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(54) Title: METHOD AND APPARATUS FOR SELECTIVELY PATTERNING FREE STANDING QUANTOM DOT (FSQDT) POLYMER COMPOSITES

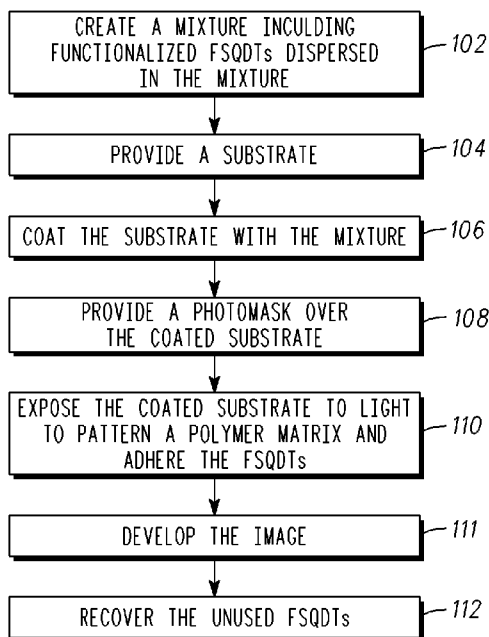


Fig. 1

(57) Abstract: Free standing quantum do (FSQDT) polymer composites and a method and apparatus for patterning the FSQDT polymer composites is provided. The method for patterning the FSQDT polymer composites includes creating a solution including FSQDTs (102) where each of the FSQDTs has a plurality of reactive ligands chemically attached thereto. The method further includes providing a substrate (104), forming a coated substrate by coating a surface of the substrate with a layer of the solution (106), and providing a photo mask having a predetermined pattern thereon transparent to a predetermined radiation over the coated substrate (108). Finally, the method includes exposing a portion of the coated substrate to the predetermined radiation passing through the mask to pattern a polymer matrix in the predetermined pattern while adhering the FSQDTs to the polymer matrix (110) to form the FSQDT polymer composite.



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B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC8 H01L 21/027, G03F 7/00, H01L 21/20, H01L 21/31		
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 since 1975 Japanese Utility models and applications for Utility models since 1975		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKIPASS(KIPO internal) "quantum dot, mixture, pattern"		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	KR 10-2006-0103356 A (SEOUL NATIONAL UNIVERSITY INDUSTRY FOUNDATION) 29 September 2006 See abstract, figs. 1-3, page 2, claims 1 and 3	55-68 1-54,69-73
Y	KR 10-2005-0003548 A (SAMSUNG ELECTRONICS CO., LTD.) 12 January 2005 See abstract, pages 2-9, claims 1-3 and 6-7	1-73
Y	US 2007-032091 A1 (HEALD, D. L. et al.) 08 February 2007 See abstract, figs. 2 and 10, paras. [0078]-[0084], claims 1-2 and 11	1-73
Y	KR 10-2006-0086128 A (SAMSUNG ELECTRONICS CO., LTD.) 31 July 2006 See abstract, claims 1,6-8,10,13, and 15-16	1-73
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>		
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