Interested In Solving the World Energy Issues?

In this case, we are looking for motivated students for a 30 or 60 credit Master's thesis project in our group, working with Molecular Solar Thermal Energy Storage (MOST).

Molecular solar thermal energy storage (MOST) systems are based on molecules that can absorb sunlight and convert to high energy photoisomers. The solar energy is stored in the photoisomer and the energy can be released on demand as heat using a catalyst. A promising molecular system for MOST applications is the norbornadiene – quadricyclane. (Figure 1).

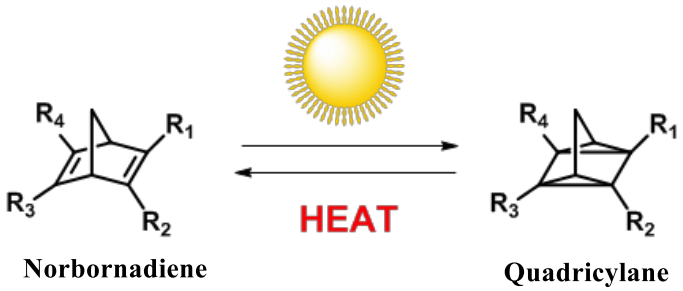

Figure 1. Photoinduced isomerization of norbornadiene to quadricyclane and the back conversion.

In order to obtain an efficient MOST system, several challenges have to be addressed. The absorption of norbornadienes need to match the solar spectrum and at the same time the quadricyclanes have to be kinetically stable to allow storing the energy for a long time. Therefore, the system has to be chemically modified and new types of norbornadiens have to be evaluated.

In this project you will be working in collaboration with a PhD student and the focus will be on the following:

- **Organic synthesis to develop new types of norbornadienes, where you will learn how to plan and perform organic reactions.**

- **Photochemical characterization, where you will learn a variety of spectroscopy techniques.**

If you are interested please visit our website and contact Maria Quant, Ambra Dreos or associate Professor Kasper Moth-Poulsen.

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