Figure 1.1: The DNA double helix with the possible "π-way" for charge transport via the stacked base pairs indicated by the arrow.
Figure 1.2: Schematic views of typical electron transfer and transport system. (a) A standard electron-transfer system containing a donor, an acceptor, and a molecular bridge connecting them (not shown are nuclear motion baths that must be coupled to the donor and acceptor species). (b) A molecular bridge connecting two electronic continua, L and R, representing e.g. two metal electrodes. The Θ blocks represent the thermal environment. This figure refers to reference[64].
Figure 1.3: Simple level structure models for molecular electron transfer(a) and for electron transmission(b). The molecular bridge is represented by a simple set of levels that represents local orbitals of appropriately chosen bridge sites. This set of levels is coupled to the donor and acceptor special(s with their corresponding nuclear environments) in panel a, and to electronic continua(l for left, r for right) representing metal leads in panel b. This figure refers to reference[64].
Figure 3.3: The schematics of Büttiker’s phase-breaking coupler and the generalized boundary condition.
Figure 7.3: 3-dimension profile of stationary amplitude $|z_1/s_0|$ as a function of $\Omega$ and $2^{1/2}\gamma/b$ at a given value of driven strength $b = 0.1$ to represent the weak driving regime (see text for details). Indicated is also the frequency range of $(\Omega_-, \Omega_+)$[Eq. (7.36)] within which SR occurs.
Figure 7.4: 3-dimension profile of stationary amplitude $|z_1|$ as a function of excitation frequency $\Omega$ and noise-level $\gamma$ in the moderate ($b/c=1$) driving regime.
Figure 7.6: Stationary amplitude $|z_1|, |z_3|$ and $|z_5|$ as a function of excitation frequency $\bar{\omega}/\Omega$ with noise-level $\gamma = 0.1$ and 0.01 respectively in the moderate $(b/c=1)$ driving regime.
Figure 7.7: Stationary amplitude $|z_3|$ is plotted vs. $\bar{\omega}/\Omega$ with different driving strength.
Figure 7.8: $|z_1|$ and $|z_3|$ in the vicinity of third-harmonic Rabi resonance $\Omega \approx \bar{\omega}/3$ in the weak driving regime, at the specified value of $\gamma$. The dotted line is the approximated $|z_1|$ via the lowest-order truncation formulation Eq. (7.32)