

Tentative Outline

Special Thematic Issue for the journal Journal of Photocatalysis

Photocatalysis: Environmental and climate friendly technology
Guest Editors: Henrik Jensen, Photocat A/S (henrik@photocat.net)

- **Scope of the Thematic Issue:**

Photocatalysis has for many years been known to reduce air pollution in cities without adding energy other than sun light to run the process. The photocatalytic process is the only air remediation technology showing a zero CO₂ footprint in the use phase. However, still today photocatalysis does not receive the attention as it potential call for as a climate friendly purification technology.

Photocatalysis in its use phase needs no added energy or materials other than light. Therefore, photocatalysis has the potential to be the green and environmentally friendly technology we all are looking for - to clean the air we breathe but also to clean surfaces and water in the most environmental and climate friendly way.

Photocatalysis also has the potential for producing hydrogen at low cost using only the sun and water.

This thematic issue is therefore devoted to research works highlighting photocatalysis as a green climate friendly technology within cleaning of air, water and surfaces and as a clean source for energy production. Contribution to this thematic issue could deal with:

- Photocatalytic CO₂ footprint for removing air pollution (e.g. NO_x, ozone). in urban space.
- Photocatalytic CO₂ footprint for removing air pollution in industrial application (air filters).
- Photocatalytic remediation of climate gasses (CO₂, ozone, methane, and N₂O).
- Photocatalytic clean surfaces – a CO₂ and environmentally friendly technology.
- Self-cleaning solar panels – reduced soiling for improved efficiency.
- Self-cleaning windows – a climate friendly window cleaning.
- Cost benefit analyses of air purification by photocatalysis.
- Clean technology for cleaning surfaces – removal of dirt and organic material on urban city inventory.

Both theoretical research works modelling for example the CO₂ footprint as well as lab. and real-life studies are welcome to this thematic issue.

Thematic issue is a collection of 8-10 comprehensive reviews on a topic of major importance to the field. **The contributors should be outstanding researchers having a respectable h-index (above 10) and should be from various technologically advanced countries.**

Keywords: (6 to 8 keywords should be provided)

Photocatalysis, climate, NO_x, CO₂, remediation, energy, clean surfaces, climate gasses.

Sub-topics:

The sub-topics to be covered within the issue should be provided:

- CO₂ footprint
- Removal of climate gasses
- Clean energy production
- Clean surfaces

Tentative titles of the articles and list of contributors:

Tentative titles of the articles and list of contributors with their names, designations, addresses and email addresses should be provided.

Self-cleaning solar panels – photocatalysis to improve the output of solar panels. Gisele Alves dos Reis Benatto (garb@fotonik.dtu.dk, H-indeks = 14), Peter Poulsen (ppou@fotonik.dtu.dk), DTU Fotonik | Photovoltaic Materials and Systems, Frederiksborgvej 399 Building 130, 4000 Roskilde.

Remediation of NO_x in urban space – CO₂ footprint of photocatalysis. Professor Thomas Højlund Christensen (thho@env.dtu.dk, H-index 95), DTU Environment, Department of Chemical Engineering and Henrik Jensen (henrik@photocat.net, H-index 12), Photocat A/S, Langebjerg 4, DK-4000 Roskilde.

Cleaning of water by photocatalysis. Professor Matthew Johnson (msj@chem.ku.dk, H-index 33), University of Copenhagen, Department of Chemistry.

Reduction of CO₂ by photocatalysis. Nina Lock (nlock@eng.au.dk, H-index = 24), Dept. of Engineering, Aarhus University, Denmark.

Clean energy production by photocatalysis. John Guerra (jguerra@nanoptek.com, H-index =). LightFuel Hydrogen, 35 Beharrell St. Unit 1445, Concord, MA 01742.

An environmentally friendly self-cleaning coating for buildings. Erick Ringot (ringot@lrvision.fr, H-index = 15), LR Vision, 13 rue du Développement - ZI de Vic - FR31320 Castanet-Tolosan France and Julie Hot (hot@insa-toulouse.fr, H-index = 8), Institut National des Sciences Appliquées, Toulouse.

Removal of the climate gas ozone by photocatalysis. Teis N. Mikkelsen, (temi@env.dtu.dk, H-index = 40), Technical University of Denmark, DTU Environment, Air, Land and Water resources, Bygningstorvet, Building 115, room 260, DK-2800 Kgs. Lyngby.

Schedule:

- ✧ Thematic issue submission deadline: February 14, 2021.

Contacts:

Guest Editor Name: Henrik Jensen

Affiliation: Photocat A/S, Langebjerg 4, 4000 Roskilde, Denmark

Email: henrik@photocat.net

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