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(71) Applicant (for all designated States except US): **ENVIA SYSTEMS, INC.** [US/US]; 7979 Gateway Boulevard, Suite 101, Newark, CA 94560 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LOPEZ, Herman** [US/US]; 325 Beemer Avenue, Sunnyvale, CA 94086 (US). **ANGUCHAMY, Yogesh, Kumar** [IN/US]; 37171 Sycamore Street, Apartment #1132, Newark, CA 94560 (US). **DENG, Haixia** [CN/US]; 1221 Brahms Terrace, Apartment #200, Fremont, CA 94538 (US). **HAN, Yong-bong** [KR/US]; 226 Laidley Street, San Francisco, CA 94131 (US). **MASARAPU, Charan** [IN/US]; 33951 Juliet Circle, Fremont, CA 94555 (US). **VENKATACHALAM, Subramanian** [IN/US]; 2149 Rheem Drive, Pleasanton, CA 94588 (US). **KUMAR, Sujeet** [US/US]; 39696 Potrero Drive, Newark, CA 94560 (US).

(74) Agents: **DARDI, Peter, S.** et al.; Dardi & Herbert, PLLC, Moore Lake Plaza, Suite 205, 1250 East Moore Lake Drive, Fridley, MN 55432 (US).

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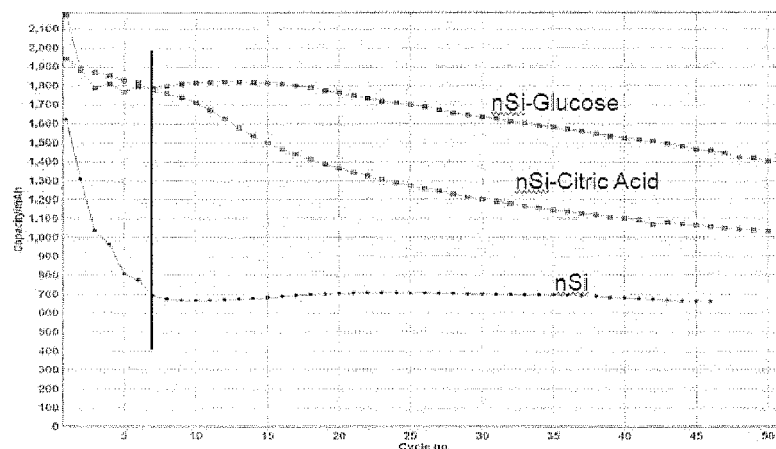
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(54) Title: HIGH CAPACITY ANODE MATERIALS FOR LITHIUM ION BATTERIES

Fig. 6



(57) Abstract: High capacity silicon based anode active materials are described for lithium ion batteries. These materials are shown to be effective in combination with high capacity lithium rich cathode active materials. Supplemental lithium is shown to improve the cycling performance and reduce irreversible capacity loss for at least certain silicon based active materials. In particular silicon based active materials can be formed in composites with electrically conductive coatings, such as pyrolytic carbon coatings or metal coatings, and composites can also be formed with other electrically conductive carbon components, such as carbon nanofibers and carbon nanoparticles. Additional alloys with silicon are explored.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/055265**A. CLASSIFICATION OF SUBJECT MATTER*****H01M 10/0525(2010.01)i, H01M 4/38(2006.01)i, B82B 3/00(2006.01)i, H01M 4/62(2006.01)i, H01M 4/583(2010.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01M 10/0525; H01M 6/10; B32B 9/00; H01B 1/08; H01M 10/24; H01M 6/16; H01M 4/58

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: silicon, anode, nano, carbon coating, nanostructured silicon

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009-0263707 A1 (BUCKLEY JAMES P. et al.) 22 October 2009 See abstract, claim 1, claim 14	1-15, 25-32
A	US 2009-0263707 A1 (BUCKLEY JAMES P. et al.) 22 October 2009 See abstract, claim 1, claim 14	16-24
Y	US 2009-0092899 A1 (TREGER JACK) 09 April 2009 See the abstract, claim 1	1-8, 26-32
A	US 2009-0092899 A1 (TREGER JACK) 09 April 2009 See the abstract, claim 1	9-25
Y	US 2009-0130562 A1 (MAO ZHENHUA et al.) 21 May 2009 See the abstract, claim 37	9-15
A	US 2009-0130562 A1 (MAO ZHENHUA et al.) 21 May 2009 See the abstract, claim 37	1-8, 16-32
X	US 2009-0186267 A1 (TIEGS TERRY N.) 23 July 2009 See the abstract, claim 1	16-24
Y	US 2009-0186267 A1 (TIEGS TERRY N.) 23 July 2009 See the abstract, claim 1	25
A	US 2009-0186267 A1 (TIEGS TERRY N.) 23 July 2009 See the abstract, claim 1	1-15, 26-32



Further documents are listed in the continuation of Box C.



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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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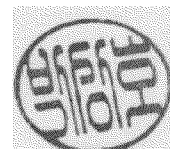
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Authorized officer

Park Sang Ho

Telephone No. 82-42-481-8709



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