Proceedings of the 6th International Conference on Energy Harvesting, Storage, and Transfer (EHST'22)
Niagara Falls, Canada – June 08-10, 2022
DOI: 10.11159/ehst22.001

Design of Nanostructured Catalysts and Nanocomposites for Hydrogen Production and Storage

Aicheng Chen
Electrochemical Technology Centre, Department of Chemistry, University of Guelph
50 Stone Road East, Guelph, Ontario N1G 2W1, Canada
aicheng@uoguelph.ca

Abstract

With rapidly intensifying environmental crises and the accelerated depletion of fossil fuels, there is an urgent need for the development of clean and sustainable energy technologies. Hydrogen production, storage, distribution, and utilization comprise the fundamental components of an envisaged hydrogen economy. Although these elements have been the focus of intense research for decades, the development of viable, safe, and efficient strategies for the storage of hydrogen remains as the most challenging. Nanostructured materials have garnered significant interest due their extensive surface areas and unique properties. Recently, my research team has designed and investigated a variety of novel functional nanomaterials. In this talk, the development of nanostructured electrocatalysts and photocatalysts for water splitting will be addressed. The synthesis and characterization of advanced graphene-based nanocomposites for hydrogen storage will be presented. The significant roles of nanomaterials for hydrogen production and storage toward the development of an envisioned hydrogen economy will be highlighted.