Sensor100

The International Bio-sensor and Chemo-sensor Network

January 2014

Contents

Covere image: **PowerPoint slideshow** for SiM14

www.sensor100.com

From the editor...

Happy New Year - if it isn't too far into 2014 to wish that.

This first issue of **Sensor100** for 2014 is somewhat different to our usual offering. It only has one topic - Sensors in Medicine 2014.

There are two quite good reasons for this policy digression. Firstly, putting the conference together has stretched our limited resources, to put it mildly, leaving little or no time to compile and edit our usual eclectic array of news.

Secondly, we are quite proud of how SiM14 has come together and it deserves more than the brief 5 seconds or so on average people look at web pages. In **Sensor100**, you can read a little more and pick and choose the topics which interest you.

We hope we will see you in London on the 25-26 March, and possibly at the Workshop on the 27th.

Normal **Sensor100** service will resume in February

Kind regards

Michael

michael@sensor100.com

Sensors in Medicine 2014

Linking Academic Clinical and Commercial Worlds

25 & 26 March London

Venue: Royal Geographic Society, South Kensington, London SW7 2AR

Tuesday 25th March

08:30	Registration and Coffee
09:00	**Keynote:** New sensor technologies and mHealth *Dr. Marc Bailey, Nokia*
09:45	**Digital health**
13:00	Lunch
14:00	**Innovation technology**
17:00	**Panel Discussion:** Challenges in wearable and implantable sensors
18:00	Reception
20:30	Reception ends

Wednesday 26th March

08:30	Registration and Coffee
09:00	**Keynote:** Sensor opportunities in medicine development *Dr. Thomas Keller, Glaxo Smith Kline*
09:45	**Breath Analysis**
13:00	Lunch
14:00	**Emerging Companies**
15:30	**Point of Care Diagnostics**
17:00	Conference ends

Thursday 27 March

10:00	**Workshop:** Starting and growing a sensor company
16:00	Workshop ends

Unavoidable changes in program may be made without prior notice

Register Now!

Why Attend SiM14?

Applications in medicine and healthcare are arguably the fastest growing development in sensor technology.

Sensors in Medicine is an annual conference which brings together leading academic, clinical and commercial experts to discuss and explore current technology and trends. The Conference is not solely about academic research; in addition it showcases emerging sensor companies, and invites viewpoints from the world's leading medical device companies.

Join us in London in March - be part of the sensor community advancing applications in healthcare.

Keynote Speakers

Dr. Marc Bailey
Nokia

Dr. Thomas Keller
Glaxo Smith Kline

What other people think...

I think the program looks both strong and coherent
Prof. Martyn Boutelle
Imperial College
Dept. of Bioengineering

...looks like a big winner of a "world-class" conference. Diagnostic medicine has always been the most crucial, first-step in healthcare.
Mason Fackert
CVI Capital Holdings LLC
Concord MA, USA

Outstanding agenda Michael…
John Huggins
Executive Director
Berkeley Sensor & Actuator Center
CA, USA

Looks like a great program!
Dr. Hilary Himpler
New York, NY, USA

Digital Health

Driven by the ubiquitous smartphone technology, digital health is arguably the fastest growing application area for sensors in healthcare. Many hundreds of apps have been developed and are readily available, but the market has not yet rationalised those which make a worthwhile contribution to health and well being, from the trivial.

SiM14 Program in Digital Health

Chaired by: Prof. Chris Van Hoof, imec and the University of Leuven

Improving patient outcomes through digital health
Don Cowling, Proteus Digital Health

Towards smartphone-connected diagnostics for infectious diseases
Prof. Rachel McKendry, University College London

Practical applications of wearable sensors in clinical research: expectations and challenges
Prof. Michael Marschollek, Peter L. Reichertz Institute for Medical Informatics

Sensor adaptation for continuous in body and on body monitoring
Prof. Panaj Vadgama, Queen Mary, University of London

Printed sensors for the healthcare sector
Dr. Laura Lopez, CETEMMSA

Sensor development for medical applications: teaching old technology new tricks
Dr. Christopher Dawson, The Technology Partnership

Innovation Technology

Technological innovation in sensor development will lead to greater utilisation in medicine and healthcare. Miniaturisation, microfluidics, nanotechnology, and developments in electrochemical, optical and other sensing technologies are all rapidly advancing leading to lower cost, faster, and more diverse applications.

SiM14 Program in Innovation Technology

Chaired by: Dr. Danny O'Hare, Imperial College, London

Microengineered devices for biomedical research
Prof. Nancy Albritton, University of North Carolina

Designing nanomaterials for ultrasensitive biosensing
Prof. Molly Stevens, Imperial College, London

Droplet microfluidics: towards ultra-high throughput biological experimentation
Prof. Andrew deMello, ETH, Zurich

Multiplexed infectious disease testing- sound point-of-care diagnostics
Prof. Jonathan Cooper, University of Glasgow

Microprobe arrays for minimally invasive continuous glucose monitoring in dermal interstitial fluid
Dr. Sanjiv Sharma, Imperial College, London

Panel Discussion

Challenges of Continuous In-Vivo and Wearable Sensing

Each panel member will have 3-5 minutes to introduce a topic, which will then be thrown open for general discussion.

