

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



9902190-9  
170815

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(51) International Patent Classification <sup>6</sup> :</b><br><b>H01J 37/00</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>A2</b> | <b>(11) International Publication Number:</b> <b>WO 98/22971</b><br><b>(43) International Publication Date:</b> 28 May 1998 (28.05.98)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>(21) International Application Number:</b> PCT/GB97/03136<br><b>(22) International Filing Date:</b> 14 November 1997 (14.11.97)<br><b>(30) Priority Data:</b><br>9623768.0 15 November 1996 (15.11.96) GB<br><b>(71) Applicant (for all designated States except US):</b> LEO ELECTRON MICROSCOPY LIMITED [GB/GB]; Clifton Road, Cambridge CB1 3QH (GB).<br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> SUDRAUD, Pierre [FR/FR]; Résidence de l'Arche, 18, place des Loges, F-13086 Aix en Provence (FR). CORBIN, Antoine [FR/FR]; Résidence de l'Arche, 11, rue de l'Esplanade, F-13086 Aix en Provence (FR). SAILER, Rainer [DE/FR]; 21, rue Pavillon; F-13100 Aix en Provence (FR). BATE, David, John [GB/GB]; 73A Campkin Road, Cambridge CB4 2NP (GB).<br><b>(74) Agent:</b> KEITH W. NASH & CO.; 90-92 Regent Street, Cambridge CB2 1DP (GB).                                                                       |           | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>Without international search report and to be republished upon receipt of that report.</i> |
| <b>(54) Title:</b> SCANNING ELECTRON MICROSCOPE<br><b>(57) Abstract</b><br><p>A scanning electron microscope has means (1, 3) for generating a beam of electrons which is scanned over a specimen (11) held within a holder (12) in a chamber (5) which contains a gaseous medium. A negative potential is applied to the holder (12) so as to generate an electric field which accelerates secondary electrons, formed by the interaction of the primary beam with the specimen (11), in a direction away from the specimen surface and into a collision zone (21) in the chamber. In that zone, the accelerated secondary electrons collide with gas molecules of the gaseous medium, thereby initiating a cascade of collisions which, in effect, amplifies the secondary electron signal. That signal (which may take the form of photons generated as a result of the collisions) is detected by detecting means (10, 7), such as a photo-multiplier.</p> |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |