

Coherent exciton delocalization improves the light harvesting function of photosynthetic antennae by creating conditions for very fast excitation transfer in space. This thesis focuses on two different effects creating coherence - short-lived excitation by light and weak coupling between pigments that is present in the system on longer timescales. The evolution and relaxation of simple systems - the dimer and trimer - are calculated. The core of this thesis are newly developed numerical methods for distinguishing and quantifying the effect of the two types of coherence throughout evolution, which are applied to the aforementioned systems.