



## CO<sub>2</sub> Capture and Sequestration

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Deadline for manuscript submissions:

**closed (20 December 2021)**

### Message from the Guest Editor

CCS aims to reduce global warming by capturing carbon dioxide (CO<sub>2</sub>) from large point sources (e.g., fossil fuel power plants), separating the CO<sub>2</sub> and storing it in suitable media using the latest developments in engineering principles.

CO<sub>2</sub> is captured using a variety of technologies that include processes such as **absorption**, **adsorption**, and **membrane gas separation**, among others. The choice, design, modeling and optimization, and tuning/control of material properties for CO<sub>2</sub> capture, as well as the processes themselves, are important.

The different methods used for CO<sub>2</sub> sequestration include (i) geological-sequestration that injects different phases of CO<sub>2</sub> in the subsurface (ii) oceanic storage that dissolves CO<sub>2</sub> into an ocean at different depths and (iii) solid-phase reaction of CO<sub>2</sub> with metal oxides to produce stable carbonates with no risk of CO<sub>2</sub> release to the atmosphere. Flow, transport, and reaction of CO<sub>2</sub> during sequestration, as well as other related matters, such as the monitoring of key environmental parameters, are important.

I welcome your contributions on topics that address/relate to any of the above CCS sub-topics.





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