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## **Towards in-cell structural study of light-harvesting complexes : an investigation with MAS-NMR**

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# Propositions

belonging to the thesis

## **Towards in-cell structural study of light-harvesting complexes**

### **An investigation with MAS-NMR**

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1. Dynamic spectral-editing NMR could serve as a new tool to resolve and quantify molecular dynamics of different components of photosynthetic thylakoid membranes or whole cells. This thesis, chapter 2, 3 and 5.
2. It is questionable whether spontaneous conformational switching of LHCII does occur *in-vivo*. This thesis, chapter 3.
3. When it comes to distinguishing structures of different LHCII polypeptides, solid-state NMR is more efficient than cryo-EM and X-ray. This thesis, chapter 3.
4. The secondary structure of LHCII undergoes distinct changes upon zeaxanthin binding. This thesis, chapter 4.
5. Zeaxanthin induced NPQ at the protein level affects the cell through reduced dynamics at the thylakoid membrane level. This thesis, chapter 2 and 4.
6. The method of MAS-NMR rotor packing has to be considered when studying light harvesting membrane proteins.
7. In structure-function studies of light harvesting complexes, the importance of fluorescence spectroscopy for structural characterizations is overestimated by its proponents.
8. Turning off unused lights, especially during the day, in research institutes is a good practice towards saving energy resources.
9. When research goes smoothly, it is most likely that something is wrong.
10. Solving Sudoku puzzles and Rubik's cubes are recommended to PhD students for brain exercises.