

## Special Issue

# Polymer and Gel Materials for Air and Water Remediation via Adsorption and Separation

### Message from the Guest Editors

Polymer and gel materials are pivotal in environmental remediation, offering versatility in addressing air and water pollution through adsorption and separation. These materials are crucial for mitigating pollutants like greenhouse gases, VOCs, heavy metals and microplastics, and can be used for industrial emission control, wastewater treatment and atmospheric carbon capture.

Ion-exchange resins and activated carbon composites have evolved into hydrogels, nanostructured hybrids, and bio-based aerogels, can selective and energy-efficient pollutant removal. Recent innovations prioritize versatility, integrating adsorption with catalytic degradation, membrane separation, or real-time sensing.

This Special Issue focuses on polymeric and gel-based materials for adsorption and separation in air and water remediation and studies on synthesis, characterization, computational modeling, and mechanistic insights of these materials for contaminant removal. Contributions on adsorbents, membranes, gels, and hybrid systems are encouraged, with an emphasis on efficiency, selectivity, and sustainability.

Original research, reviews, and perspectives are welcome to advance this critical field.

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### Guest Editors

Dr. Monica Nemtanu

Dr. Ibrahim M. Alarifi

Dr. Mirela Braşoveanu

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### Deadline for manuscript submissions

20 October 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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