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(21) International Application Number: PCT/US92/03568 (22) International Filing Date: 4 May 1992 (04.05.92) (30) Priority data: 694,282 3 May 1991 (03.05.91) US (71) Applicant: UNIVERSITY OF MARYLAND AT BALTIMORE [US/US]; 520 West Lombard Street, Second Floor, Baltimore, MD 21201-1627 (US). (72) Inventors: LAKOWICZ, Joseph, R. ; 9142 Emerson's Reach, Columbia, MD 20142 (US). SZMACINSKI, Henry ; 3203 Southern Avenue, Baltimore, MD 21214 (US).		(74) Agents: VANDENBURGH, Lynn; Wegner, Cantor, Mueller & Player, 1233 20th Street, N.W., Suite 300, Washington, DC 20036 (US) et al. (81) Designated States: AT (European patent), AU, BE (European patent), CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), MC (European patent), NL (European patent), SE (European patent). Published <i>With international search report.</i> (88) Date of publication of the international search report: 7 January 1993 (07.01.93)
(54) Title: METHOD FOR OPTICALLY MEASURING CHEMICAL ANALYTES (57) Abstract A system and method in which a photoluminescent ligand is added to a sample to be analyzed in the form of a photoluminescent probe having intrinsic analyte-induced lifetime changes. The method preferably employs phase-modulation fluorometry to measure the lifetime changes. Specific probes are disclosed for measuring various analytes, particularly ionic solutes, including H ⁺ , Ca ²⁺ and K ⁺ .		

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US92/03568

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) : G01N 21/76
US CL : 436/172, 128/633

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)

U.S. : 128/633-634 436/172

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,E Y	US,A, 5,127,405 (ALCALA ET AL), 07 JULY 1992, SEE ENTIRE DISCLOSURE.	<u>1-2,5-7,11-13,25</u> 3-4,8-10,14-24,26-28
Y	US,A, BIOPROBES NO. 8 JUNE 1988, MOLECULAR PROBES, INC. P.O BOX 22010 EUGENE, OR 97402.	8-10,14-22
Y	US,A, 4,851,195 (MATTHEWS ET AL), 25 JULY 1989, SEE ENTIRE DISCLOSURE.	3-4
Y,E	US,A, 5,134,232 (TSIEN ET AL), 28 JULY 1992, SEE ENTIRE DISCLOSURE.	22-23,24
X	US,A, 4,854,321 (BOIARSKI), 08 AUGUST 1989, SEE ENTIRE DISCLOSURE.	1,2,16,25
Y	US,A, 4,972,331 (CHANCE), 20 NOVEMBER 1990, SEE ENTIRE DISCLOSURE.	26-28

Further documents are listed in the continuation of Box C. See patent family annex.

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P document published prior to the international filing date but later than the priority date claimed		

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14 SEPTEMBER 1992

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Name and mailing address of the ISA/
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Box PCT
Washington, D.C. 20231

Authorized officer

MARK BOCKELMAN

Facsimile No. NOT APPLICABLE

Telephone No. (703) 308-2112

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International application No.
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	"Spectral and Photophysical studies of Benzo (c) xanthene Dyes; Dual Emission Ph sensors" James E Whitaker et al Analytical Biochemistry 194, 330-344 (1991)	8-10