

Enhancing the electrocatalytic activity of spinel typed iron-mangaese redox redox couple for oxygen evolution reaction

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Hydrogen is known for its clean energy, which has a high energy density per unit mass and produces little by-product other than water when used as fuel. Although a significant amount of hydrogen is still produced through the reforming of fossil fuels, we are working to obtain hydrogen in a clean way around the world to address the increasingly stringent environmental challenges. the method of generating hydrogen by electrolyzing water is an innovative and environmentally friendly technology because it uses the most abundant water on the earth. electrolysis consists of hydrogen evolution reaction(HER) and oxygen evolution reaction(OER). In the case of OER, due to the complex reaction mechanism involving four electrons, It requires a fairly high overvoltage. Therefore, it can be said that it is essential to develop an electrode catalyst that can lower the overvoltage of the OER reaction. In this study, a spinel type $MnFe_2O_4$ was prepared for an effective redox reaction. The synthesized catalyst was coated on a nickel foam having high surface area and excellent electrical conductivity to increase OER activity.