Abstract: pleasant methods of depositing nanomaterial, methods for fabricating a device, and methods for fabricating an array of devices

METHODS FOR DEPOSITING NANOMATERIAL, METHODS FOR FABRICATING A DEVICE, AND METHODS FOR FABRICATING AN ARRAY OF DEVICES

A method comprising depositing an ink comprising a nanomaterial and a liquid vehicle from a micro-dispenser onto a layer of a device is disclosed. A method comprising depositing an ink comprising a nanomaterial and a liquid vehicle from a micro-dispenser onto a material capable of transporting charge in a predetermined arrangement is also disclosed. Methods for fabricating devices including nanomaterials are also disclosed. In certain preferred embodiments, the nanomaterial comprises semiconductor nanocrystals. In certain preferred embodiments, a micro-dispenser comprises an inkjet printhead.
**INTERNATIONAL SEARCH REPORT**

**International application No**
PCT/US 07/14711

**A CLASSIFICATION OF SUBJECT MATTER**

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Facsimile No 571-273-3201 PCT/US 428/403

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)

USPC - 428/403

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

USPC - 428/206,403,690, 347/100,101, 106/31 64, 430/269, 313/506, 101/492, 257/100,103 (text search - see search terms below)

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

PubWEST (JPBR, USPTO, EPAB, JAPAB), DialogPro (General Research), Google Scholar nanomaterial, semiconductor, layer, electron, hole, deposit, dispense, ink, liquid, vehicle, evaporate, phase, separate, small molecule, polymer, oligomer, inkjet, core, shell, emission, pattern, micron, ligand, electrode, spray, pipeline, eject

**C DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2005/0126628 A1 (SCHER et al.) 16 June 2005, abstract, Fig 4A, 4B and 7, para (0003), (0009), (0011)-(0017), (0021), (0027), (0029)-(0032), (0033), (0036), (0046), (0054), (0055), (0072)-(0074), (0078), (0108), (0111), (0115)-(0117), (0122), (0125), (0130), (0133)-(0139), (0142), (0151), (0152), (0156), (0166), (0169), (0176), (0179), (0198), (0199), (0203), (0212), (0214), (0216), (0223), (0230)-(0233), (0235)-(0237), (0240), (0249), (0255), (0256), (0266), (0277), (0282), (0289), (0307)-(0310) and (0323)</td>
<td>1-18, 21-35, 39-76, 78-91 and 97</td>
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<td>Y</td>
<td>US 2003/017541 A1 (KODAS et al.) 18 September 2003 (18 09 2003), abstract, para (0003), (0005), (0019), (0029)-(0037), (0056), (0120)-(0122), (0340)-(0342), (0326), (0348) and (0433)</td>
<td>19, 20 and 92-96</td>
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<td>Y</td>
<td>US 2005/0250052 A1 (NGUYEN) 10 November 2005 (10 11 2005), para [0001], [0002], [0004], [0012], [0035], [0036] and [0099]</td>
<td>36-38</td>
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<td>Y</td>
<td>US 2005/0249901 A1 (YIALIZIS et al.) 10 November 2005 (10 11 2005), para [0002], [0006], [0009], [0041] and [0042]</td>
<td>77</td>
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</table>

**Further documents are listed in the continuation of Box C**

**Date of the actual completion of the international search**
13 August 2008 (13 08 2008)

**Date of mailing of the international search report**
19 AUG 2008

**Name and mailing address of the ISA/US**
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P O Box 1450, Alexandria, Virginia 22313-1450

**Facsimile No** 571-273-3201

**Authorized officer** Lee W Young

**Form PCT/ISA/210 (second sheet) (Apr1 2007)**
### Box No. 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**
   - [ ] Yes
   - [X] No
   - because they relate to subject matter not required to be searched by this Authority, namely

2. **Claims Nos** 98 and 99
   - [X] Yes
   - [ ] No
   - 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
   - Claims 98 and 99 are unsearchable because they are omnibus claims in that it is unclear what is included or excluded by the claim language

3. **Claims Nos**
   - [ ] Yes
   - [X] No
   - because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 64(a)

### Box No. 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:

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 additional fees**, this Authority did not invite payment of additional fees

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

#### Remark on Protest

- [ ] The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee
- [ ] The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation
- [ ] No protest accompanied the payment of additional search fees

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2007)