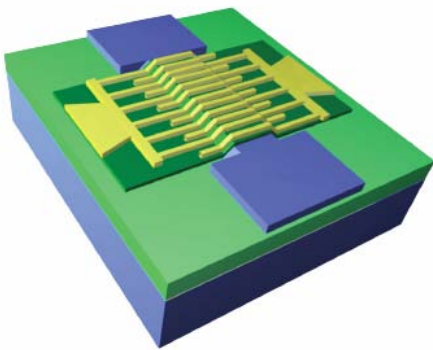




Sopartec, the technology transfer company of the Université catholique de Louvain (UCL), presents

## A NEW LABEL-FREE CMOS-COMPATIBLE ELECTRONIC NANOBIOSENSOR



### Technology Keywords

- Label-free electrochemical biosensor
- MOSFET (metal oxide field effect transistor)
- Nanoscale finger-like electrode array
- Functionalized nanoelectrodes

### Technology Market : Biological/chemical detection

Label-free electronic biosensors for detection of molecules in biological samples are **crucial components for the seamless integration of proteomics with information technologies**. Although their characteristics have been improved, actual biosensors present disadvantages that prevent them to be widely used. Ion sensitive field effect transistors (ISFETs) serve as more macroscopic biosensors, but suffer from a low sensitivity and need an integrated reference electrode. Nanowire sensors need to integrate a microfluidic system and nanoscale interdigitated electrode arrays (nIDAs) show promises of high sensitivity but their reliability is limited and their sensitivity is deteriorated by high ion concentration as found in biological solutions.

### The UCL/ULB invention

The present invention relates to an **IDA-gate MOSFET sensor** which is a MOSFET device where the usual blanket metal/polysilicon gate is replaced by a nanoscale finger-like (interdigitated or not) electrode array. In fact, this device can be a **capacitive/resistive sensor coupled with a field effect transistor**.

The biosensor of the invention has the **advantages** of

- label-free and real-time analysis,
- small sample volumes,
- reproducible specific detection,
- increased sensitivity compared to capacitive sensors,
- increased reliability (reduced influence of short circuit between fingers),
- compatibility with CMOS technology → full integration with IT,
- scaling possibility → selective multiplexed detection on one single chip.

The biosensor may find **applications** in biotechnology (detection of proteins, DNA, RNA, ...), medical diagnosis (detection of viruses, antibodies, biomarkers, ...), food safety and environmental protection.

### Technology Status

This work is the subject of a patent application : PCT patent application filed on 18/07/2008 and published under No. WO2009/010584.

(internal file reference number : SOP-209)

Sopartec would like to talk to companies interested in developing and commercializing this opportunity.

#### Contact

Frédéric Ooms, Ph.D.

*Senior Patent & Licensing Manager*

Tel +32-(0)10-390 021

Email [f.ooms@sopartec.com](mailto:f.ooms@sopartec.com)

Web [www.sopartec.com](http://www.sopartec.com)

[www.uclouvain.be](http://www.uclouvain.be)

[www.ulb.ac.be](http://www.ulb.ac.be)