

Photocatalysis – Challenges and Future Perspectives

March 27.-30. 2023, Lorentz Center@Snellius

Scientific

Description and aims:

With this workshop, we aimed at bringing together experts from complementary and diverse fields of photocatalysis, namely *artificial photosynthesis*, *organic methodology*, *spectroscopy* and *photo-biocatalysis*. All topics were covered by invited key participants *via* tutorial lectures that allowed for a diverse audience and inspirational lectures that provided a peak into the future. Ample time for discussions was a priority along with networking to identify future collaborative endeavors.

Merging these different research fields resulted in synergistic effects and different perspectives in terms of identifying challenges and identifying potential solutions. We were delighted to notice that this workshop has initiated the beginning of a collaborative network that can ultimately develop novel, interdisciplinary concepts for powering the chemical industry and energy production by light.

Tangible outcome:

We have collected notes from the workshop as well as slides from the key speakers that can be used to tackle our scientific challenges with more perspective. Together with the invited speakers, we are currently working on a white paper, summarizing the challenges and future perspectives of photocatalysis from the different viewpoints. In addition, we have now established a network of a diverse set of people with whom we can reach out to for scientific discussions and collaborations.

Scientific breakthrough:

The scientific breakthrough of the workshop was the use of water as ideal solvent for chemical reactions and the use of air as non-competitive reaction atmosphere.

“Aha” moments:

Although we came from a diverse background, we have key similarities in our research interests, namely the understanding of photophysical mechanisms or the use of small molecules as building blocks for future fuel applications.

Organization

Format of the workshop: The workshop was coherently organized by tutorial lectures to start each day by young group leaders from different countries. Short research updates by PhD students, postdocs and (young) group leaders were the key scientific contributions, and each session was complemented with extensive Q&A rounds. A dedicated poster session on the first day, initiated discussions among the participants and was continued throughout the workshop as posters were available in the hallway during (coffee) breaks. An excursion to the Naturalis Museum complemented the program and allowed everyone a broader vision on natural sciences as most attendees had a background in chemical fields. Finally, on the second and last day two dinner lectures supplemented our program and focused on the difficulties and opportunities of an academic career, as well as the future promises of the field of photocatalysis and photochemical processes.

Other comments: We are grateful for the support from Linda Zwinkels and the Lorentz Center, the financial support of Shimadzu and ChemPhotoChem for sponsoring of the poster prize.

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