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Solar2Chem News

Dear friends,

In this fourth newsletter you can find the latest updates on our project, including information on our participation and organisation in future events.

Our research and collaborations are constantly improving with a series of workshops organised by Solar2Chem consortium. This semester saw the relaxation of coronavirus restrictions which finally allowed us to meet in person for our latest Solar2chem workshop, at Technical University of Denmark (DTU), Lyngby!

Learn more about our project



Our events

3rd Solar2Chem Training Workshop

The 3rd Solar2Chem Training Workshop was organized by Technical University of Denmark (DTU), Lyngby, Denmark in November 2021. It was organised as a “hybrid” workshop with a mixture of both in person and online speakers. It was in the late autumn with a beautiful Scandinavian backdrop of fallen leaves in rusted tones of yellow and orange, although the weather was overcast and a bit chilly. **On the first day, we had a general introduction from our workshop coordinators (Dr. Pau Farras and Prof. Peter Vesborg) and then our first speaker (Harry A. Atwater) from Liquid Sunlight Alliance (LiSA), California, USA** who gave a very informative presentation on photocatalysis and the research on coupled microenvironments at LiSA. After this, we had a tour of the research facilities at DTU.

Peter Vesborg) and on the large-scale characterisation facilities at the ALBA synchrotron (Dr Carlos Escudero). Then we met Dr Steve Cross again from our 1st Workshop who gave a seminar on harnessing design thinking for better public engagement. We ended the final day with a hands-on activity for our ESRs involving oxygen evolution reaction (OER) catalysts.



On the third day, we had scientific presentations on how defects can be used to manipulate photocatalytic properties of organic polymers (Dr Oleksandr Savatieiev), Dr Escudero continued his presentation from the day before with an in-depth explanation of the CIRCE beamline and Dr Csaba Janaky presented on the basics of photo electrochemistry. We ended the day with the transferable skills workshop on scientific funding applications and CV writing tips from Paul Collier and Dougie Leacy respectively.

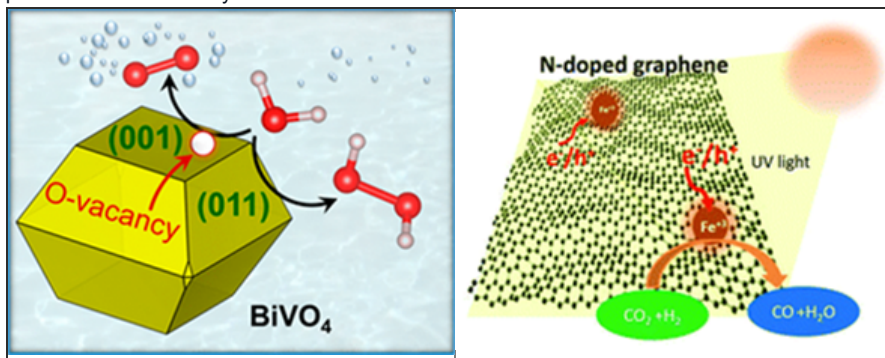
The final day of the workshop we had a short meeting and presentations from all our ESRs on their scientific progress.

ESR activities

As all ESRs continue to further progress in their respective projects and endeavours, it is our pleasure to announce that two more members of the Solar2Chem family have made their contributions public.

Horațiu Szalad highlighted how Fe clusters embedded on a nitrogen doped carbon can suffer an increase in their local temperature upon light irradiation, hence driving CO_2 hydrogenation. This photothermal effect was proven to be driven by a charge recombination mechanism. For more details, you are free to check his study "[Fe clusters embedded on N-doped graphene as a photothermal catalyst for selective \$\text{CO}_2\$ hydrogenation](#)" in ChemComm.

Pavle Nikačević has brought significant progress in the understanding of the water oxidation reaction mechanism on BiVO_4 surfaces. With the employ of *density functional theory*, solid proof indicating how crystallographic facets and oxygen vacancies influence selectivity has been provided. We urge you to follow his work "[Influence of Oxygen Vacancies and Surface Facets on Water Oxidation Selectivity toward Oxygen or Hydrogen Peroxide with \$\text{BiVO}_4\$](#) ", published in ACS Catalysis.



Colloids and Interfaces in October 2021 under the supervision of **dr. Oleksandr Savatieiev**, where he is to further investigate photocatalytic hydrogen peroxide evolution employing carbonaceous catalysts. Similarly, Carolina Pulignani has also started her secondment at **Max Planck Institute of Colloids and Interfaces** focusing on preparation and optimization on carbon nitride based photoelectrodes. In the upcoming months, several other mobilities involving the ESRs are to follow.



At our 3rd workshop in DTU Lyngby, we welcomed the newest member to our project, **ESR 15, Muhammad Saad Naeem** who will be working on the characterisation and mass transport modelling of ion-selective membranes for water splitting at Institute of Chemical Research of Catalonia (ICIQ).

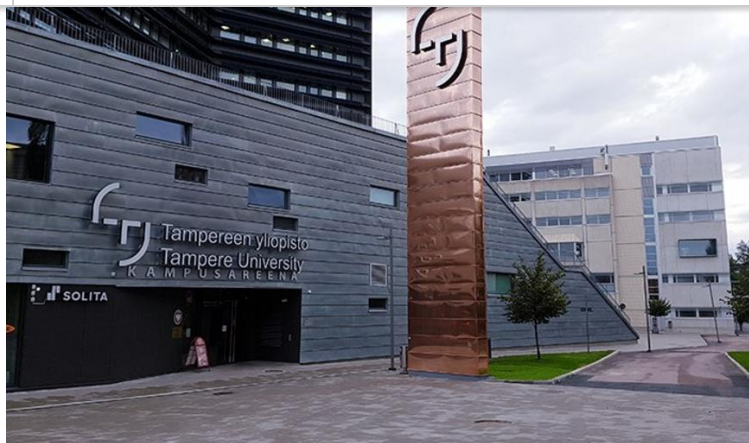


Overall, it was a very productive workshop and we are looking forward to our next events in Tenerife, Spain and Tampere, Finland!



Upcoming events

1. Solar2Chem x Seafuel symposium from the 1st of April 2022 in Tenerife, Canary Islands (Spain) as part of seafuel launch event. Details will be available on Solar2Chem and Seafuel social media pages.
2. Solar2Chem 4th Training Workshop from 3rd to 6th of May 2022 in Tampere University, Finland.



The Solar2Chem family continues to have a strong online presence throughout the social media platforms. To keep up with recent news and upcoming events, don't forget to follow us on [Twitter](#), [Facebook](#), [LinkedIn](#), [Instagram](#) and [YouTube](#), and to check the official website of [Solar2Chem](#).

Best wishes,

The Solar2Chem Project



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