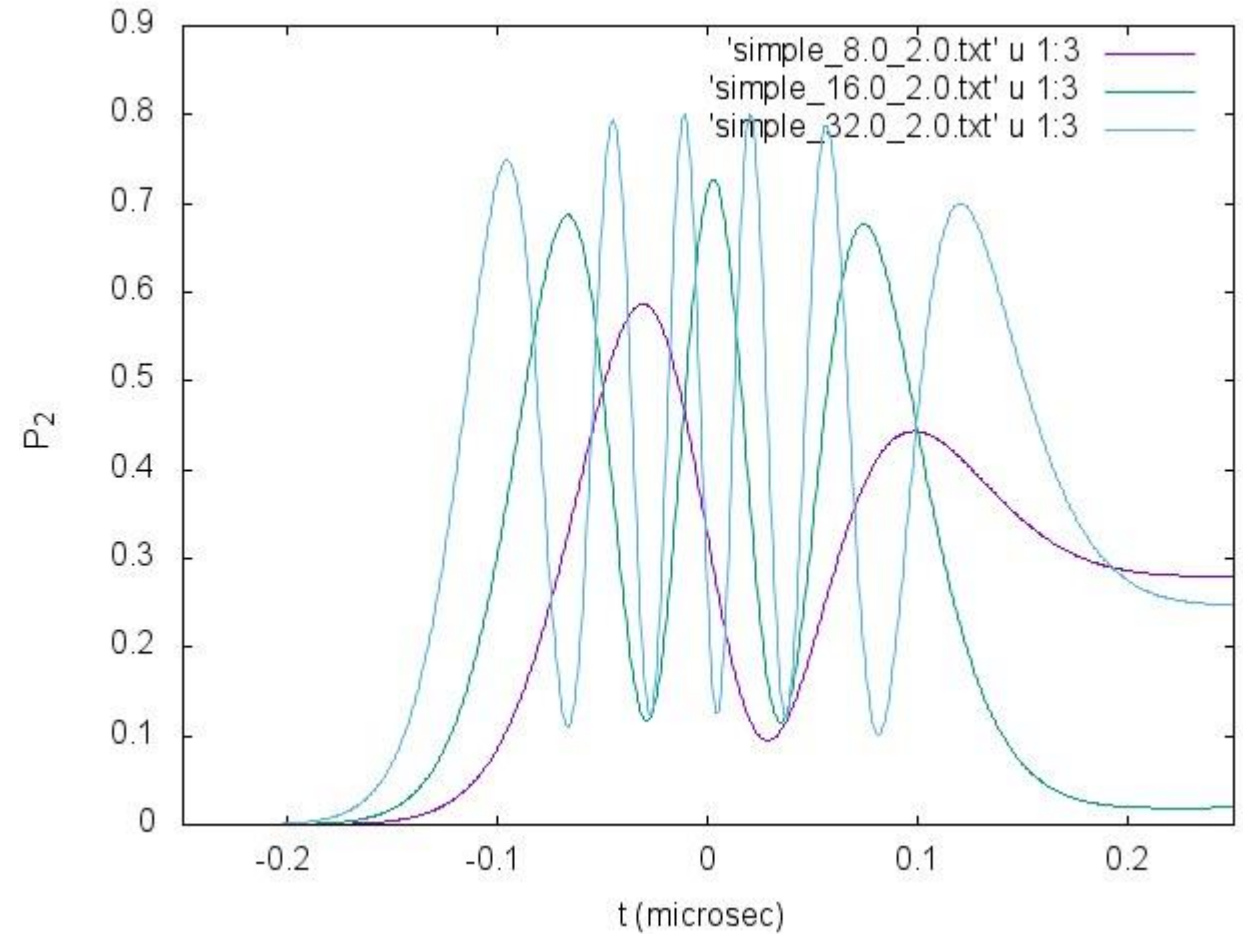
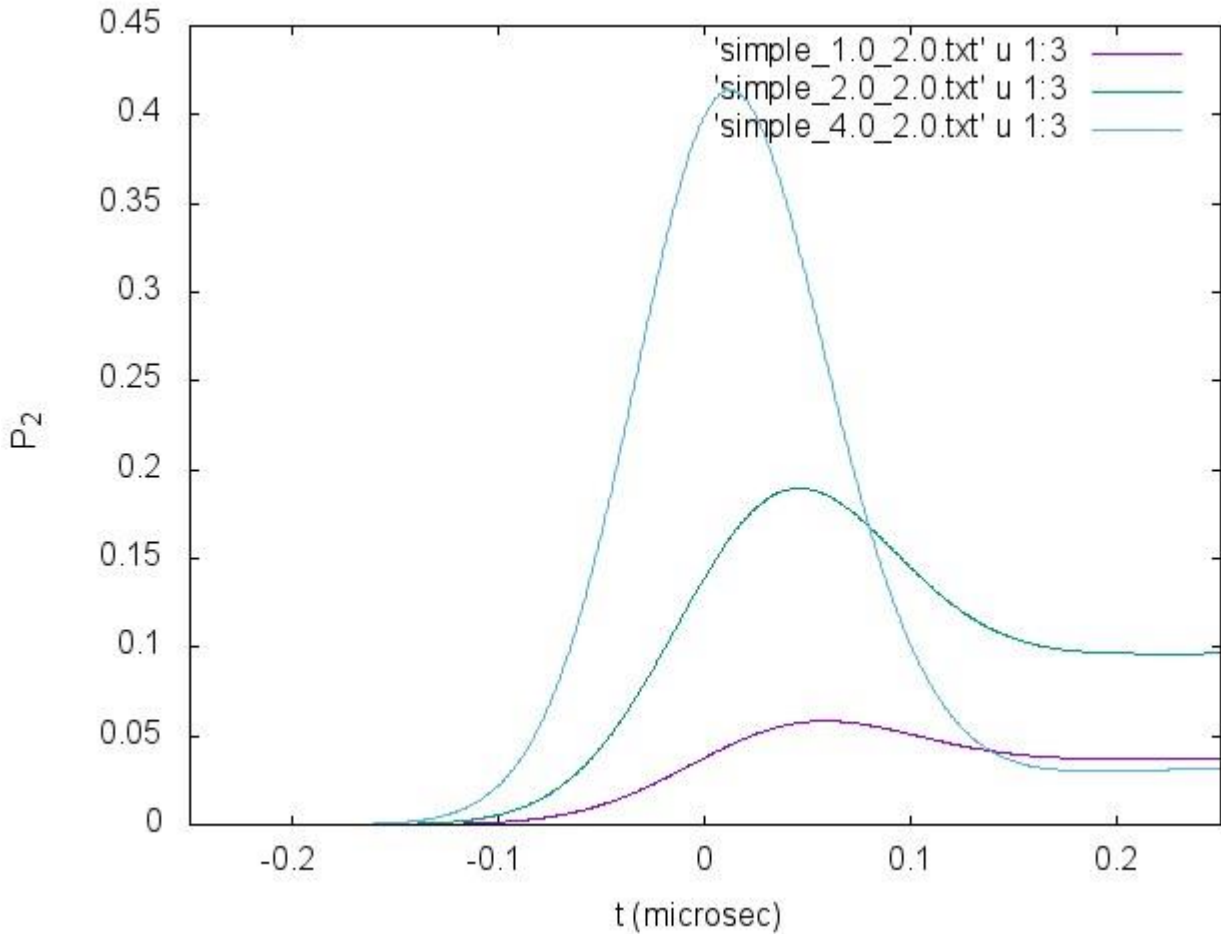
As the detuning increases the final population decreases

