

# **The roles of carbonaceous wastes for catalysis, energy, and environmental remediation**

## **ABSTRACT**

This article reviews recent studies about various generations of the carbon materials for their applications in energy and environmental remediation. The synthesis routes of the carbon materials including the condition parameters, interaction of precursors, dopants and carbon materials, as well as their physical/chemical properties are explicated first. Then, the application and mechanism of metal-free/metal-doped/non-metal-doped carbon materials are discussed in detail. Lastly, this review is ended with a summary and invigorating perspectives on the challenges and future directions at the forefront of the catalysis platform to take a step further for real application.