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CFEL – Building 99, seminar room I (ground floor)

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### **The energy transmitting behavior of light harvesting complexes with fluorescence spectroscopic methods**

The photosynthesis is essential for all life forms and to make it as efficient as possible green plants have light harvesting complexes (LHC) in their outer organelles. LHCs are able to absorb in the UV/VIS light spectra and transfer it without emission towards the reaction centres within. The LHCII is the most common light harvester and all by itself it is also able to emit by fluorescence. In nature LHCII appears as a trimer and each of its monomers owns a special cluster of three chlorophyll a's which are able to undergo exciton interactions to form the lowest energy state. That way each LHCII should have three predestined positions for emission. A new centre of fluorescence gets selected after the previous one bleached or got destroyed. The in polyvinylalcohol immobilized probe was excited via a 488 and 594 nm laser beam and fluorescence was detected at 681 nm. Due to the Abbe-Diffraction-limit it is not possible to determine the exact positions directly, because of that these were calculated with the captured matrices intensities. This work was the first attempt to prove this broad accepted theory with fluorescence spectroscopic methods and it gave results within the expected range.