



US008758947B2

(12) **United States Patent**
Zhang et al.

(10) **Patent No.:** **US 8,758,947 B2**
(45) **Date of Patent:** **Jun. 24, 2014**

(54) **GRAPHENE-BASED BATTERY ELECTRODES HAVING CONTINUOUS FLOW PATHS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 747 days.

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(21) Appl. No.: **13/004,138**

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(22) Filed: **Jan. 11, 2011**

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(65) **Prior Publication Data**

US 2012/0178001 A1 Jul. 12, 2012

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(51) **Int. Cl.**
H01M 8/22 (2006.01)

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(52) **U.S. Cl.**
USPC **429/405**; 429/402; 429/403; 429/404; 429/406

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(58) **Field of Classification Search**
USPC 429/402-406
See application file for complete search history.

(57) **ABSTRACT**

Some batteries can exhibit greatly improved performance by utilizing electrodes having randomly arranged graphene nanosheets forming a network of channels defining continuous flow paths through the electrode. The network of channels can provide a diffusion pathway for the liquid electrolyte and/or for reactant gases. Metal-air batteries can benefit from such electrodes. In particular Li-air batteries show extremely high capacities, wherein the network of channels allow oxygen to diffuse through the electrode and mesopores in the electrode can store discharge products.

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15 Claims, 6 Drawing Sheets

