① first e absorbs E
= emittion. ② get excited
③ then the molecule will undergo collision for radiationless transition that causes the spin to change
④ now it is trapped

Model 5: Phosphorescence.

Another possibility exists for an electronically excited molecule. The excited molecule can undergo a collision (radiationless transition) that causes the spin quantum number to change (usually, this is from an $S = 0$ state to an $S = 1$ state); this is called **intersystem crossing**. The transition back to the ground state is now forbidden and the molecule is *trapped* in the excited state. It will, of course, lose vibrational energy and most likely wind up in the $\upsilon = 0$ vibrational level of the excited state. Eventually, the electronically excited state molecule releases a photon in a radiative transition to the ground electronic state and the spin quantum number, S, *does* change, the molecule is said to **phosphoresce** and the process is called **phosphorescence**. Phosphorescence typically occurs at 10^{-3} to 10 seconds after absorption of a photon.

3 lose E + end 1 singlet
triplet
forbbidn classically.