Special Issue

New Advances in Electrophotocatalysis

Message from the Guest Editors

Electrophotocatalysis, the field joining photocatalysis in the visible domain with electrocatalysis, takes advantage of the reduction or oxidation power of the electrogenerated radical ions to enable reactions that are thermodynamically difficult. The challenges are still significant and include, among others, the impact of local heating near the electrode surface on mass transport, the back electron transfer of the ion radical excited state with the electrode, and surface chemistry related to the heterogeneous process. The payoff of surpassing current challenges is permitting selective functionalization of C–H bonds of complex molecules, which in itself is one of the long-standing challenges for the organic synthesis community. The focus of this Special Issue is on recent discoveries in the field, entailing the design, synthesis, and characterization of the electrophotocatalyst; analytical evaluation of processes at the nanoscale; and theoretical and experimental mechanistic studies toward overcoming current electrophotocatalysis challenges.

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Deadline for manuscript submissions

closed (31 December 2021)

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/si/63537

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