Adiabatic sweeps

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Solution: *a. The Hamiltonian is,*

$$\hat{H} = \begin{pmatrix} 0 & \frac{1}{2}\Omega & 0 \\ \frac{1}{2}\Omega & \Delta & \frac{1}{2}\Omega \\ 0 & \frac{1}{2}\Omega & 2\Delta \end{pmatrix} .$$

The numerical MATLAB code in is given in the file 'LM_Bloch_AdiaSweep.m'. A Fig. 2.19(a) shows the result of the simulations.
b. The numerical MATLAB code in is given in the file 'LM_Bloch_AdiaSweep.m'. A Fig. 2.19(b) shows the result of the simulations.

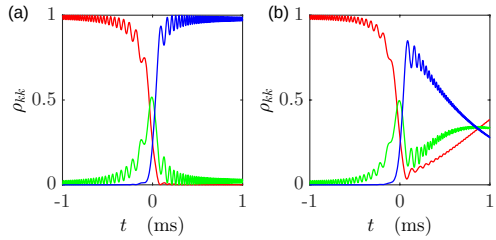

Figure 2.19: (code for download) Adiabatic sweep of the detuning of the radiation through resonance. The curves show the populations of the states $|1\rangle$ (red), $|2\rangle$ (green), and $|3\rangle$ (blue).