

## Special Issue

# Sustainable Application and Functional Roles of Microbial Communities in Soil, Sludge and Sediments

### Message from the Guest Editors

This Special Issue aims to highlight cutting-edge research on the ecological functions, environmental adaptations, and sustainable applications of microbial communities in soil, sludge, and sediments. We welcome original research articles and comprehensive reviews from the fields of environmental microbiology, soil ecology, and bioremediation. Topics of interest include, but are not limited to, the following: (1) microbial diversity, community dynamics, and ecological interactions in soil, sludge, and sediments, with a focus on community composition, succession, and functional roles; (2) mechanisms underlying microbial degradation of heavy metals and organic pollutants, as well as strategies to enhance bioremediation efficiency; (3) microbial contributions to biogeochemical cycling, particularly in carbon, nitrogen, and phosphorus dynamics; (4) applications of microbial communities in soil health assessment, soil amendment, and plant–microbe interactions, with implications for sustainable agriculture; (5) advances in microbial ecological engineering, bioaugmentation, and synthetic biology approaches for environmental restoration and sustainability.

### Guest Editors

Dr. Ke Dong

Dr. Guanlin Li

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### Deadline for manuscript submissions

28 February 2026



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