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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

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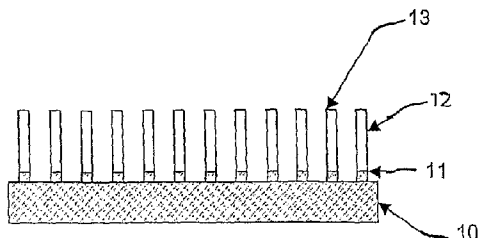
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(54) Title: GROWTH METHOD USING NANOSTRUCTURE COMPLIANT LAYERS AND HVPE FOR PRODUCING HIGH QUALITY COMPOUND SEMICONDUCTOR MATERIALS



(57) Abstract: A method utilizes HVPE to grow high quality flat and thick compound semiconductors (15) onto foreign substrates (10) using nanostructure compliant layers. Nanostructures (12) of semiconductor materials can be grown on foreign substrates (10) by molecular beam epitaxy (MBE), chemical vapour deposition (CVD), metalorganic chemical vapour deposition (MOCVD) and hydride vapour phase epitaxy (HVPE). Further growth of continuous compound semiconductor thick films (15) or wafer is achieved by epitaxial lateral overgrowth using HVPE.

WO 2007/107757 A3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER		
INV.	H01L21/20 C30B33/00	C30B23/02 C30B25/18 C30B29/40 C30B29/48
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) C30B H01L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/013042 A1 (MORKOC HADIS [US]) 31 January 2002 (2002-01-31) the whole document	1-32
X	US 2004/137732 A1 (FRAYSSINET ERIC [FR] ET AL) 15 July 2004 (2004-07-15) paragraphs [0036], [0056] - [0059]; claims; figures; examples	1-32
X	EP 1 246 233 A (NIPPON ELECTRIC CO [JP]; HITACHI CABLE [JP]) 2 October 2002 (2002-10-02) paragraph [0036]; example 1	1-32
X	EP 1 422 748 A (INST NAGOYA IND SCIENCE RES [JP]) 26 May 2004 (2004-05-26) the whole document	1-32
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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 document but 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 14 June 2007		Date of mailing of the international search report 14/09/2007
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Brisson, Olivier

INTERNATIONAL SEARCH REPORT

International application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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

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

2. Claims Nos.:
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:

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

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional 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.:

see annex

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-32(part)

A method of producing single crystal III-V compound semiconductor material involving the use of a substrate material having a compound semiconductor nanostructure grown onto it to provide an epitaxial-initiating growth surface. A single crystal compound semiconductor material grown using this method and a substrate suitable to carry out this method

2. claims: 1-32(part)

A method of producing single crystal II-VI compound semiconductor material involving the use of a substrate material having a compound semiconductor nanostructure grown onto it to provide an epitaxial-initiating growth surface. A single crystal compound semiconductor material grown using this method and a substrate suitable to carry out this method

3. claims: 32-33

A substrate material having a compound semiconductor nanostructure grown onto it suitable to provide an epitaxial-initiating growth surface comprising a p-type region proximate to the growth surface.

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
US 2002013042	A1	31-01-2002	NONE
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