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1 Hierarchical zinc oxide/graphene oxide composites for energy storage devices

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9 **Abstract**

10 In this report, hierarchical graphene oxide/zinc oxide composites were fabricated by
11 precipitation of zinc oxide on graphene oxide for supercapacitor electrode. An environmentally
12 friendly and facile one-step precipitation method, was developed to synthesize the composites with
13 graphene oxide and zinc oxide. The electrochemical performance of the graphene oxide/zinc oxide
14 composites for energy storage was investigated. The maximum specific capacitance of 97 F/g at a
15 current density of 0.5 A/g by galvanostatic charging-discharging was achieved in 1 M Na₂SO₄
16 electrolyte. The specific capacitance presented an increase of 83 % with respect to the graphene oxide
17 electrode. In addition, graphene oxide with zinc oxide electrode showed 90.8 % retention of the
18 specific capacitance for 5000 cycle tests. The results suggest that graphene oxide/zinc oxide
19 composites offer a promising material for supercapacitor electrode.

20 **Keywords:** Graphene oxide; Zinc oxide; Precipitation; Supercapacitor; Electrode

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