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Nanofiber Carbon-Supported Phthalocyanine Metal Complexes as Solid**Electrocatalysts for Lithium-Air Batteries**

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Abstract

Iron phthalocyanine supported on graphite nanofibers (GNF_FePc) were synthesized using a simple solvothermal process and characterized using various structural analyses. GNF_FePc were employed as bifunctional electrocatalysts in the air cathode of lithium-oxygen batteries. Galvanostatic charge–discharge tests, cyclic voltammetry, and electrochemical impedance spectroscopy were performed to assess the Performance of Li-air batteries. The air-cell delivered a high specific capacity of ~5500 mAh/g at the first cycle which remained close to 90% of that value after 4 cycles. The reversibility was nearly 100% for all the four cycles with comparatively lower over potential.

Keywords:

Electrocatalysts, phthalocyanines, graphite nanofibers, oxygen reduction, oxygen evolution

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