Special Issue

Tracking the Environmental Fate of Heavy Metals: Migration, Accumulation, and Detection Techniques

Message from the Guest Editor

Heavy metal pollution poses a critical threat to ecosystems and human health. Understanding the environmental behavior of heavy metals—from their release into ecosystems to their long-term impacts—is essential for developing effective mitigation strategies. We welcome studies focusing on the following: Migration Mechanisms: investigations into the transport pathways of heavy metals across environmental matrices, including soil–water interactions, atmospheric deposition, and biogeochemical cycling. Bioaccumulation and Ecotoxicity: studies on metal uptake by biota, trophic transfer dynamics, and ecotoxicological impacts on biodiversity and ecosystem services. Advanced Detection and Monitoring: novel analytical techniques (e.g., spectroscopy, biosensors, nanomaterials) and modeling approaches for the real-time tracking and predictive analysis of metal contamination. Remediation and Risk Management: sustainable strategies for metal immobilization, phytoremediation, and policy frameworks to reduce environmental exposure. Emerging Challenges: the impacts of climate change, industrial activities, and urbanization on metal mobilization and distribution.

Guest Editor

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