US009252461B2

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

(10) **Patent No.: US 9,252,461 B2**
(45) **Date of Patent: Feb. 2, 2016**

(54) **HYBRID ENERGY STORAGE DEVICES HAVING SODIUM**

(71) Applicant: **BATTELLE MEMORIAL INSTITUTE**, Richland, WA (US)

(72) Inventors: **Xiaochuan Lu**, Richland, WA (US); **Jin Yong Kim**, Richland, WA (US); **Guosheng Li**, Richland, WA (US); **John P. Lemmon**, Kennewick, WA (US); **Vincent L. Sprenkle**, Richland, WA (US)

(73) Assignee: **Battelle Memorial Institute**, Richland, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 199 days.

(21) Appl. No.: **13/948,857**

(22) Filed: **Jul. 23, 2013**

(65) **Prior Publication Data**

US 2014/0023903 A1 Jan. 23, 2014

Related U.S. Application Data

(60) Provisional application No. 61/674,609, filed on Jul. 23, 2012.

(51) **Int. Cl.**
H01M 10/39 (2006.01)

(52) **U.S. Cl.**
CPC ***H01M 10/3909*** (2013.01); ***H01M 10/399*** (2013.01)

(58) **Field of Classification Search**
CPC H01M 10/3909; H01M 10/399
See application file for complete search history.

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Primary Examiner — Brittany Raymond
(74) *Attorney, Agent, or Firm* — Klarquist Sparkman, LLP

(57) **ABSTRACT**

Sodium energy storage devices employing aspects of both ZEBRA batteries and traditional Na—S batteries can perform better than either battery alone. The hybrid energy storage devices described herein can include a sodium anode, a molten sodium salt catholyte, and a positive electrode that has active species containing sulfur. Additional active species can include a transition metal source and NaCl. As a product of the energy discharge process, Na_2S_x forms in which x is less than three.

20 Claims, 5 Drawing Sheets