(19)

(11) **EP 1 772 732 A8**

(12) CORRECTED EUROPEAN PATENT APPLICATION

Note: Bibliography reflects the latest situation

(15) Correction information:

Corrected version no 1 (W1 A1) INID code(s) 71

(51) Int Cl.:

G01N 33/543 (2006.01)

C12Q 1/68 (2006.01)

(48) Corrigendum issued on:

13.06.2007 Bulletin 2007/24

(43) Date of publication:

11.04.2007 Bulletin 2007/15

(21) Application number: 05109353.2

(22) Date of filing: 07.10.2005

(84) Designated Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI

Designated Extension States:

AL BA HR MK YU

(71) Applicants:

 Interuniversitair Microelektronica Centrum vzw (IMEC)

3001 Leuven (BE)

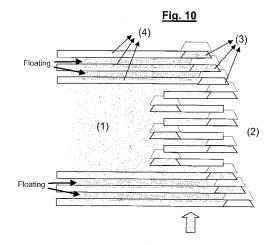
 Innogenetics N.V. 9052 Ghent (BE) (72) Inventors:

- Laureyn, Wim 3001, Leuven (BE)
- Suls, Jan
 3010, Kessel-Lo (BE)
- Jacobs, Paul 9160, Lokeren (BE)
- (74) Representative: Sarlet, Steven Renaat Irène et al Gevers & Vander Haeghen.

Holidaystraat, 5 1831 Diegem (BE)

(54) Polymer replicated interdigitated electrode arrays for (bio)sensing applications

(57)Interdigitated electrode arrays are very promising devices for multiparameter (bio)sensing, for example the label-free detection of nucleic acid hybridisation for diagnostic applications. The current invention comprises an innovative method for the affordable manufacturing of polymer-based arrays of interdigitated electrodes with μm-dimensions. The method is based on a combination of an appropriate three-dimensional structure and a single and directional deposition of conductive material. The three-dimensional structure can be realized in a polymer material using a moulding step, for which the moulds are manufactured by electroplating as a reverse copy of a silicon master structure. In order to ensure sufficient electrical isolation and individual, but convenient, accessibility of the sensors in the array, the interdigitated electrode regions need to be complemented with specific features on the three-dimensional structure. Combined with the use of e.g. shadow masks in the deposition step, these features allow for the site-specific deposition of the conductive material. The technology described has the additional advantage to integrate highly miniaturized and arrayed electronics elements into polymer micro-fluidics technology, which leads to the affordable manufacturing of (bio)sensor arrays.



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