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Special Issue Reprint

New Trends in Photo(Electro)catalysis

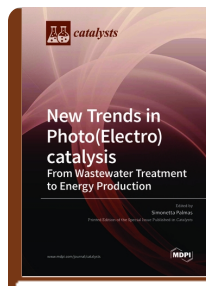
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This reprint focuses on new trends in photo-electrocatalysis, specifically addressed to the remediation of wastewater and energy production. The remediation of wastewater, up to a level that is acceptable for discharge into receiving waterbodies, involves an ever-growing demand of energy, so effective and low-energy treatment processes are highly desirable. Among the other treatments, photo- and photo-electrochemical treatment processes may be considered as advanced oxidation processes (AOP), which are based on the generation of OH radicals, strong oxidizing agents able to indiscriminately degrade even the most persistent organic compounds. Photocatalysis and photo-electrocatalysis can be considered as effective methods for organic degradation, especially when the semiconductor is active in the range of visible light. Several results are presented on new morphologies and structures, which allow more photoactive, visibly responsive, and stable materials, as well as studies on combined processes in which photo- or photo-electrochemistry contribute to an increase in the sustainability of the whole process, lowering costs and achieving the most valuable final products. In view of the circular economy concept, microbial fuel cell systems are also considered as possible way to recover energy from organic pollutants contained in wastewater.



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