Omega = 1, 2, 4, 8, 16, 32, Detuning = 0.0



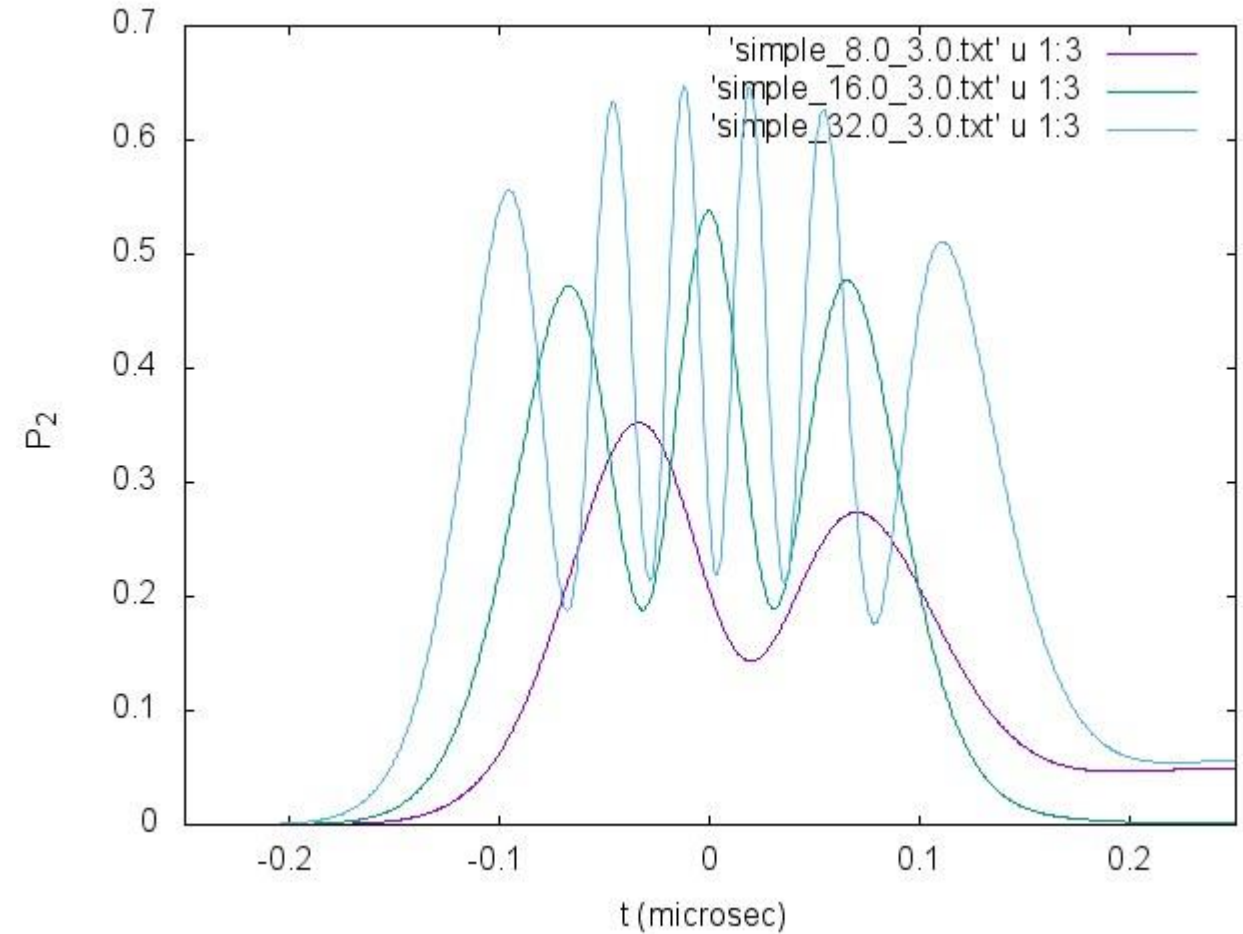
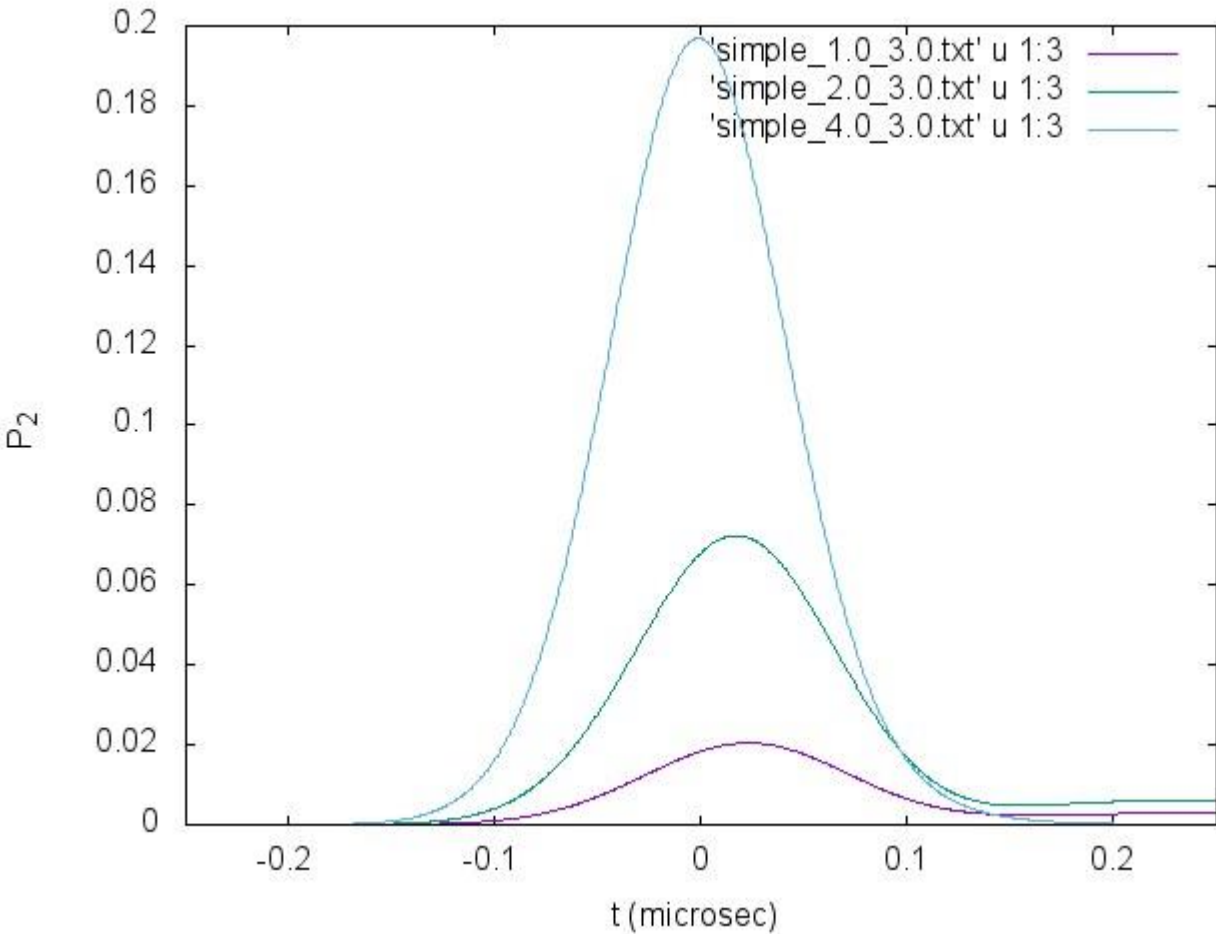
This is the nonperturbative regime of E-field strength
As the E-field strength increases, the population in the excited state oscillates faster
The oscillation frequency is proportional to the E-field

