Novel Electro-Catalytic Materials for Hydrogen Generation

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Abstract

Rapid depletion of non-renewable fossil resources is posing an imminent threat to the energy and supply of fine chemicals that are vital to the global economy. Currently, efforts are being undertaken at an accelerated pace to develop technologies that would help us deal with the disastrous consequences. We have been working in the areas of bio-mass conversion to renewable fuels/chemicals as well as the production of hydrogen through electrocatalytic splitting of water using non-noble metals. In both of these areas, there is a dire need to develop cost-effective materials to increase the efficiency of the processes. We have been exploring the use of anionically modified molybdenum oxides and phosphides for efficient splitting of water in both acidic and alkaline conditions. The presentation will summarize our findings and the opportunities for exploring inorganic materials for the production of value added chemicals and fuels.

Keywords: Electrochemistry, Catalysis, Materials and Hydrogen Generation.