

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/008679 A1

(51) International Patent Classification⁷: **G12B 21/08**,
21/02, 21/20

(21) International Application Number:
PCT/GB2004/003065

(22) International Filing Date: 15 July 2004 (15.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0316577.6 15 July 2003 (15.07.2003) GB
0323229.5 3 October 2003 (03.10.2003) GB
0408234.3 13 April 2004 (13.04.2004) GB

(71) Applicant (for all designated States except US): **UNIVERSITY OF BRISTOL** [GB/GB]; Senata House, Tyndall Avenue, Bristol, Avon BS8 1TH (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HUMPHRIS, Andrew, David, Laver** [GB/GB]; Flat 2, 6 Oldfield Road, Bath, Avon BA2 3ND (GB). **HOBBS, Jamie, Kayne** [GB/GB]; 293 Greystones Road, Greystones, Sheffield,

Yorkshire S11 7BX (GB). **MILES, Mervyn, John** [GB/GB]; 10 Kingsweston Lane, Kingsweston, Bristol, Avon BS11 0UR (GB).

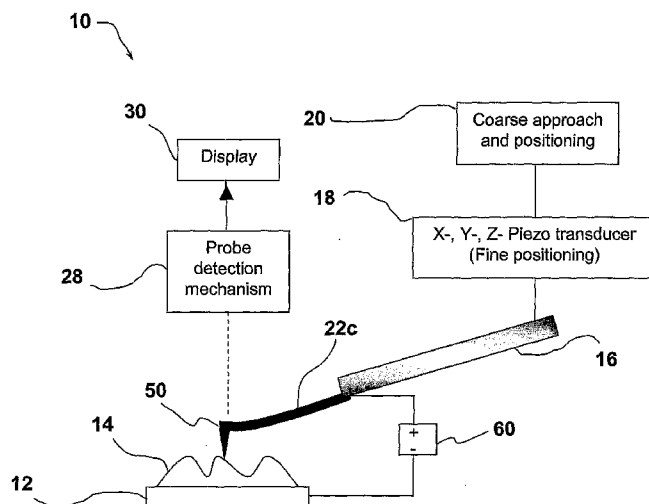
(74) Agents: **WILLIAMS, Ceili** et al.; Stevens Hewlett & Perkins, Halton House, 20/23 Holborn, London, Greater London EC1N 2JD (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: PROBE FOR AN ATOMIC FORCE MICROSCOPE



(57) Abstract: A probe (22) for an atomic force microscope is adapted such that, as a sample (14) is scanned, it experiences a biasing force F_{direct} urging the probe towards the sample. This improves probe tracking of the sample surface and faster scans are possible. This is achieved by either including a biasing element (24, 50), which is responsive to an externally applied force, on the probe (22) and / or reducing the quality factor of a supporting beam. The biasing element may, for example, be a magnet (24) or an electrically-conducting element (50). The quality factor may be reduced by coating the beam with a mechanical-energy dissipating material.

WO 2005/008679 A1



FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.