# Special Issue

# Functional Materials for Water Purification and Resource Recovery

## Message from the Guest Editors

Clean water and critical resource recovery are central to sustainable development, yet existing processes often face trade-offs between selectivity, energy use, and long-term stability in complex real streams. Rapid progress in functional materials—including ion-selective electrodes and membranes, sorbents, catalysts, photothermal/photocatalytic structures, and hybrid composites—is enabling new routes for water purification and resource recovery across desalination, wastewater reuse, and brine mining. This Special Issue welcomes contributions on material-enabled technologies such as electrochemical separations, reactive electrochemical treatment, solar-driven evaporation and membrane distillation, atmospheric water harvesting, adsorption/ion exchange, and advanced oxidation. Topics of interest include interfacial chemistry and transport, selectivity and antifouling, stability and regeneration, device/reactor engineering, benchmarking and standardized metrics, and validation in real waters. Studies connecting materials design to scalable modules, TEA/LCA, and field-relevant demonstrations are particularly encouraged.

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## Deadline for manuscript submissions

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### Message from the Editorial Board

*Materials* (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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