Special Issue

Recent Advances in Bioreactors and Heavy Metals Removal/Recovery during Waste Post-treatment

Message from the Guest Editor

Wastewater and waste sludge needs efficient treatment technologies, which have low energy input and enable recovering different components from waste. One of the major advancements in the early 1990s was the discovery of anaerobic ammonium oxidation (anammox), which occurs under anaerobic conditions and is characterized by the autotrophic oxidation of ammonium to dinitrogen gas with nitrite serving as an electron acceptor. Waste sludge is produced during water treatment, containing reusable components, such as heavy metals. Biotechnology is considered as an energy-saving and environmentally friendly alternative to pyrometallurgy for the recovery of metals from different residual sludge and compost. Heavy metals are also represented in printed circuit boards (PCBs). However, bacteria-based metal biorecovery processes have their limitations for gold- and platinum-group metals, which can only be solubilized by cyanogenic bacteria producing CN- (or, alternatively, by less toxic thiosulfate). Well-adapted fungal consortia can achieve approximately the same degree of metal recovery as bacteria, with lower energy consumption at the expense of agitation.

Guest Editor

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In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

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