

High Throughput Fundamental Studies of Fuel Cell Catalysts

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A fuel cell using an array membrane electrode assembly has been developed for the high throughput screening of fuel cell electrocatalysts. Standard membrane and electrode assembly methods are used. The use of modified fuel cell hardware permits the use of realistic catalyst exposure histories and steady state reaction conditions. The array fuel cell requires no supplemental electrolytes. The performance of the array fuel cell is demonstrated by the rankings of commercially obtained and catalysts prepared by several universities. In addition, the utility of the array membrane electrode assemblies for MEA-XRD and MEA-XPS studies is demonstrated.