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Light-to-Energy Conversion in Organic Solar Cells and Molecular Motors

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Propositions

associated with the PhD thesis

Light-to-Energy Conversion in Organic Solar Cells and Molecular Motors

by Nong V. Hoang

1. Multiple exciton crossings over the boundaries of domains with different molecular orientations enhance the yield of light-to-energy conversion (**Chapter 2**).
2. The quadratic dependence of the excited-state population on the excitation light intensity is vital in demonstrating photon upconversion processes (**Chapter 3**).
3. Attaching a two-photon absorption antenna into a rotary molecular motor enables motor rotations under low-intensity, near-infrared light (**Chapter 4**).
4. Multiple tasks of functionalised light-driven molecular motors can be fulfilled by using different colours of light (**Chapters 5 and 6**).
5. The amount of time to complete this thesis is approximately equal to 375,000 rotation cycles of the fastest speed motor in **Chapter 5**.
6. Scientific collaboration allows one to share research challenges and overcome them within a shorter time than working alone.
7. In order to read these propositions, light must undergo energy conversion in the retinal and form electrical signals to be processed by the brain.
8. “Eye safety” should be used instead of “laser safety”: a laser can be replaced, but an eye cannot.