Special Issue

Research and Application of Novel Adsorption and Catalytic Materials in Water Pollution Control

Message from the Guest Editor

Adsorption and catalytic materials have become key technologies in water pollution control due to their efficiency, cost-effectiveness, and reusability. The development of novel materials holds strategic significance for achieving deep water purification and promoting green technological innovation. This Special Issue focuses on cutting-edge research and engineering applications of novel adsorption and catalytic materials including, but not limited to, the following directions:

- **Novel Adsorption Materials:** Including functionalized biomass adsorbents, waste-derived adsorbents, and nanoporous materials, and emphasizing selective adsorption mechanisms and regeneration technologies for heavy metals and organic pollutants.
- **Novel Catalytic Materials:** Including heterogeneous catalysts such as metal oxides (TiO_2 or Al_2O_3), supported catalysts (Cu/Al_2O_3), and carbon-based materials (activated carbon and graphene).
- **Technology Integration and Industrialization:** Large-scale application cases of materials in wastewater treatment and the design of AI-coupled smart adsorption and catalytic systems to drive the transformation of technologies from laboratories to real water bodies.

Guest Editor

Dr. Huiping Zeng

Key Laboratory of Water Quality Science and Water Environment Recovery Engineering, Beijing University of Technology, Beijing 100124, China

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

mdpi.com/journal/water

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Message from the Editor-in-Chief

In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

Editor-in-Chief

Dr. Jean-Luc PROBST
Centre de Recherche sur la Biodiversité l'Environnement (CRBE) UMR CNRS/UPS/INPT/IRD, Centre National de la Recherche Scientifique (CNRS), University of Toulouse, Campus ENSAT, Auzeville Tolosane, Toulouse, France

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