Special Issue

Biological Processes in the Green Hydrogen Value Chain

Message from the Guest Editors

Innovative technologies based on hydrogen related biological processes can be fully integrated in the green hydrogen value chain and boost the transition from fossil-based refineries to new biorefineries concept. Hydrogen is an intermediate product of many metabolic processes. It can be produced from the degradation of organic matter by fermentation, from water via biophotolysis or, with the addition of a small potential, via microbial-electrolysis. Moreover, microorganisms can use hydrogen as a source of reducing power to produce a large spectrum of chemical building blocks of industrial interest or biomethane, as energy carrier. These abilities can be exploited for the development of biotechnological processes. Biological processes may enable the valorisation of biowaste into the green hydrogen value chain, but also the conversion of excess electricity from non-dispatchable renewable energy sources into easily storable chemical energy (Power-to-Gas) or bio-based products. This Special Issue is focused on research advances in technologies and process integration to the sustainable inclusion of biological processes in the green hydrogen value chain.

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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