



**Topic of the Speech:**  
Solutions for Microplastics

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**Dr. Lei Yao** obtained her Bachelor of Science from Zhejiang Medical University and Master of Science in Zhejiang University, China. Dr Yao received her PhD in Textile Technology from The Hong Kong Polytechnic University, Hong Kong.

Her current research interests centre around: textiles-human interactions, textile technologies and industry sustainability. She is now leading a research team and doing applied research on high-performance textiles, water-less textile technologies and post-consumer textile recycle.

She has considerable research experience of textile and clothing and insight into applied research, R&D roadmap and innovation strategy.

## ABSTRACT SUBMISSION

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### Solutions for Microplastics

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#### ABSTRACT (NO MORE THAN 500 WORDS:)

Microplastic pollution poses a significant threat to human health and biodiversity, and its prominence has grown exponentially in recent decades. Anticipating that this issue will continue to demand attention in the future, it is crucial to develop effective solutions. However, the identification, purification, and analysis of microplastics present formidable challenges due to their small size, irregular shape, and frequent entanglement with other materials.

We propose comprehensive strategies for mitigating microplastic pollution. It encompasses the development of advanced sampling and analysis protocols, investigation of microplastic release during production processes, exploration of innovative methods for concentrating and separating microplastics using sweep acoustic weave, and the identification of a powerful microbial consortium capable of biodegrading polyester, nylon, and acrylic microplastics.

The findings of our study offer promising avenues for tackling microplastic pollution at its source; efficient separation techniques within wastewater treatment plants to prevent the discharge of microplastics into aquatic ecosystems. And by harnessing the power of microbial consortia capable of degrading microplastics in sludge pools or landfill sites, it is possible to diminish their persistence and harmful effects on the environment over time.