

**Title: Investigation & Design of Electrocatalysts for Electrochemical Water Splitting Reaction and Proton Exchange Membrane Fuel Cells**

**Dr. Hussein Rostami**  
(Guest Editor)

[h.rostami64@gmail.com](mailto:h.rostami64@gmail.com)

**Faculty of Chemistry, University of Mazandaran, P.O. Box 453,  
Babolsar, Islamic Republic of Iran**



**Dr. Elahe Heydari**  
(Guest Editor)

[E.heydari@hotmail.com](mailto:E.heydari@hotmail.com)

**Department of chemistry, Isfahan University of Technology, Isfahan,  
84156-83111, Islamic Republic of Iran**

**Proposal:**

In today's world, many efforts are ongoing to find renewable and environmentally friendly energy resources for replacing fossil fuels. The electrochemical water splitting reaction (EWSR) and proton exchange membrane fuel cell (PEMFC) are two attractive ways for the production of green and sustainable energy which enormously depend on the activity of electrocatalyst in cathodic and anodic reactions. These electrocatalysts can be divided in three main categories. The first group is based noble metal electrocatalyst. The second groups of electrocatalysts, that are used for these reactions, have at least one transition metal compound in their structure. Last but not least electrocatalysts is nonmetal compound.

The themes that can be addressed in the special issue are:

- Introduce new electrocatalysts for anodic and cathodic reactions of EWSR and PEMFC.
- Investigation of electrocatalysts mechanism for anodic and cathodic reactions of EWSR and PEMFC.
- Theoretical and experimental investigation of the control and balance of active sites of anodic and cathodic electrocatalysts in EWSR and PEMFC.
- Theoretical and experimental investigation of anodic and cathodic electrocatalysts in EWSR and PEMFC according to the new substrates like MXene.