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A PATH TO SAFE AND SUSTAINABLE USE OF ENGINEERED NANOMATERIALS IN ENVIRONMENTAL APPLICATIONS

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Abstract: Unique physical and chemical properties of engineered nanomaterials (ENMs) have motivated intensive research, leading to numerous technology innovations in the past two decades. At the same time, concerns arose on their potential health and environmental impacts of ENMs. The evolution of environmental nanotechnology research exhibits a clear trend of moving away from both extreme enthusiasm and over-pessimism towards a proactive approach of incorporating risk assessment and management in technology innovation. From finding nontoxic, low cost, and earth abundant materials, to rational materials design and ENM immobilization techniques, we have made tremendous progress towards safe and sustainable use of ENMs in environmental applications.

Bio: Dr. Qilin Li is a Professor of Civil and Environmental Engineering, Chemical and Biomolecular Engineering, and Materials Science and Nanoengineering at Rice University. Dr. Li received her B.E. degree in Environmental Engineering from Tsinghua University in Beijing, China, her M.S. and Ph.D. degrees in Environmental Engineering from University of Illinois at Urbana-Champaign, and her post-doctoral training at Yale University. Dr. Li's research focuses on advanced technologies for water and wastewater treatment and reuse, environmental nanotechnology, novel desalination methods, environmental fate and transport of contaminants, and environmental impact of nanotechnology. Dr. Li is a Fellow of International Water Association (IWA), and the Associate Director for Research for the NSF Nanosystems Engineering Research Center for Nanotechnology Enabled Water Treatment (NEWT). She currently serves on the editorial board for Frontiers of Environmental Science and Engineering, and was the Associate Editor of Water Research from 2011 to 2019. She also served as the chair for the International Water Association Nano&Water Specialist Group, and a member of the US EPA Science Advisory Board's Environmental Engineering Committee.