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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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(54) Title: SILICON-CONTAINING ALLOYS USEFUL AS ELECTRODES FOR LITHIUM-ION BATTERIES

(57) Abstract: An electrode composition for a lithium ion battery having the formula $\text{Si}_x\text{Sn}_q\text{M}_y\text{C}_z$ where q, x, y, and z represent atomic percent values and (a) $(q + x) > 2y + z$; (b) $q \geq 0$, (c) $z \geq 0$; and (d) M is one or more metals selected from manganese, molybdenum, niobium, tungsten, tantalum, iron, copper, titanium, vanadium, chromium, nickel, cobalt, zirconium, yttrium, or a combination thereof. The Si, Sn, M, and C elements are arranged in the form of a multi-phase microstructure comprising: (a) an amorphous phase comprising silicon; (b) a nanocrystalline phase comprising a metal suicide; and (c) a phase comprising silicon carbide phase when $z > 0$; and (d) an amorphous phase comprising Sn when $q > 0$.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/062305**A. CLASSIFICATION OF SUBJECT MATTER*****H01M 4/58(2006.01)i, H01M 4/50(2006.01)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)

IPC 8 : 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: IPC as above

Japanese Utility Models and Applications for Utility Models: IPC as above

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

e-KIPASS (KIPO internal) "silicon", "alloy", "electrode", "Sn", "lithium ion battery"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6528208 B1 (The University of Chicago) 4 Mar 2003 See claims 1-15 and abstract.	1-28
A	US 05587256 A (Moli Energy Ltd) 24 Dec 1996 See claims 1-4 and abstract.	1-28
A	KR 1020040111470 A (Valence Technology, Inc., et al) 31 Dec 2004 See claims 1-12 and abstract.	1-28

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

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"&" document member of the same patent family

Date of the actual completion of the international search

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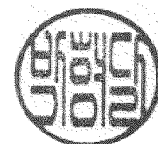
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US6528208B1	04.03.2003	NONE	
US05587256A	24.12.1996	CA2127621AA CA2127621C DE69523995T2 EP0692833B1 EP0692833A1 JP8040716A2 US5587256A	09.01.1996 07.12.1999 27.06.2002 21.11.2001 17.01.1996 13.02.1996 24.12.1996
KR1020040111470A	31.12.2004	AU2003224801A1 CA2479790A1 CN1650450A EP01490917A1 JP17522009 US2003190527A1 US2005181283A1 W003085757A1	20.10.2003 16.10.2003 03.08.2005 29.12.2004 21.07.2005 09.10.2003 18.08.2005 16.10.2003