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- (71) Applicant (*for all designated States except US*): **MASSACHUSETTS INSTITUTE OF TECHNOLOGY** [US/US]; Five Cambridge Center, Cambridge, Ma 02142-1493 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **NAM, Ki, Tae** [—/US] (US). **CHIANG, Chung-Yi** [—/US] (US). **BELCHER, Angela, M.** [US/US]; 35 Balfour, Lexington, MA 02421 (US).

- (74) Agent: **ROSEN, Valarie, B.**; Choate, Hall & Stewart, LLP, Two International Place, Boston, MA 02110 (US).
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9 April 2009

(54) Title: VIRUS SCAFFOLD FOR SELF-ASSEMBLED, FLEXIBLE AND LIGHT LITHIUM BATTERY

(57) Abstract: A variety of compositions that include a metal oxide, films and batteries comprising one or more of the compositions, and methods of making the same.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/37980

A. CLASSIFICATION OF SUBJECT MATTER

IPC: H01M 10/40(2006.01);A61K 38/02(2006.01)

USPC: 429/210;530/300

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)

U.S. : 429/210;530/300

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,569,745 A (GOODBODY et al.) 29 October 1996 (29.10.1996), claims 1 and 8.	1,6,16,28
Y	MAO et al. Virus-Based Toolkit for the Directed Synthesis of Magnetic and Semiconducting Nanowires. Science. 09 January 2004, Vol. 303, pages 213-217, especially page 214.	1-6,8-9,11-22,26,28-32
Y	US 5,595,839 A (HOSSAIN) 21 January 1997 (21.01.1997), claim 1.	33-35

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Further documents are listed in the continuation of Box C.

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See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

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

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"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

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

22 July 2008 (22.07.2008)

Date of mailing of the international search report

Authorized officer

RONALD T. NIEBAUER

Telephone No. 571-270-3059

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/37980

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claim Nos.: 7,10,23-25 and 27
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
the claims are unsearchable for not being in compliance with the sequence requirements. The sequence listing provided was invalid per the sequence rules. In particular, the entry for section <213> is invalid per the sequence rules.

3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-6,8,9,11-22,26 and 28-35

Remark on Protest

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☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

Group I, claim(s) 1-6,8-9,11-22,26,28-35, drawn to compositions comprising a metal oxide and a peptide.

Group II, claim(s) 36-38,40,42-43, drawn to a method of producing a thin film.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Rule 13.2 defines "special technical features" as "those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art." Goodbody et al. (US 5,569,745) teach compositions comprising metal oxides conjugated to peptides (claim 8) thus meeting the structural limitations of claim 1 of the instant invention. The claimed invention makes no contribution over the prior art, consequently there is no special technical feature uniting all the claimed inventions.

Since no additional fees have been paid the first named invention is searched.

Continuation of B. FIELDS SEARCHED Item 2:

EAST

search terms: metal oxide; peptide; virus; battery; film; lithium; cobalt; electrode; nanomaterial

Continuation of B. FIELDS SEARCHED Item 3:

STN (caplus)

search terms: metal oxide; peptide; virus; battery; film; lithium; cobalt; electrode; nanomaterial