Omega = 1, 2, 4, 8, 16, 32, Detuning = 2.0



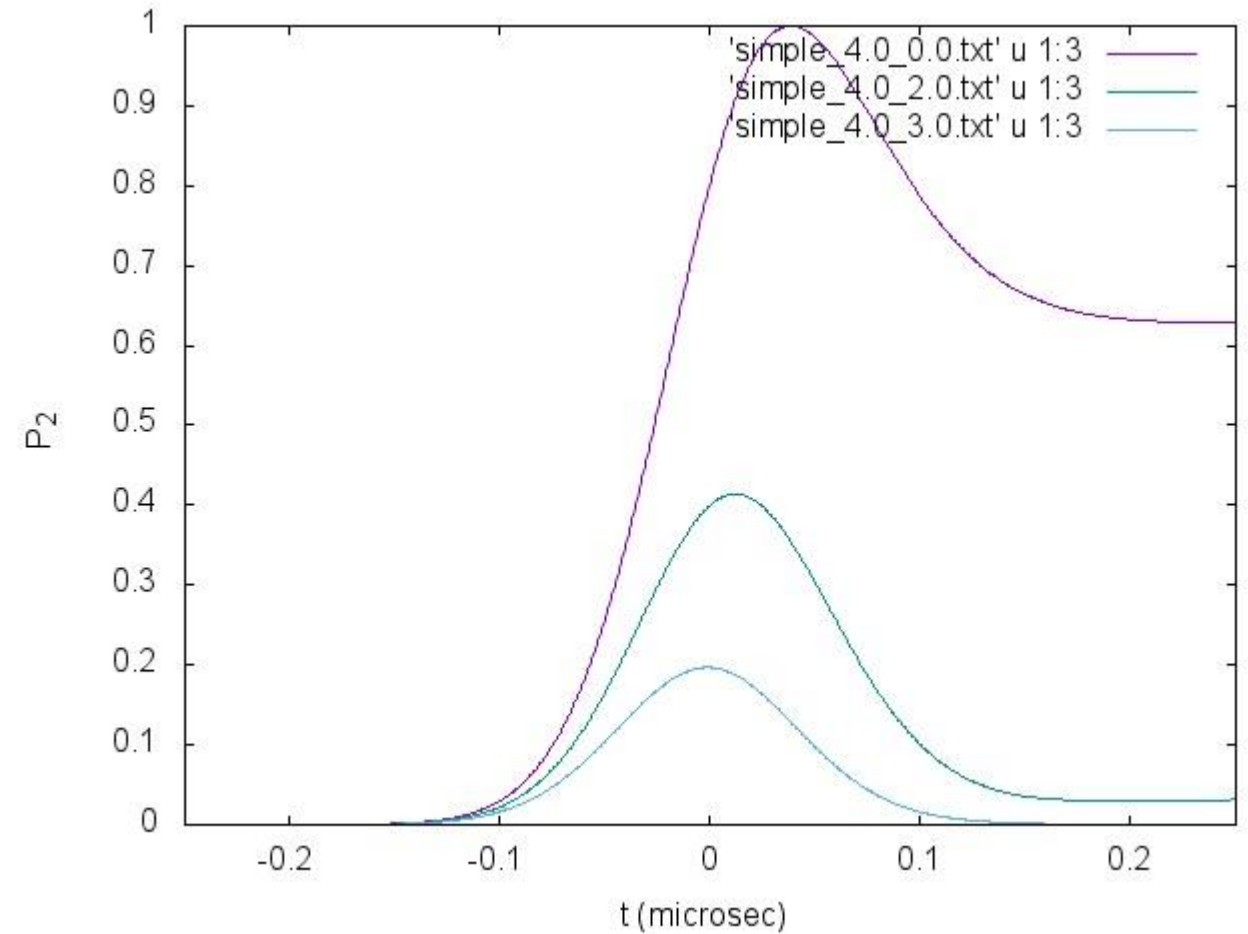
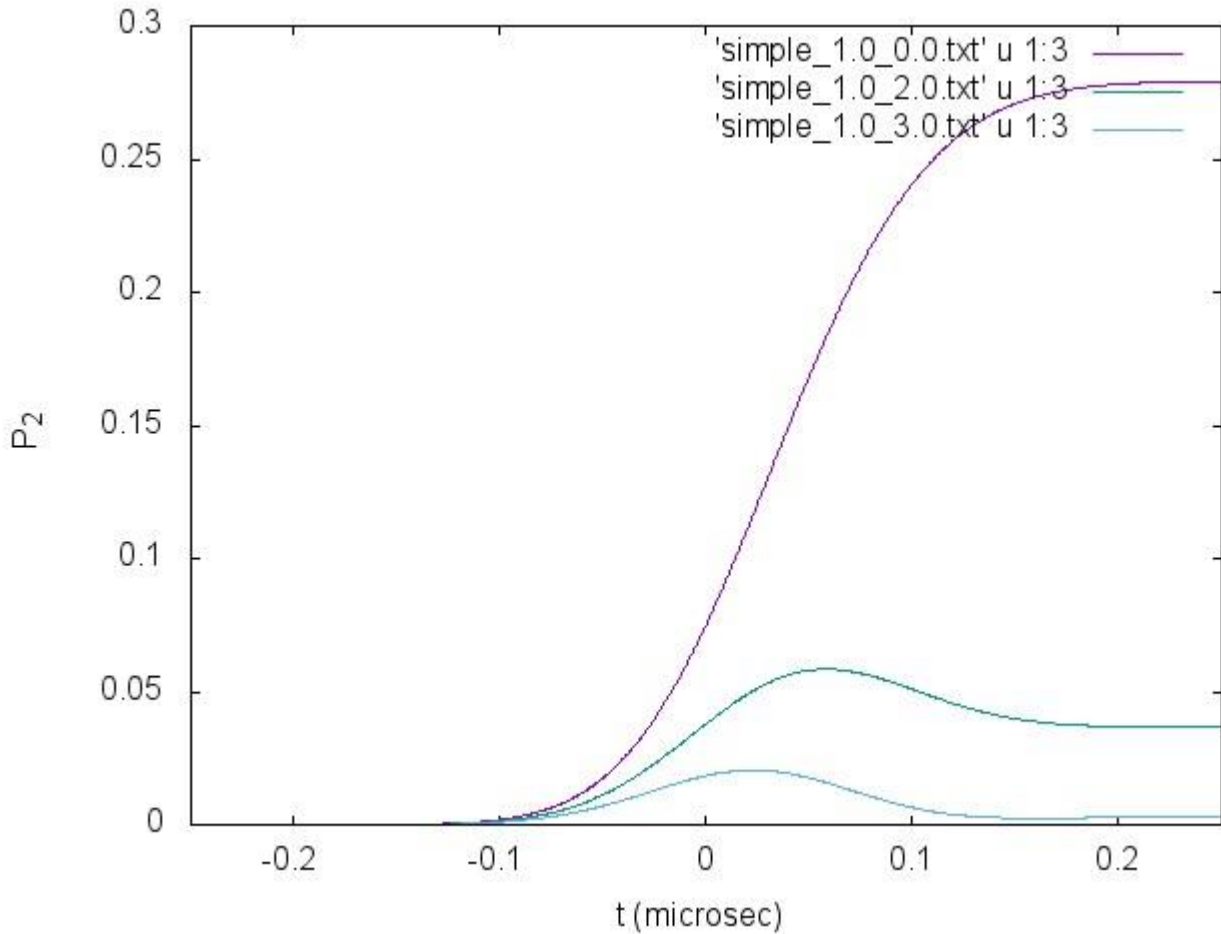
This is the nonperturbative regime of E-field strength
As the E-field strength increases, the population in the excited state oscillates faster
The max excited state population never reaches 1

