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- (71) Applicant (for all designated States except US): **APPLIED MATERIALS, INC.** [US/US]; 3050 Bowers Avenue, Santa Clara, CA 95054 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SARAF, Gaurav** [IN/US]; 1610 Nantucket Circle, Apt. 215, Santa Clara, California 95054 (US). **KUMAR, Bhaskar** [IN/US]; 1610 Nantucket Circle, #116, Santa Clara, California

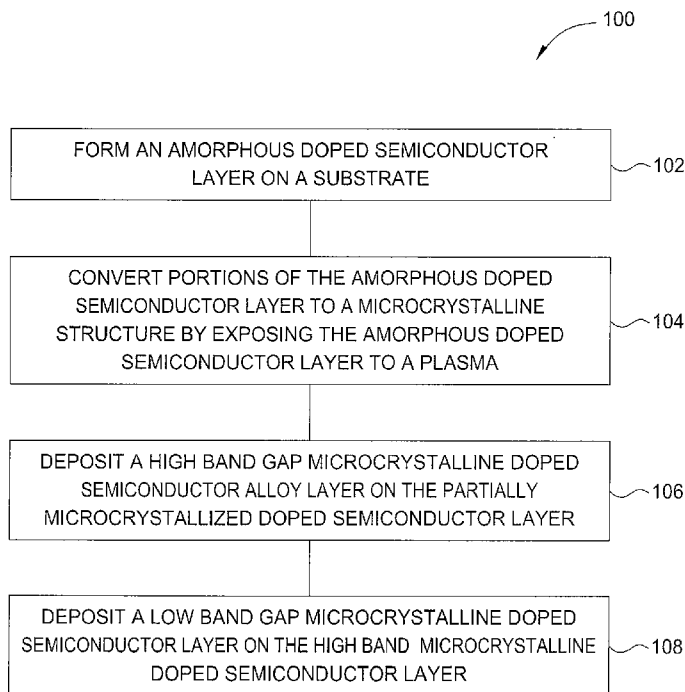
95054 (US). **SHENG, Shuran** [CA/US]; 10290 North Foothill Blvd., Apt. B3, Cupertino, California 95014 (US). **CHAE, Yong Kee** [KR/US]; 1176 Hoskins Lane, San Ramon, California 94582 (US). **AL-BAYATI, Amir** [US/US]; 4975 Bridgeview Lane, San Jose, California 95138 (US).

(74) Agents: **PATTERSON, B. Todd** et al.; Patterson & Sheridan, L.L.P., 3040 Post Oak Blvd., Suite 1500, Houston, Texas 77056-6582 (US).

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[Continued on next page]

(54) Title: METHOD OF USING SILICON ALLOY LAYERS IN THIN-FILM PHOTOVOLTAICS



(57) Abstract: A method for making thin-film photovoltaic devices is provided. The devices include a doped microcrystalline semiconductor layer having a high band gap core formed by adding a band gap enhancing element. Crystallinity of the layer is achieved by forming an amorphous doped semiconductor layer, converting the amorphous doped semiconductor layer to a microcrystalline layer using a plasma treatment, and using the microcrystalline layer as a seed layer for forming the rest of the layer. The doped layer formed has a microcrystalline morphology, a high band gap inner portion, and a low band gap outer portion.

FIG. 1

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## INTERNATIONAL SEARCH REPORT

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

**B. FIELDS SEARCHED**

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H01L 31/042; B05D 5/12; C23C 14/34; H01L 31/04; C23C 14/08; H01L 21/00

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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) &amp; Keywords: n-type, silicon, layer, micro-crystalline, plasma

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004-0067321 A1 (TAKAHARU KONDO et al.) 08 April 2004 See abstract; pars 0004-0027; fig.1-3	1-14
A	US 2008-0216894 A1 (HAMMOND TROY D.) 11 September 2008 See abstract; pars 0008-0018; fig.1-5	1-14
A	US 6187150 B1 (YOSHIMI; MASASHI et al.) 13 February 2001 See abstract; pars 0012-0033; fig.1-2	1-14

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

\* Special categories of cited documents:

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Korean Intellectual Property Office  
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Seo-gu, Daejeon 302-701, Republic of Korea

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Authorized officer

CHOI, Jinho

Telephone No. 042 481 5406



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

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