

CoFe oxide nanoparticle coated 3D carbon pattern cathode for Li-O₂ battery

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Rechargeable Li-O₂ system is the most promising battery chemistry due to extremely high energy density equivalent to gasoline. Despite the usage of various carbon materials, efficient decomposition of Li₂O₂ and securing the space for oxygen diffusion is still a challenging issue.

Here, we demonstrate 3D porous carbon pattern as binder-free cathode of Li-O₂ battery with CoFe oxide nanoparticles for electrocatalyst. By the regularity of macropores and monolithic structure, 3D porous carbon pattern shows secured oxygen diffusion route and high electrical conductivity. Furthermore, 3D porous carbon pattern achieved remarkable specific energy density and cyclability in Li-O₂ battery with the electrocatalytic activity of CoFe nanoparticles.