Omega = 1, 2, 4, 8, 16, 32, Detuning = 3.0



This is the nonperturbative regime of E-field strength
As the E-field strength increases, the population in the excited state oscillates faster
The max excited state population never reaches 1

Omega = 1 & 4, Detuning = 0.0, 2.0, 3.0

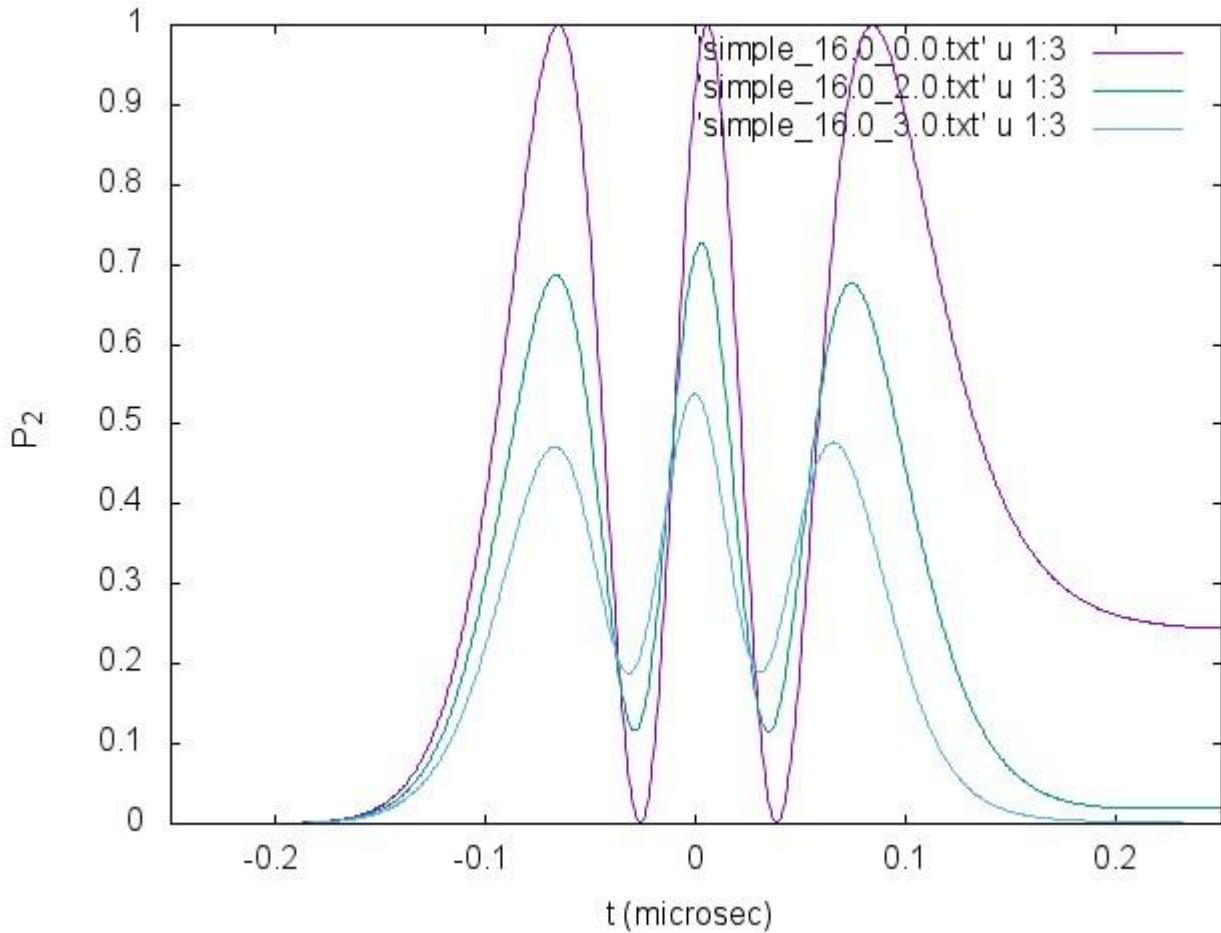


This is the nonperturbative regime of E-field strength

As the E-field strength increases, the population in the excited state oscillates faster

