Special Issue

Microplastics in Waste Treatment: Removal, Transformation, and Unintended Release

Message from the Guest Editor

Waste treatment systems serve as barriers and potential secondary sources of microplastic pollution. Wastewater treatment plants (WWTPs) remove a significant portion of microplastics from influent; however, captured particles often accumulate in sludge and may re-enter the environment through land application. Similarly, solid waste processes—such as shredding, composting, landfilling, or thermal treatment—can fragment plastics into microplastics. This Special Issue explores the fate, transformation, detection, and mitigation of microplastics in waste management, with focus on micro- and nano-scale mechanisms, analytical approaches, and technological solutions. We welcome contributions on:

- Microplastic retention and removal in WWTPs, sludge, and landfills;
- Formation of micro/nanoplastics from degradation and thermal processes;
- Use of microfluidics, sensors, and analytical tools for detection and characterization;
- Toxicity, mobility, and fate at micro/nano scale;
- Strategies to minimize microplastic release during treatment and recycling.

Guest Editor

Dr. Yunlong Luo
School of Natural Sciences, Macquarie University, Sydney, NSW 2109, Australia

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Micro
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
micro@mdpi.com

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Editor-in-Chief

Prof. Dr. Zhou Li
1. School of Biomedical Engineering, Tsinghua University, Beijing 100084, China
2. Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua University, Beijing 100084, China

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