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(54) Title: SYSTEMS AND METHODS FOR ANALYTE DETECTION

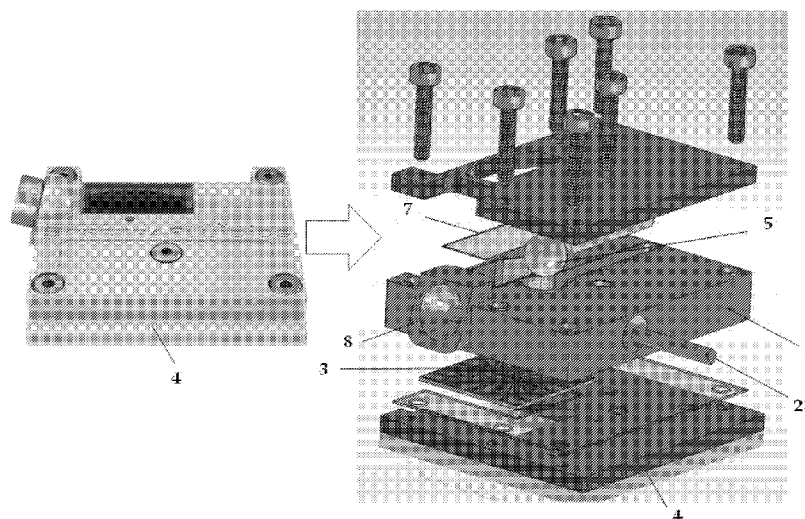


Fig. 4A

(57) Abstract: This disclosure provides a system component and method for analysis of airborne analytes by absorbing the analytes into a liquid and interrogating the liquid with an analytical instrument. In some examples, a cartridge with a microfluidic chip contains a vessel of a colloidal solution of nanostructured particles in a liquid. The vessel is broken, releasing the solution into microfluidic containers on the chip. Air having analytes is passed over the chip leading to absorption of airborne analytes into the solution. The analytes bind with the nano structures and are detected optically. Techniques are disclosed for filling the vessel in a way that maintains the efficacy of the solution until it is needed for measurement.





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A. CLASSIFICATION OF SUBJECT MATTER**G01N 33/00(2006.01)i, G01N 35/08(2006.01)i, G01N 15/14(2006.01)i, G01N 21/47(2006.01)i**

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)

G01N 33/00; G01N 27/26; C02F 1/40; G01N 21/65; G01N 35/08; G01N 15/14; G01N 21/47

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: detect, analyte, microfluidic chip, colloid, ampoule, packet, SERS, capillary

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010-0210029 A1 (MEINHART et al.) 19 August 2010 See paragraphs [0007]-[0014], [0038]-[0050], [0060]-[0072], [0078], [0090]-[0128], [0145]-[0149]; claims 1-40; Figures 1A-3B, 6A, 6B.	1,8,28-31,36-38
A		2-7,9-27,32-35
A	WO 2011-016888 A1 (SPECTRAFLUIDICS, INC. et al.) 10 February 2011 See paragraphs [0012], [0026], [0027], [0048]-[0057], [0068]-[0071], [0077]-[0080], [0087]; claims 1, 3, 6, 9, 15-23; Figures 1-12.	1-38
A	PIOREK et al., Free surface microfluidic/SERS for detection of gas-phase DNT, Proceedings of SPIE, Chemical, Biological, Radiological, Nuclear, and Explosives Sensing XI, 2010, Conference Vol. 7665, pp. 1-7 See abstract; pages 1-6; Figure 3.	1-38
A	CHEN et al., Recent advances in surface-enhanced raman scattering detection technology for microfluidic chips, Electrophoresis, 2008, Vol. 29, Issue 9, pp. 1815-1828 See pages 1815-1819, 1825, 1826; Figures 1, 2.	1-38



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/066889

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	TONG et al., Optical aggregation of metal nanoparticles in a microfluidic channel for surface-enhanced raman scattering analysis, Lab Chip, 2008, Vol. 9, pp. 193-195 See pages 193-195; Figure 1.	1-38
A	ACKERMANN et al. Quantitative online detection of low-concentrated drugs via a SERS microfluidic system, Chem. Phy. Chem., 2007, Vol. 8, Issue 18, pp. 2665-2670 See pages 2666, 2667; Figure 3.	1-38

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/066889

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