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

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(54) Title: NANOCHANNEL-GUIDED PATTERNING FOR POLYMERIC SUBSTRATES

(57) Abstract: Novel continuous high speed techniques are provided to fabricate high aspect-ratio microscale structures by using curable liquid materials on a deformable polymeric substrate by a mold-guided pattern formation process with a rigid mold. Methods comprise contacting a patterned surface of a rigid mold with a curable liquid material disposed on a moldable polymeric substrate. The patterned surface has one or more cavities defining at least one microscale feature, so that the curable liquid material flows into the cavity and the major surface is at least partially deformed during the contacting. The liquid is cured to form a cured polymer having the at least one microscale feature over the moldable polymeric substrate.



A. CLASSIFICATION OF SUBJECT MATTER*B82B 3/00(2006.01)i, B29C 59/04(2006.01)i, C23C 14/24(2006.01)i, C08J 5/00(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)

B82B 3/00; B82B 1/00; C08G 77/04; B05C 11/00; G02B 5/30; B05D 3/12; B29C 37/00; B29C 59/02

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

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) & Keywords: substrate, pattern, mold, cure, polymer, cavity, contact and angle

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010/120982 A2 (AHN, SE HYUN et al.) 21 October 2010 See abstract and claims 1-19	1-21
A	US 2009/0046362 A1 (GUO, LINGJIE JAY et al.) 19 February 2009 See abstract and claims 1-21	1-21
A	US 2009/0256287 A1 (FU, PENG-FEI et al.) 15 October 2009 See abstract and claims 1-26	1-21
A	US 2007/0056680 A1 (TAN, LI et al.) 15 March 2007 See abstract and claims 1-16	1-21

 Further documents are listed in the continuation of Box C. 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

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"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

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"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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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