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Advances in Materials Application for Chemical Looping

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Message from the Guest Editors

Dear Colleagues,

Chemical looping concept is investigated to provide clean and efficient solutions for energy and environment, such as combustion, hydrogen production, gasification, reforming and waste disposal. The process is realized based on the use of redox materials with oxidation-reduction cycle that can transfer oxygen from oxidation medium, eliminating the need of conventional air separation units. Sorbent looping is a related CO₂ capture technology with lowest energy demand and CO₂ mitigation. CO₂ containing flue gas is absorbed by carbon carrier and released in a regenerator. Sorbent looping CO₂ capture can also be incorporated into a CO₂ producing process or CO₂ consumed process to enable additional revenue. The material performance of oxygen/carbon carrier is key point to the technology of chemical looping or sorbent looping. A comprehensive understanding of material synthesis, properties and applications is necessary and will help the development of this technology.



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Message from the Editor-in-Chief

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