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N-doped reduced graphene oxide aerogel coated on carboxyl-modified carbon fiber paper for high-performance ionic-liquid supercapacitors

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1 **N-doped Reduced Graphene Oxide Aerogel Coated on Carboxyl-modified Carbon**
2 **Fiber Paper for High-performance Ionic-liquid Supercapacitors**

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16 **Abstract**17 Nitrogen-doped reduced graphene oxide aerogel (N-rGO aerogel) with high porosity and
18 ionic conductivity were synthesized by a hydrothermal reduction of graphene oxide with
19 hydrazine and following freezing-dry method. N-rGO aerogel was spray-coated on carboxyl-
20 modified carbon fiber paper with a hydrophilic surface and used as the supercapacitor
21 electrode. Not only can the N-rGO aerogel electrode accelerate the diffusion of the electrolyte
22 but also it can store electronic charge via a surface redox reaction due to the N-containing
23 groups. Among the electrolytes studied, the ionic liquid-based supercapacitor of the N-rGO

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