Chair
Dr. Michael Brand, Captum Capital

What does concentration in tissue mean?
Dr. Danny O'Hare, Imperial College London

What are the effects of sensor implantation on the tissue?
Prof. Martyn Boutelle, Imperial College London

How should you protect your sensor from tissue?
Prof. Pankaj Vadgama, Queen Mary, University of London

What is required to have validated your in vivo sensor?
Prof. Tony Cass, Imperial College London

What are the barriers to making your device wearable?
Prof. Chris Van Hoof, imec and the University of Leuven

Breath Analysis

Breath analysis is already an established medical diagnostic tool, and is-been used for example to monitor CO_2 during anesthesia and in ICUs. This ultimate non-invasive technology is capable of detecting biomarkers for a variety of metabolic and neo-plastic diseases through more sensitive detectors.

SiM14 Program in Breath Anaysis

Chaired by: Dr. Michael Pringle, Consultant

Sensor based breath analysis
Prof. Max Fleischer, Siemens Corporate Technology

Point of care diagnostics based on organic and printed electronics technologies
Prof. Tony Killard, University of the West of England

On the potential of ion mobility spectrometry for medical applications
Dr. Wolfgang Vautz, ISAS-e.v

Faims: a breathalyzer for disease
Billy Boyle, Owlstone

pH-active coated microcantilever electronic nose for breath analysis
Dr. Ruud Steenwelle, University of Twente

Emerging Companies

The established model for transferring new technology to the commercial world requires either licensing to an established company, or creating a new spin-out/spin-off company. These emerging companies need all the exposure they can obtain, and SiM14 is delighted to offer them a platform.

SiM14 Program for Emerging Companies

Chaired by: Dr. Stuart Hendry, Sphere Medical

Smart phone enabled acoustic biosensors
Dr. Dale Athey, OJ-Bio Ltd

Electrochemical detection of DNA at directly heated electrodes
Dr. Lars Kruger, Gensoric GmbH

Novel photonic chip based on non-invasive biosensor technology
Prof. Gin Jose, University of Leeds and Glucosense Diagnostics Ltd

Pont of Care Diagnostics

Although clinical laboratory medicine is alive and well, and is lilkely to be so into the foreseeable future, there is an unstoppable trend towards Point-of-Care diagnosis, in the hospital, moving tests to the OR and bedside, in the doctors office, and increasingly in the home.

SiM14 Program for Point of Care Diagnostics

Chaired by: Dr. Stuart Hendry, Sphere Medical

Affordable sensors to detect micro-organisms using reagentless and label-less impedance spectroscopy
Andrew Ward, University of Strathclyde

Point-of-Care testing of NO metabolites
Prof. M. Gabriela Almeida, Univeridade Nova de Lisboa

PCB-based technology incorporating µPCR and micromechanical bio-sensors in a lab-on-a-chip for medical diagnosis
Dr. Despina Moschou, NCSR "Demokritos" and University of Southampton

Delivering a portable, quantitative, rapid diagnostic system for point of care diagnostics
Courtney Nicholson, AgPlus Diagnostics Ltd

Poster Competition

Sponsored by:

Medical Research Council Technology

Conference delegates will be invited to judge the most innovative poster exhibits on display. The top four winners will each receive an award of £200.

SiM14 Poster Examples

Development of a CMOS-integrated tunneling magneto-resistance biosensor for lab-on-a-chip sepsis diagnostics
Dr. Moritz Eggeling, Austrian Institute of Technology

Zeolite Modified Metal Oxide Semiconductors for the Detection of Microbial Agents
Emma Newton, University College, London

Development of silicon nanowires (SiNWs)/gold nanoparticles (AuNPs)-modified electrode for oligonucleotide sequence of dengue virus detection
Prof. Nor Azah Yusof, University of Putra, Malaysia

Unique Volatile Signature of P53 and KRAS oncoghenes in lung cells
Dr. Orna Barash, Technion Israel Institute of Technology

Deadline for submission of poster abstracts: 28 February

The Cocktail Reception

Tuesday 25th March 6:00 pm to 8:30 pm
[Included in Conference Registration Fee]

The reception is the main social networking event at SiM14. It will take place in the areas used for the Exhibition and Poster Displays.

The Sensor Party of the Year

Featuring:

- Networking with your peers
- Beer, wine and:
  The Conference Cocktail
- Canapes and hors d'oeuvres
- Exhibition and Poster displays

Conference Cocktail:
The Classic Negroni

Recipe
Ice cubes
25 cl Gin
25 cl Campari
25 cl Sweet vermouth
Slice of orange

Method
Pour the booze over the ice. Add the slice of orange. Stir and serve. Repeat until you are happy.

Cocktail Reception at SiM13
Medicine Now Gallery
Wellcome Collection

Exhibitors


BIODOT


ELSEVIER


Knowledge
Transfer
Network
Electronics, Sensors
Photonics


HAMAMATSU
PHOTON IS OUR BUSINESS


MOBILE DIAGNOSTICS


OWLSTONE


Sensor100


UWE
BRISTOL
University of the
West of England

Still space for 3 more exhibitors
Contact:
Sim14@sensor100.com

Workshop

Thursday 27th March 10:00 am to 4:30 pm
Imperial College Department of Bioengineering

This is an optional extra to SiM14. Places are limited. Please express interest here. There may be a small additional charge to cover refreshments

Workshop: Starting and Growing a Sensor Company

This workshop will attempt to impart something of the experience of managing a start-up company. Leading experts will discuss:

- Legal structure
- Finding the money
- Protecting your IP
- Dealing with the MHRA and FDA
- People issues
- Being noticed in the crowd
- Strategies for growth
- Who's there to help
- Exit routes

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