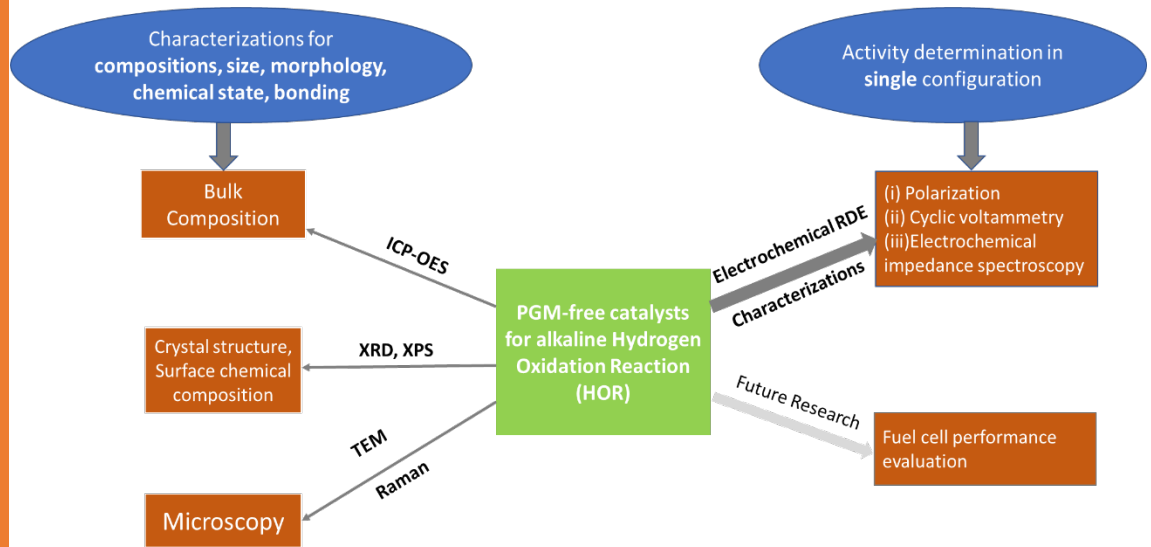


Development of Nickel-Iron Alloy Alkaline Hydrogen Oxidation Catalysts for Anion Exchange Membrane Fuel Cell



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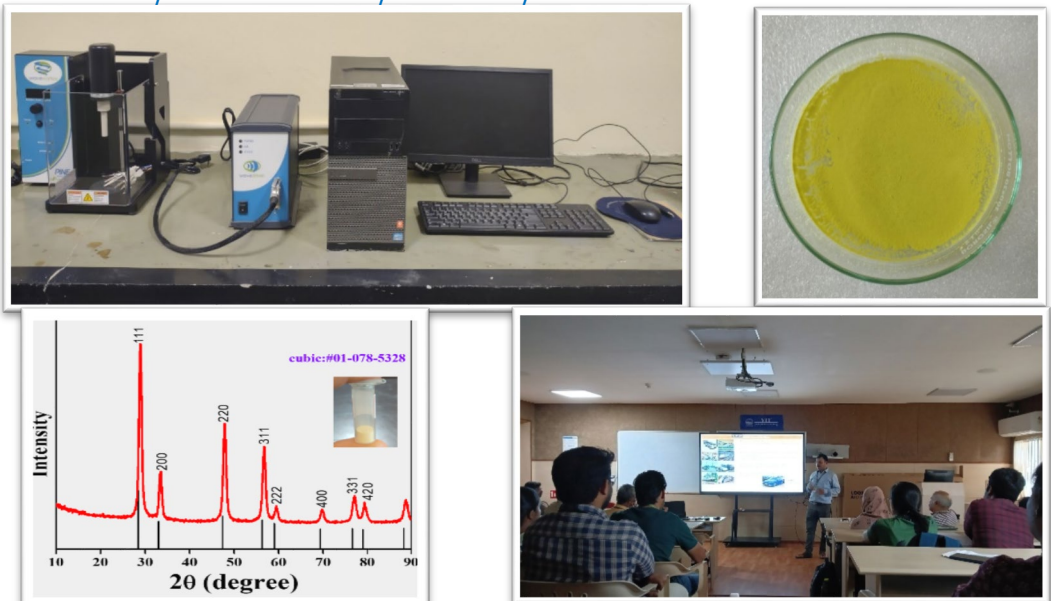
Graphical Abstract



Project Description

This project aimed to develop an inexpensive precious group metal (PGM)-free catalyst from the nickel family (Nickel-iron-based alloys decorated with metal oxides) for alkaline hydrogen oxidation reaction (HOR). The developed catalysts are characterized by various analytical techniques (X-ray diffraction, ICP-AES, SEM, TEM, and XPS). The developed catalysts are investigated in the single-cell rotating disk electrode configuration to register HOR activity developed in this project. The role of the metal-oxide decoration is studied by extensive electrochemical analysis and advanced microscopy techniques. The project's highlight is to reduce the cost of anion exchange membrane fuel cells by employing inexpensive catalysts compared to typically used PGM-based catalysts. The development of these types of catalysts is of utmost importance for the supply of clean and affordable energy to all and meeting the sustainable development goals-7 (SDG-7).

Products/ Instruments/ Results/ Outreach Activities



Name of the Funding Agency
Science and Engineering Board (SERB)

Name of the Scheme
Startup Research Grant (SRG)

Sanctioned Amount (in Rupees)
Rs. 28,19,872

Duration of the Project (years)
2