As the detuning increases, the max population and final population decrease

Omega = 16, Detuning = 0.0, 2.0, 3.0

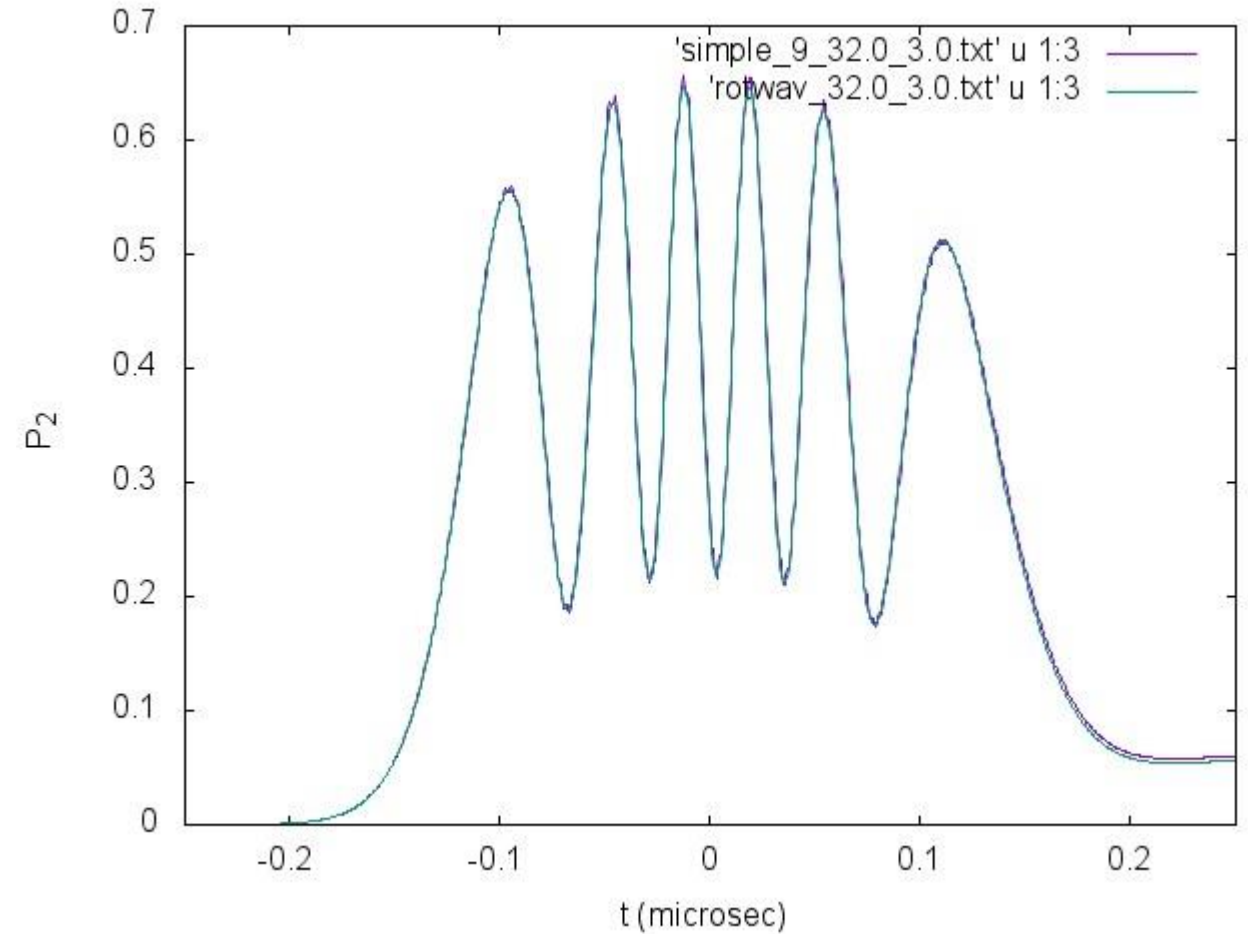
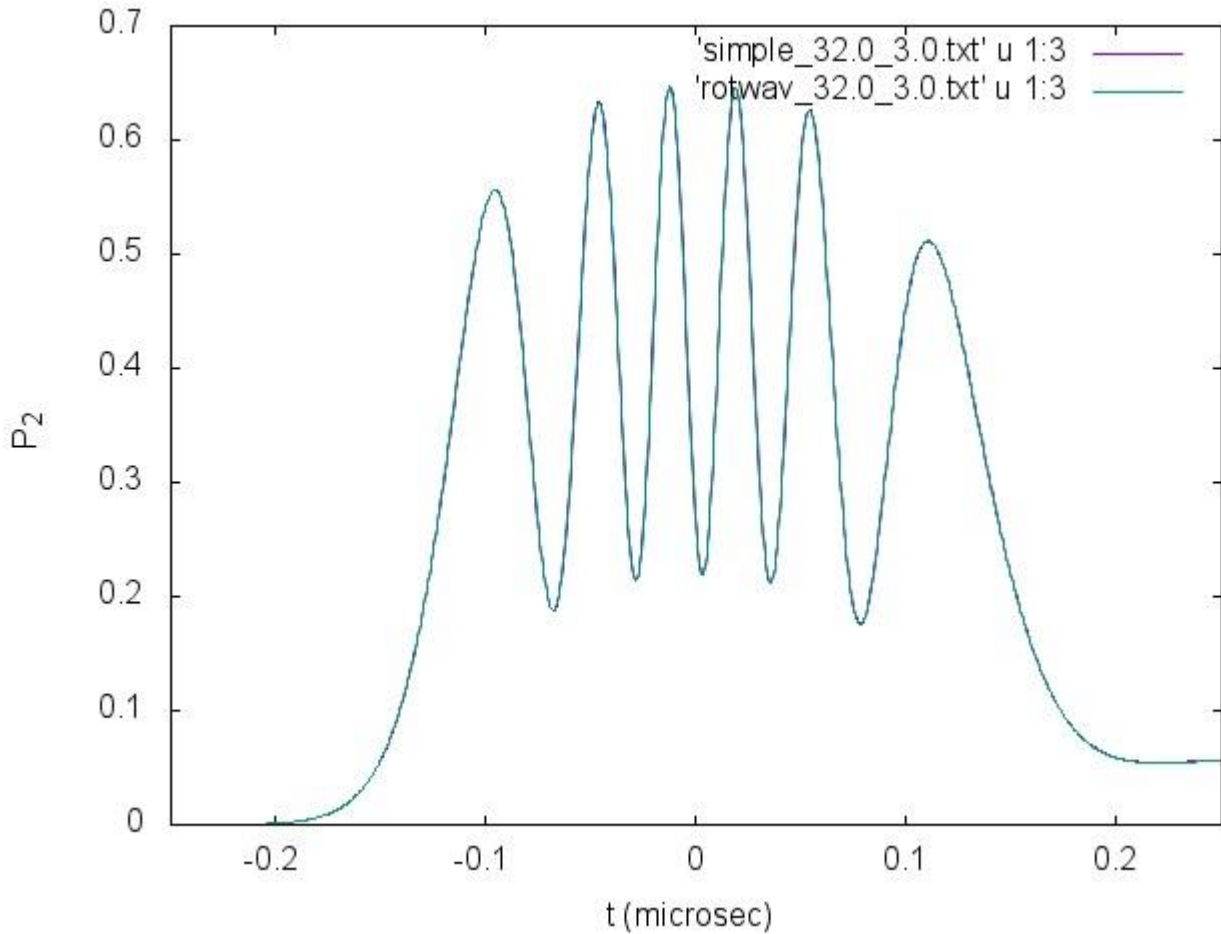


