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Metal-Organic Framework Derived FeP/C Interlocked Graphene Hybrid Composite for Hydrogen Evolution Reaction

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Due to large-scale energy demanding, global warming and limited sources, developing clean energy technology is very imperative. Hydrogen (H_2) is a clean and sustainable energy source for replacing fossil fuels in the future. Currently, Platinum (Pt) and Pt-based catalysis exhibit the most effective performance for the hydrogen evolution reaction (HER), However, Pt-based catalysts give multiple obstacles, such as limited resources, high cost, thus restrict the further development. Therefore, exploring and designing efficient and durable noble-metal-free HER catalysts utilizing earth-abundant elements (such as iron resource) to replace Pt for HER catalysis are important[1, 2] In this poster, we presented an in-situ approach for metal-organic framework (MOF) derived FeP/C interlocked graphene hybrid composite for HER, C@FeP nanoparticles interconnected with reduced graphene oxide (rGO), in which networks could provide abundent surface for the loading of active materials with sufficient active sites for the HER. It is expected that FeP/C interlocked graphene hybrid composite shows good electrocatalytic ability and durability for HER.

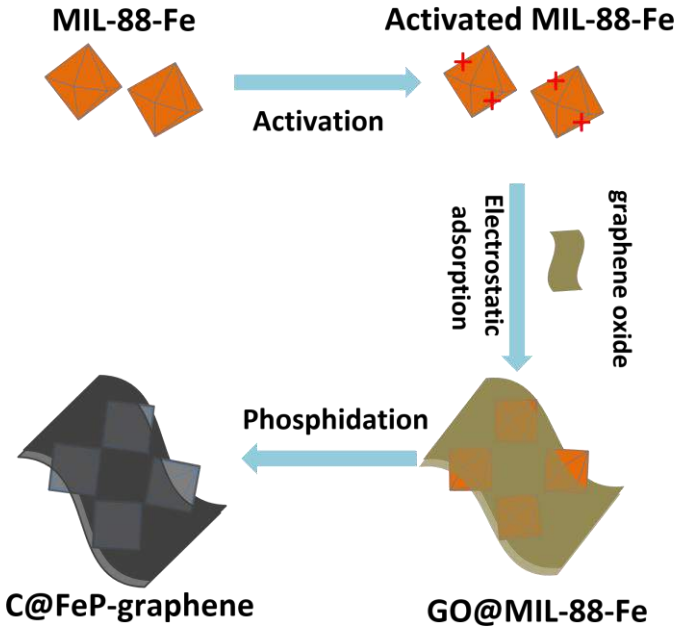

Fig.1. Schematic illustration of the synthesis process of C@FeP-graphene composite. Not drawn to scale.

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