

MSE 2024

24 - 26 Sep 2024 (Darmstadt)
dgm.de

Topic P: Processing and Synthesis

P04: International Symposium on Functional Nanomaterials and Carbon-neutral Fuels

For responsible climate change and to combat global warming, the development of carbon-neutral energy technologies based on renewables and earth-abundant resources is inevitable. Solar energy is nature's gift to humanity and energy conversion from the sun has the potential to provide sustainable energy solutions, however, sunlight cannot be utilized directly due to its intermittent and diffuse nature. The direct conversion of solar energy to platform chemicals acting as energy carriers needs efficient photoabsorbers and photocatalysts that can convert photonic energy to drive chemical reactions for activating small molecules such as water, nitrogen and carbon dioxide to generate carbon-neutral fuels. This symposium will put the spotlight on the challenges related to the discovery of functional materials, synthetic routes to produce them and routes to assemble as devices, which are central to the transformations required for achieving a global energy transition. This symposium aims to share recent progress in the research area regarding the strategies to create renewable energy sources via reduction of CO₂ emission. The topical scope covers various aspects of carbon-neutral sustainable development, providing an opportunity to actively discuss recent research trends and seek opportunities for collaboration.

Session topics

- Advanced materials for photoenergy harvesting
- Photoelectrochemical cells and photo(electro) catalysts
- Solar driven production of fuels
- CO₂ conversion into fuels (gas to liquid approaches)
- Hydrogen production and storage
- Conversion of gaseous emission (CH₄, NO_x, etc) to liquids using solar light
- Small molecule activation to produce NH₃, H₂O₂, H₂

Symposium Organizer



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