



(11) **EP 2 159 566 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
21.08.2013 Bulletin 2013/34

(51) Int Cl.:
G01N 21/25 (2006.01) **G01N 21/27** (2006.01)
G01N 21/76 (2006.01) **G01N 21/07** (2006.01)
G01N 35/02 (2006.01)

(43) Date of publication A2:
03.03.2010 Bulletin 2010/09

(21) Application number: **09167135.4**

(22) Date of filing: **04.08.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(72) Inventors:
• **Hwang, Induk**
Gyeonggi-do 449-712 (KR)
• **Lee, Jeonggun**
Gyeonggi-do 449-712 (KR)
• **Yoo, Jungsuk**
Gyeonggi-do 449-712 (KR)

(30) Priority: **27.08.2008 KR 20080084051**

(71) Applicant: **Samsung Electronics Co., Ltd.**
Suwon-si, Gyeonggi-do, 443-742 (KR)

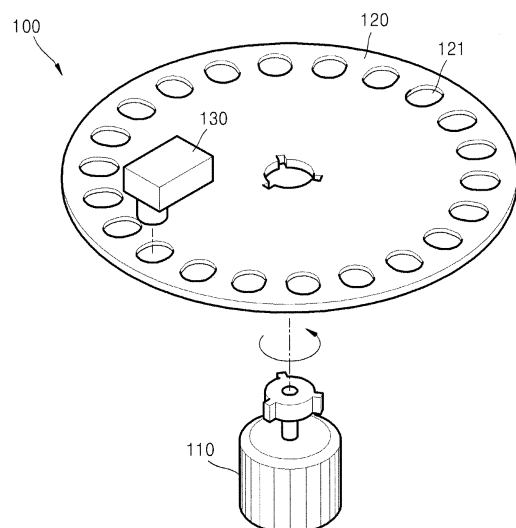
(74) Representative: **Grünecker, Kinkeldey, Stockmair & Schwanhäusser**
Leopoldstrasse 4
80802 München (DE)

(54) **Optical detecting method and apparatus**

(57) Provided is an optical detecting method including setting an amplification time for amplifying an electrical signal converted from light generated in reaction chambers, for example by chemiluminescence, changing the amplification time if a value obtained by amplifying the electrical signal for the amplification time is not within a predetermined range of values, and amplifying for the changed amplification time and outputting the amplified electrical signal.

Furthermore, an optical detection apparatus is provided, said apparatus comprising a rotatable disc with a plurality of reaction chambers, a rotation driving unit, an optical detection device, an amplification circuit, and an analog-to-digital converter.

FIG. 1



EP 2 159 566 A3



EUROPEAN SEARCH REPORT

Application Number
EP 09 16 7135

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 3 806 718 A (STEWART M) 23 April 1974 (1974-04-23)	8	INV. G01N21/25
Y	* column 1, line 46 - column 2, line 2; figure 1 *	1-7,9-15	G01N21/27 G01N21/76
Y	----- US 2001/038450 A1 (MCCAFFREY JOHN T [US] ET AL) 8 November 2001 (2001-11-08) * paragraphs [0019] - [0022], [0042] - [0045]; figure 1 *	1-7,9-15	ADD. G01N21/07 G01N35/02
Y	----- US 2007/139649 A1 (SIEMENS ANDREAS [DE]) 21 June 2007 (2007-06-21) * paragraph [0024] *	1-7,9-15	
Y	----- WO 2008/056307 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; HELWEGEN IVON F [NL]; VAN KESTERE) 15 May 2008 (2008-05-15) * page 9, line 27 - page 10, line 2; figures 2, 5 *	1-7,9-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			G01N
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 July 2013	Examiner Hoogen, Ricarda
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 16 7135

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-07-2013

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3806718	A	23-04-1974	AU 472412 B2	27-05-1976
			AU 5626273 A	05-12-1974
			BE 800332 A1	30-11-1973
			CA 997472 A1	21-09-1976
			CH 573190 A5	27-02-1976
			CH 573685 A5	15-03-1976
			DE 2327676 A1	20-12-1973
			ES 415419 A1	16-02-1976
			ES 423922 A1	16-06-1976
			FR 2186782 A1	11-01-1974
			GB 1439358 A	16-06-1976
			IL 42405 A	29-02-1976
			IT 986405 B	30-01-1975
			JP S4952679 A	22-05-1974
			JP S5636366 B2	24-08-1981
			NL 7307595 A	04-12-1973
			SE 394517 B	27-06-1977
			SE 409903 B	10-09-1979
			SE 7609695 A	02-09-1976
			US 3806718 A	23-04-1974

US 2001038450	A1	08-11-2001	NONE	

US 2007139649	A1	21-06-2007	AT 374363 T	15-10-2007
			AU 2004314376 A1	04-08-2005
			CA 2550054 A1	04-08-2005
			CN 1898551 A	17-01-2007
			DE 102004004098 B3	01-09-2005
			DK 1709428 T3	05-11-2007
			EP 1709428 A1	11-10-2006
			ES 2291967 T3	01-03-2008
			HK 1094249 A1	25-01-2008
			JP 2007519906 A	19-07-2007
			KR 20060127885 A	13-12-2006
			PT 1709428 E	15-10-2007
			RU 2351918 C2	10-04-2009
			US 2007139649 A1	21-06-2007
WO 2005071390 A1	04-08-2005			

WO 2008056307	A1	15-05-2008	AT 516491 T	15-07-2011
			CN 101535795 A	16-09-2009
			EP 2082214 A1	29-07-2009
			JP 5117505 B2	16-01-2013
			JP 2010509583 A	25-03-2010
			US 2010043526 A1	25-02-2010
			WO 2008056307 A1	15-05-2008

EPO FORM P0469

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 16 7135

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-07-2013

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

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82