Nanostructured Materials for CO2 Capture and Storage

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Abstract. The mitigation of climate change is critically dependent on the effective capture and storage of carbon dioxide (CO2). This article examines the role of nanostructured materials in enhancing CO2 capture efficiency. By leveraging high surface area and tunable porosity, these materials offer improved interactions with CO2 molecules. The study presents significant advancements in the design and application of nanostructures, which can potentially lead to more efficient and scalable CO2 sequestration solutions.

Keywords: CO2 Capture, Nanostructured Materials, Climate Change, Carbon Sequestration, Porosity

Introduction

Climate change mitigation necessitates innovative approaches to reduce atmospheric CO2 levels. Among the promising strategies is the use of nanostructured materials for CO2 capture and storage. These materials, known for their high surface area and customizable porosity, facilitate enhanced interactions with CO2 molecules, leading to more efficient capture processes. This research explores recent advancements in the synthesis and application of nanostructures, aiming to optimize their performance in CO2 sequestration. The findings underscore the potential of these materials to contribute significantly to global efforts in combating climate change through scalable and effective CO2 management solutions.

References

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