

Title (en)
SCANNING EVANESCENT ELECTRO-MAGNETIC MICROSCOPE

Title (de)
ELEKTROMAGNETISCHE QUERGEDÄMPTE WELLEN- RASTERMIKROSKOP

Title (fr)
MICROSCOPE ELECTROMAGNETIQUE EVANESCENT A BALAYAGE

Publication
EP 1018138 A4 20001220 (EN)

Application
EP 98953178 A 19980922

Priority
• US 9819764 W 19980922
• US 5947197 P 19970922

Abstract (en)
[origin: WO9916102A1] A scanning microscope uses near-field evanescent electromagnetic waves emitted from a sharpened metal tip (20) to probe sample (80) properties. The sharpened tip (20), which is electrically and mechanically connected to a central electrode (18), extends through and beyond an aperture (22) in an endwall (16) of a microwave resonating device, such as a microwave cavity resonator (10). The microscope is capable of high resolution imaging and quantitative measurement of the electrical properties of a sample, such as the dielectric constant, tangent loss, conductivity, and complex electrical impedance measurements.

IPC 1-7
G01N 27/00; **G01B 7/34**; **H01J 37/20**

IPC 8 full level
G01B 11/30 (2006.01); **G01N 13/10** (2006.01); **G01N 13/14** (2006.01); **G01Q 60/18** (2010.01); **G12B 21/00** (2006.01); **G12B 21/06** (2006.01)

CPC (source: EP)
G01Q 60/22 (2013.01)

Citation (search report)
• [XAY] MASSOOD TABIB-AZAR ET AL: "NON-DESTRUCTIVE CHARACTERIZATION OF MATERIALS BY EVANESCENT MICROWAVES", MEASUREMENT SCIENCE AND TECHNOLOGY,GB,IOP PUBLISHING, BRISTOL, vol. 4, no. 5, 1 May 1993 (1993-05-01), pages 583 - 590, XP000362377, ISSN: 0957-0233
• [DXAY] WEI T ET AL: "Scanning tip microwave near-field microscope", APPL. PHYS. LETT., vol. 68, no. 24, 10 June 1996 (1996-06-10), pages 1 - 3, XP002917072
• [DY] FEE M ET AL: "Scanning electromagnetic transmission line microscope with sub-wavelength resolution", OPTICS COMM., vol. 69, no. 3,4, 1 January 1989 (1989-01-01), pages 219 - 224, XP000885387
• [DYA] POZAR, DAVID M: "MICROWAVE ENGINEERING", 1990, ADDISON-WESLEY PUBLISHING COMPANY, READING, MASSACHUSETTS, XP002149688
• [PX] GAO C ET AL: "HIGH SPATIAL RESOLUTION QUANTITATIVE MICROWAVE IMPEDANCE MICROSCOPYBY A SCANNING TIP MICROWAVE NEAR-FIELD MICROSCOPE", APPLIED PHYSICS LETTERS,US,AMERICAN INSTITUTE OF PHYSICS. NEW YORK, vol. 71, no. 13, 29 September 1997 (1997-09-29), XP000725818, ISSN: 0003-6951
• See references of WO 9916102A1

Designated contracting state (EPC)
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