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(54) **Title:** METHOD OF PHOTOLITHOGRAPHY USING A FLUID AND A SYSTEM THEREOF

(57) **Abstract:** A photolithographic exposure system for use on a photoresist on a substrate includes an illumination system, a photomask with one or more object patterns, a projection optical exposure system, and a fluid dispensing system. The projection optical exposure system is positioned to project an image of the one or more object patterns toward an image plane. The fluid dispensing system positions a fluid between the projection optical exposure system and the photoresist on the substrate. The fluid has a refractive index value above a refractive index value of water and an absorbance below 0.8 per millimeter at wavelength between about 180 nm and about 300 nm.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US05/03219

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC: **G03B 11/00**( 2006.01);**G03F 9/00**( 2006.01)  
  
 USPC: 355/53,30;526/253;359/350;252/582;430/311  
 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)  
 U.S. : 355/53,30; 526/253; 359/350; 252/582; 430/311

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 NONE

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 5,900,354 A (BATCHELDER) 4 MAY 1999 (04.05.1999), see column 5, lines 19-67, see column 6, lines 19-60.	1-2,6-9,13-17,21-24,28 ----- 3-5,10-12,18-20,25-27
Y	US 4,493,533 (PETRZILKA et al) 15 January 1985 (15.01.1985), see 3, lines 5-60.	3-5,10-12,18-20,25-27

<input type="checkbox"/> Further documents are listed in the continuation of Box C.	<input type="checkbox"/> See patent family annex.
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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 Mark F Huff Telephone No. (571) 272-1700  DEBORAH A. THOMAS PARALEGAL SPECIALIST <i>DCT</i>

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**Continuation of B. FIELDS SEARCHED Item 3:**

East Database. search terms: Immersion, fluid, liquid, index of refraction, cations, anions, fluid inject\$4, nozzle, purification system