



Universiteit
Leiden
The Netherlands

Ab initio modeling of primary processes in photosynthesis : protein induced activation of bacteriochlorophylls for efficient light harvesting and charge separation

Wawrzyniak, P.K.

Citation

Wawrzyniak, P. K. (2011, January 26). *Ab initio modeling of primary processes in photosynthesis : protein induced activation of bacteriochlorophylls for efficient light harvesting and charge separation*. Retrieved from <https://hdl.handle.net/1887/16380>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/16380>

Note: To cite this publication please use the final published version (if applicable).



Piotr K. Wawrzyniak

Ab initio modeling of primary processes in photosynthesis

Protein induced activation of bacteriochlorophylls for efficient light harvesting and charge separation

Everything started in 1780 when Joseph Priestley, an English chemist, enclosed a mint plant and a burning candle in a glass jar. Surprisingly, the candle burned without interruption, even though in earlier experiments it was extinguished quickly when no plant was present in the jar. Now, 230 years later, we know a lot more about photosynthesis, but still many details, like the origin of the functional asymmetry in bacterial reaction centers, remain unknown. Thus, the work presented in this dissertation focuses on the functional asymmetry and the role of bacteriochlorophylls α -protein interactions in the bacterial reaction center and light-harvesting complex II. A detailed understanding of those processes may provide a significant insight as to the nature and functioning mechanism of the solar energy conversion machinery. This knowledge will be beneficial for the development of artificial photosynthetic devices, which would facilitate the solution of the global energy problem.

ISBN: 978-90-816603-1-0



9 789081 660310

Piotr K. Wawrzyniak

Ab initio modeling of primary processes in photosynthesis

Protein induced activation of bacteriochlorophylls for efficient light harvesting and charge separation

Piotr K. Wawrzyniak

Ab initio modeling of primary processes in photosynthesis

