

Electrocatalysis on Structure Ordered Intermetallics

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Abstract: The performance of fuel cells is largely affected by the property of catalysts. However, the commonly used electrocatalysts in fuel cells are still platinum (Pt) based materials. Due to the shortage of Pt and its high price, the high cost of fuel cells greatly limits their large-scale commercial application. Therefore, it is necessary and meaningful to carry out in-depth research on the catalysts. There are two ways to solve this problem: one is to improve the utilization rate of platinum based catalysts; the other is to develop non-platinum based catalysts. In terms of improving the utilization rate of Pt, our group mainly aims to build a novel series of Pt based ordered intermetallic compounds. Changing the types, proportions and post-treatment temperatures of Pt and transition metal atoms is applied to optimize the surface structure, alloy degree and electronic structure of Pt based catalyst, resulting in regulating their electrocatalytic performance. On the other hand, the morphology regulation of ordered intermetallic compounds has always been a major challenge in this field. We have made preliminary attempts in morphology regulation.

References:

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Biography:

Deli Wang is currently a professor of Huazhong University of Science & Technology (HUST). She received her Ph.D. from Wuhan University in 2008. She joined in Nanyang Technological University and Cornell University as a postdoctor from 2009 to 2012. Her research interests mainly focused on the structure design and electrochemical performance tuning of nanomaterials applied for energy conversion and storage.

