

Special Issue

Environmental Catalysis for Air Pollution Applications

Message from the Guest Editors

By environmental catalysis we primarily mean photocatalysis and room/low temperature catalysis processes. With light or heat as energy inputs, catalysts can be excited and trigger O₂ activation to produce various reactive oxygen species; they are primarily responsible for adsorbed gas pollutant oxidation and thereby achieving ambient air purification. In this regard, transitional metal oxides and their supported noble metal nanoparticles are the most popular and promising catalysts worthy of study because of their excellent performances with regard to O₂ activation. Many strategies have been developed to tune the particle size (even down to the single atom scale), morphology, and exposed facet to manipulate the electronic structure and expose more active sites for better adsorption and reaction. Above all, environmental catalysis provides a supplement to source control methods for ambient air purification featuring low energy consumption and high efficiency. Catalyst design, synthesis, characterization, and optimization are the core to this technology and are of prime importance to this Special Issue.

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