

MOF derived CoFeN/C materials as electrocatalysts for ORR and OER

Partha Pratim Bag¹, Pei-Qin Liao¹, Jie-Peng Zhang¹, Xiao-Ming Chen¹

¹*School Of Chemistry, Sun Yat-Sen University, Guangzhou, China*

E-mail: parthap.bag82@yahoo.com

Electrochemical energy storage and conversion technologies, such as fuel-cells, rechargeable metal–air batteries and water electrolyzers are highly desirable for electric vehicles, distributed power supply, integration of renewable and energy balancing in electricity grids. 1,2 However, high cost has been a major obstacle hindering their wide spread applications, nearly 40% of which is due to the use of expensive catalysts. Hence, a critical challenge is to identify cost-effective electrocatalysts for the oxygen reduction and evolution reactions (ORR and OER),3-6 to replace platinum and iridium oxide, respectively. Here, we discuss an approach of obtaining highly effective ORR and OER electrocatalysts based on carbonized porous functionalized MOF to carbon of an iron-cobalt–nitrogen–carbon framework system.

1. M. M. Thackeray, C. Wolverton and E. D. Isaacs, 2012, *Energy Environ. Sci.*, 5, 7854.

2. The International Renewable Energy Agency (IRENA): Smart grids and Renewables – A Guide for Effective Deployment, http://www.irena.org/documentdownloads/publications/smart_grids.pdf.

3. J. Zhang, Z. Zhao, Z. Xia and L. Dai, 2015, *Nat. Nanotechnol.*, 10, 444.

Keywords: [Metal Organic Framework](#), [electrocatalyst](#), [ORR and OER](#)