

## Special Issue

# Functional Materials for Separation and Recovery of Rare Earth Elements and Heavy Metals

### Message from the Guest Editors

Rare-earth elements (REEs) and some heavy metals are critical mineral resources for modern technologies, yet their extraction, use, and improper disposal pose significant environmental and health risks due to their toxicity, persistence, and bioaccumulative nature. With the growing global demand for clean energy technologies (e.g., batteries, magnets, and solar energy) and the urgent need to mitigate environmental pollution, the development of advanced functional materials capable of selectively separating, recovering, storing, utilizing, and recovering these elements from complex matrices—such as industrial wastewater, flue gas, electronic waste, and mining effluents—has become a pressing priority.

The purpose of this Special Issue is to compile cutting-edge research that advances the science and engineering of functional materials for REE and heavy metal separation, recovery, storage, and utilization. We welcome contributions addressing functional material properties, mechanistic studies, process optimization, and case studies on resource recycling from secondary sources (e.g., end-of-life products and industrial sludges).

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### Guest Editors

Dr. Yue Zhang

Dr. Jiaying Xing

Dr. Biao Fu

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### Deadline for manuscript submissions

20 December 2025



## Materials

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### Message from the Editor-in-Chief

*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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