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Editorial

Editorial for special issue on Carbon-neutrality Chemical Engineering

Climate change and emissions of greenhouse gases are becoming a threat to the earth environment, human lives and global health now. All of us, whether as individuals, commercial enterprises, institutions, or governments, share a collective responsibility to reduce and ultimately neutralize the greenhouse gas emissions by mid-to-late century. Carbon neutral goal will bring extensive and systematic changes in global energy consumptions, economic and social activities, and also offers a huge opportunity for the global chemical industries and chemical engineers to resolve this challenging global issue.

Carbon-neutrality Chemical Engineering refers to the chemical engineering technologies used in various applications working towards carbon neutrality. A vast array of opportunities is opening up for exploitation, from green energy and green hydrogen, to sustainable products, to process technologies, and from Carbon Capture and Sequestration to catalytic conversion of CO₂ into

sustainable chemicals and products. To provide a compilation of, and a platform for the related work, this special issue of Carbon-neutrality Chemical Engineering was proposed. During the submission and peer reviewing stages, 41 papers including 4 review papers were accepted. The topics cover carbon capture with absorption/adsorption and membrane separation, carbon sequestration with mineralization in brine, displacement of reservoir oil and carbonylation, photo-electrical and thermal catalytic conversion of CO₂ into various sustainable chemicals (such as syngas, methanol, and fuels), as well as other topics related to green hydrogen production and storage.

We sincerely hope this special issue is of value for experts in various aspects of Carbon-neutrality Chemical Engineering, providing the opportunity to many to share their knowledge and perspective. We gratefully acknowledge all the authors and reviewers who have contributed to this special issue.

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