



Synthesis and characterization of transition metal-based carbides as electrocatalysts for water splitting

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Since the wind doesn't always blow and the sun doesn't always shine, relying on renewables need intelligent systems. Using renewable sources and basic molecules that exist in the atmosphere such as water can get these sources to play a great role. Electrocatalysis of water splitting is a desirable technique to separate Hydrogen from Oxygen in the water molecule. Hydrogen fuel technology promises to be a potential and reliable alternative energy resource that is safe and clean. My research highlights a feasible strategy to explore efficient electrocatalysts. This will be achieved by reducing the use of noble metals. Noble metals catalysts such as Pt-based catalysts are by far the best electrocatalysts but their wide application is restricted due to scarcity and high cost. Metal carbides possess a platinum-like catalytic activity. They are approximately twice as stiff as steel, which is not corrosive and can be used for electrocatalysis for a long period and increase the efficiency of hydrogen production.

