



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H01J 37/30, H01L 21/30	A1	(11) International Publication Number: WO 98/20517 (43) International Publication Date: 14 May 1998 (14.05.98)
(21) International Application Number: PCT/SG97/00057 (22) International Filing Date: 6 November 1997 (06.11.97) (30) Priority Data: 9611095-2 7 November 1996 (07.11.96) ✓ SG (71) Applicant (for all designated States except US): NATIONAL UNIVERSITY OF SINGAPORE [SG/SG]; 10 Kent Ridge Crescent, Singapore 119260 (SG). ✓ (72) Inventors; and (75) Inventors/Applicants (for US only): WATT, Frank [GB/SG]; Industry and Technology Relations Office, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260 (SG). SPRINGHAM, Stuart, Victor [GB/SG]; Industry and Technology Relations Office, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260 (SG). OSIPOWICZ, Thomas [DE/SG]; Industry and Technology Relations Office, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260 (SG). BREESE, Mark [GB/GB]; Industry and Technology Relations Office, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260 (SG).	(74) Agent: APPLIED RESEARCH CORPORATION; Kent Ridge, P.O. Box 1016, Singapore 911101 (SG). (81) Designated States: JP, SG, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report.	
(54) Title: MICROMACHINING USING HIGH ENERGY LIGHT IONS (57) Abstract <p>Structures of microminiature dimensions are formed by scanning a nearly parallel beam of high energy light ions across the surface of a resist material such as PMMA in a predetermined pattern. The resulting chemical changes in the exposed resist material allows a chemical developer to remove the exposed material while leaving the unexposed material substantially unaffected. In addition because the ions have a well defined range in the material depending on their energy, the resist can be exposed to a predetermined and well defined depth. By this method resist structures of three dimensional complexity can be micromachined. This is achieved by simultaneously scanning the beam and orientating the resist layer in a controlled manner. Further enhancement may be achieved by the use of multiple deposition and exposure of resist layers. These resist microstructures may be further utilised to produce microstructures in other materials by the application of processes such as electroplating and micromoulding.</p> <div data-bbox="810 1205 1481 2101"> </div>		