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13/292,850 9 November 2011 (09.11.2011) US(71) Applicant (for all designated States except US): **MKS INSTRUMENTS, INC.** [US/US]; 2 Tech Drive, Suite 201, Andover, MA 01810 (US).

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[Continued on next page]

(54) Title: MEASURING BULK LIFETIME

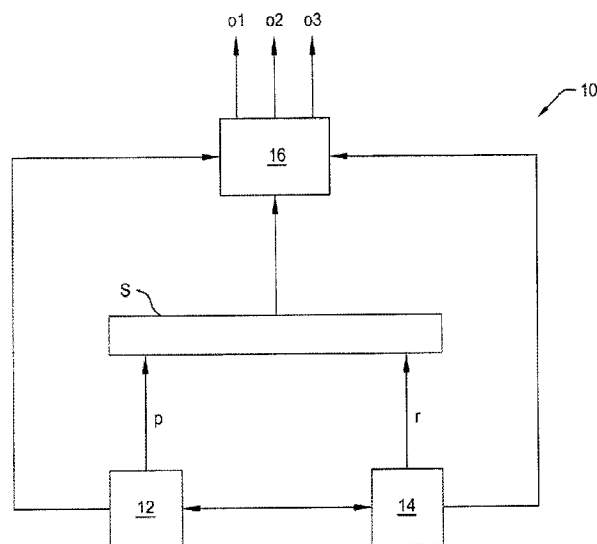


FIG. 1

(57) Abstract: An apparatus includes a member including a ferromagnetic material, an inductance-capacitance resonant circuit, a substrate disposed relative to the member, and a plurality of radiation sources. The member includes a post disposed at its center and a surface extending to an outer wall. The member defines a gap between the post and the outer wall. The inductance-capacitance resonant circuit is configured to resonate at a measurement frequency. The circuit includes an inductor disposed relative to the post. The substrate is disposed relative to the member. The substrate is electromagnetically coupled to the inductor. The plurality of radiation sources is disposed radially outward from and circumferentially around the post of the member. The apparatus can be used to simultaneously measure conductance (inverse sheet resistance), steady state photoconductance, true steady state minority carrier lifetime, photoconductance build-up and photoconductance decay lifetime.



SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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ADD.

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)

G01R H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 286 215 A (MILLER GABRIEL L) 25 August 1981 (1981-08-25) cited in the application the whole document -----	1-45
A	US 6 369 603 B1 (JOHNSTON STEVEN W [US] ET AL) 9 April 2002 (2002-04-09) column 8, line 62 - column 25, line 48; figures 1-26 -----	1-45
A	EP 0 104 889 A2 (EXXON RESEARCH ENGINEERING CO [US]) 4 April 1984 (1984-04-04) page 4, line 21 - page 8, line 22; figure 1 -----	1-45



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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