This is the nonperturbative regime of E-field strength

As the E-field strength increases, the population in the excited state oscillates faster

As the detuning increases, the max population and final population decrease

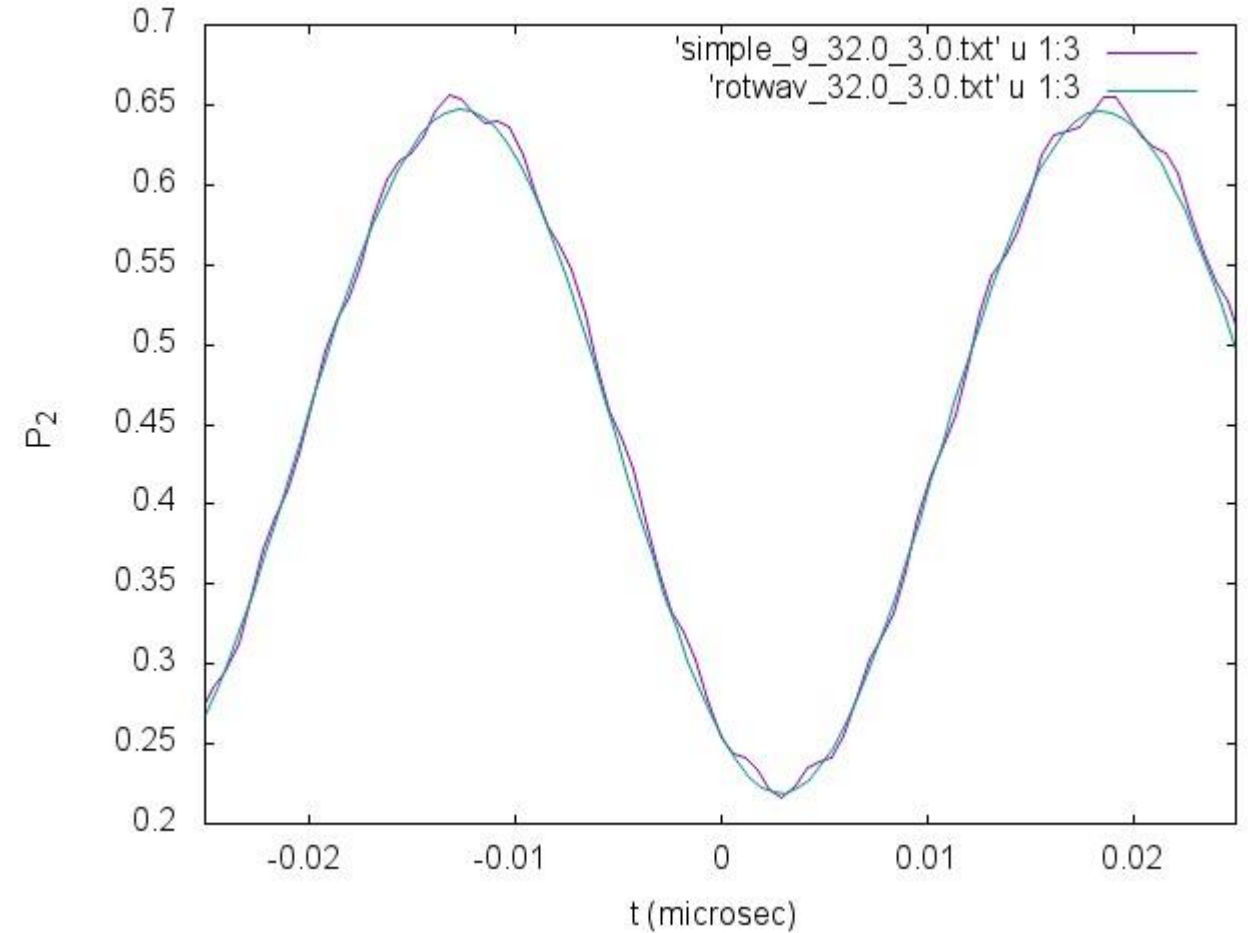
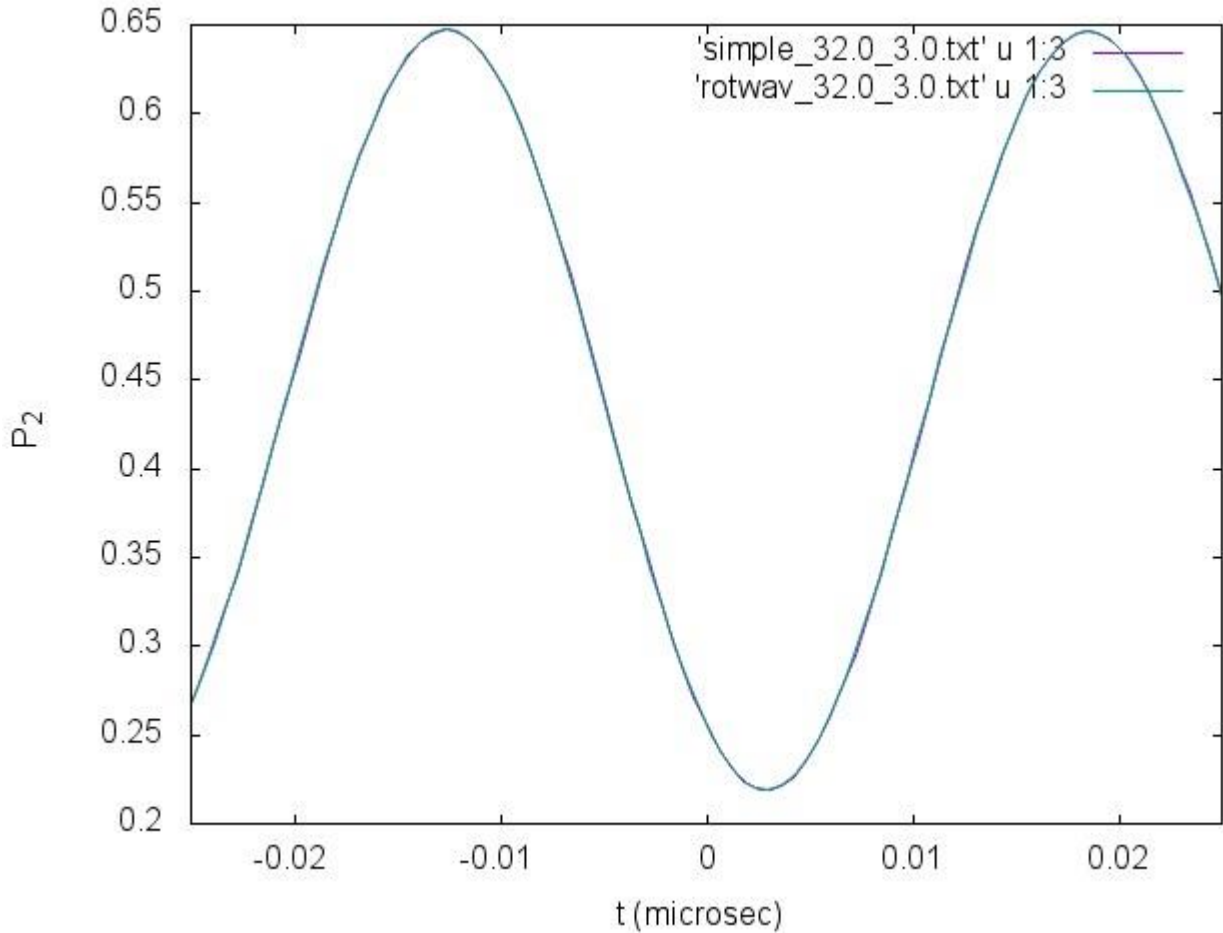
Rotating Wave $\Omega = 32$, Detuning = 3.0



The left case has $\omega_0 = 2 \pi / 1E-10$

The right case has $\omega_0 = 2 \pi / 1E-9$

Rotating Wave $\Omega = 32$, Detuning = 3.0



The left case has $\omega_0 = 2 \pi / 1E-10$
The right case has $\omega_0 = 2 \pi / 1E-9$